

2016 University of the Virgin Islands Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

A new initiative at UVI to merge AES and CES under one administrative head (Dean and Director of Land Grant programs) has been approved by the UVI Board of Trustees. A committee of AES and CES faculty and staff was formed to develop a policy to act on this recommendation. It is planned for the merger and the new Dean & Director to be in place by that start of FY 18. After this all positions and programs in AES and CES will be evaluated to determine where joint appointments can be made to improve functionality and efficiency.

The work conducted by AES scientists is production oriented. The small size of AES and limited physical and fiscal resources limit our ability to expand into new research areas. One way of addressing this issue is developing collaborations with other departments and institutions. AES has continued to collaborate with the other insular land grant institutions to obtain funds for student support in AES labs. The Resident Instruction funds at UVI are used to support students who conduct research projects in AES labs and present their results at local, regional and national conferences. AES has undergone contraction to four research programs and 2.6 faculty FTE in order to deal with budget cuts and restrictions. The four programs in AES currently are Agronomy, Animal Science, Biotechnology & Agroforestry, and Horticulture & Aquaculture. The Director of AES has an 80/20 split between administration and research (Animal Science). The assistant Director has a 40/60 split between administration and research (Biotechnology & Agroforestry). The Agronomy faculty has an 80:20 split between research and extension. New joint appointments will be developed as we move forward.

The Agricultural Experiment Station supported a student to attend a summer internship at Palau Community College. This activity was supported by a grant from the US Department of Agriculture - National Institute of Food and Agriculture (USDA-NIFA) Resident Instruction in the Insular Areas program. In addition, eight students were mentored in AES labs while conducting research during 2016. The students worked in Animal Science, Biotechnology, and Aquaculture. Students were supported by funds received from a USDA-NIFA Resident Instruction in the Insular Areas grant. Funds from this grant were also used to support Research Day on the St Croix campus, which is an event that highlights faculty and student research from all colleges at UVI. Funds were used to promote the event, print the program and transport local public and private school students to the event on campus.

The Animal Science program mentored two undergraduate students with support from the USDA-NIFA Insular Grants Program for Resident Instruction, one undergrad student supported my MARC funds through the College of Science and Math, and one undergraduate student from Texas A&M -Kingsville supported by Hispanic Serving Institution funds. The students conducted work that was part of an ongoing multistate Hatch project (W-2173) and a research grant from the Resident Instruction program. One student conducted research on parasite burdens of ewes around parturition, two students evaluated grazing behavior of hair sheep, and two of the student participated in a study to evaluate stress and behavior in Senepol cattle after branding. The Research Specialist position in the program is still vacant which has led to other members of the team picking up the slack.

The Horticulture & Aquaculture worked with two UVI students supported by NIFA-Insular funds on projects involving okra production in a solar controlled automatic irrigation system and greenhouse cucumber production. The Aquaculture group hosted two international students from Egypt and Italy for four month to provide extensive training on aquaponic systems. An international faculty spent a two month sabbatical

working with the hydroponic program. Three five-day workshops were conducted which brought local, national and international people interested in learn and hands-on training in the aquaponic system. Two undergraduate UVI students were mentored and conducted research projects involving aquaponics. The Biotechnology program conducted on-farm research involving Pitaya trellis establishment through funding from Specialty Crops Block Grant (SCBG) administered by the VI Department of Agriculture. One farmer from St Thomas and three St Croix on-farm locations representing differing soils and altitudes were part of this project that also had CES participation. Three Pitaya varieties were planted at each farm location. A second SCBG again using on-farm locations studied the use of pre-emergent herbicides to control weeds during sweetpotato establishment. Weed control is a major factor in the crop that has potential of three cropping cycles a year. Three farmers and the Bureau of Corrections participated in this grant project. Two prebaccalaureate UVI students participated in the research with CES. The Biotechnology program collaborated with CES as coPD on a SCBG to investigate Downy Mildew resistance in cucumbers. This grant supported one undergraduate UVI student that was shared between programs on the cucumber project.

The Agronomy program conducted a two-day workshop on cover crops and sloped agriculture that was attended by 45 local residence involved in agriculture. A pasture establishment and grazing workshop was conducted with the state Department of Agriculture which served 60 attendees. Planted four different species of cover crops on three farms and held two cover crop field demonstrations were conducted. Provided technical services to the VI DOA for livestock pasture establishment following the 2015/2016 drought and planted improved guinea grass on six different farms to improve forage quantity and quality for livestock production. Completed the final year of my SARE Research and Education Grant that included cropping system research trials at UVI, Florida, and Puerto Rico.

The people of the U.S. Virgin Islands continue to have economic challenges due to high unemployment. The overall rate of unemployment in the territory in 2016 was 13% with the district of St. Croix having the highest level of 15%. As a result of this, the residents are desirous of developing new marketable skills and enhancing their skill levels. The Extension Service provided short courses, workshops, and demonstrations so that residents can acquire and improve their skills for future employment. The programs planned and executed by the Extension Service were designed to transform the lives of Virgin Islanders by addressing their high unemployment. A total of 14 short courses, 52 workshops, and 10 demonstrations were conducted for residents. The Extension Service co-sponsored two Agricultural Fairs on St. Thomas and St. Croix and a Mango Melee Festival. We broadcasted and appeared on 80 radio and TV shows and wrote 7 newspaper articles for the local media. The Cooperative Extension Service awarded a total of 671 certificates during this period.

The Virgin Islands Cooperative Extension Service reached most of its projected goals and objectives. Responses from our clientele indicated that the training initiatives, exhibits, workshops, short courses, and other outreach efforts positively impacted the life of Virgin Islands residents. Through these activities the CES staff engaged a total of 30,520 Virgin Islanders and awarded 671 certificates of program completion to clientele. This summary is grouped under the five national priorities of the National Institute of Food and Agriculture.

Goal 1: Global Food Security and Hunger

Programs under this initiative promote agriculture production and their improvement in the capacity to meet growing food demand in the Virgin Islands and the fight against hunger by addressing food security issues.

The small livestock and beef production program conducted workshops, demonstrations, and training in order to help farmers develop their pastures after the major drought they experienced in the 2015-2016 year. Producers were also given training in management of their flocks. Animal identification continued to be demonstrated to farmers to assist them in identifying all their animals for better management practices. We continue to assist them to achieve a successful breeding program. A recent survey conducted by the Department of Agriculture indicated that local livestock producers continued to increase their farm income by \$450.00. In collaboration with the Agricultural Experiment Station, six new and improved pastures were established; five on the island of St. Croix and one on the island of St. Thomas. This establishment has increased animal productivity and livestock producers farm income.

The Sustainable Agriculture Program conducted short courses, workshops, and demonstrations to inform producers of sustainable agricultural practices including composting, drip irrigation, and soil preparation. The demonstration gardens on both islands are frequented by farmers, visitors, and students to learn about agricultural practices. Approximately 240 people visited the garden on St. Croix and about 400 people visited the garden on St. Thomas. These gardens attract cruise ship visitors who come to learn about local herbs and sustainable garden practices.

The Urban Gardening Program conducted classes, workshops and demonstrations to educate and inform the public about how to create gardens, proper garden management, and low-cost efficient technology practices and principles in gardening. The local television station, PBS, continues to broadcast garden programs hosted by Cooperative Extension Service personnel to the general public on how to start, maintain, and harvest products from your garden. A total of 6,000 people increased their level of knowledge on the benefits of creating and maintaining a garden for themselves and their family. A survey conducted by PBS, showed that 80% experienced a savings of \$250.00 in their monthly household grocery bills as a result of producing some of their vegetable in their home gardens.

Urban Forestry Program continues to assist local residents in the proper maintenance and use of trees in public places. A tree care management workshop was held in both districts. This workshop provided knowledge including plant selection, planting, pruning and proper maintenance of trees. A total of 1,044 people took advantage of these workshops.

Goal 2: Climate Change

Projects under this goal generate knowledge to develop an agricultural system that maintains high productivity in the face of climatic changes. These programs assist the producers to plan for and make decisions to adapt to changing environment and sustain economic vitality.

The Natural Resource and Environmental Management Program facilitated the interaction of community groups and leaders to address resource conservation and management issues, pollution prevention and the establishment of an eco-tourism industry based on the incorporation of the Virgin Islands natural and cultural history and low-impact tourism concepts. The Water Quality Program continues to focus on transmitting information on water quality protection and household cistern water management. Workshops and demonstrations on the use of toxic household products were given to schools, corporate groups, government agencies and the general public. Cistern maintenance continues to be a top issue on the islands and during presentations cistern care and maintenance were presented. CES continues to promote the implementation of best management practices to protect water quality at coastal public parks, hotels, and large sub-divisions with intensive coastal and offshore resources.

Goal 4: Childhood Obesity

Program in this area ensures that nutritious foods are affordable and available and provide guidance so that individuals and families are able to informed, science-based decision about their health and well-being. The nutrition program developed culturally-sensitive nutrition and health related products and resources that were made available to professionals, students, and the general public. There have been positive indicators relative to improvement related to children and their families' awareness of the importance of healthy lifestyles in the prevention of childhood obesity. The Healthy Living Grant recruited and trained 136 teens and teachers and provided four healthy living lessons for 5,021 youth. Nutrition records indicate that there were positive outcomes that children acquire knowledge about healthy living and healthy lifestyle. Children gained knowledge on healthy eating and the importance of physical activity.

Goal 5: Food Safety

These programs work to reduce the incidence of food borne illness and provide a safer food supply by addressing and eliminating cause of microbial resistance to contaminants, educating consumers and food safety professionals and developing food processing techniques to improve safety. The food safety program focused its attention on the importance of safe handling and preparation by food vendors as well as educating low-income families about basic nutrition and behavior change practices. Basic safety information was disseminated through classes, demonstrations, experiential activities and lectures. The EFNEP program continues to target low-income, at-risk clientele and they were featured in a USDA publication. Low-income individuals enrolled in EFNEP were educated about the importance of proper hygiene, food storage and preparation, and food handling to prevent food borne illness. The food safety

program continues to evaluate the results of its activities which demonstrated that children receiving information continue to improve on their knowledge gained.

The other programs that were conducted during this period include 4-H Youth and Volunteer Development. This program continue to recruit and develop volunteers to lead and establish 4-H clubs in the community. Three community-based clubs and four school-based clubs were established on St. Croix and four school-based clubs and one special-based club was established on St. Thomas. A grant provided by the Water Resources Research Institute established a Water Ambassadors Club which operated in three schools and had 31 members. Twelve UVI students acted as mentors and received training on leadership styles, strategies and skills. As a result, they were expected and encourage to model and foster leadership in their respective clubs and programs. A total of 21 adults and 28 teen leaders provided leadership for twelve 4-H clubs and special interest groups on St. Croix. In collaboration with the military, 4-H received a 4-H Military Partnership Grant. Fifty-two youth were trained in team building and leadership skills. Fourteen youth were trained in STEM Program.

The Computer Training and Technology program continued to positively impact the Virgin Islands community by clientele utilizing the knowledge and skills gained from the computer classes. Clientele continue to take computer literacy classes to help them acquire new skills for job placement and to advance in their present career. A total of 217 graduated from the computer classes and received certificates to assist in future employment.

The Marketable Skills program continued to train people on the art of Batik making, clothing construction, and designing pillows, towels and other items for sale to the tourist industry. This program has taught skills which made the clientele sell Batik products, generating an average income of \$420 per person. Five new businesses were established during this producing Batik materials for local and tourism consumption. CES continued to establish professional linkages with other organizations in the Eastern Caribbean. Short courses, workshops, and training sessions were conducted for agricultural specialists, youth leaders and volunteers. To assist other producers in the Caribbean region, 150 layers and broilers were exported to St. Eustatius for breeding purposes, thereby increasing the quality of breeding animals on the island.

Total Actual Amount of professional FTEs/SYs for this State

| Year: 2016 | Extension | | Research | |
|------------|-----------|-------------------|----------|-------------------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 33.3 | {No Data Entered} | 9.7 | {No Data Entered} |
| Actual | 27.5 | 0.0 | 9.3 | 0.0 |

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Combined External and Internal University External Non-University Panel

2. Brief Explanation

The Agricultural Experiment Station (AES) uses internal reviewers from academic faculty and Cooperative Extension Service (CES) as well as external professionals from the VI Dept. of Agriculture to review Hatch proposals. The Agricultural Experiment Station (AES) has an advisory council of active farmers and stakeholders in the community that provide input on the research being conducted and ideas of areas to focus on to resolve agronomic challenges in the US Virgin Islands.

The Cooperative Extension Service (CES) programs that were developed by agents and specialists were sent to the state Program Leaders for their review, input, approval and were then submitted to the Associate Director for his input and budget allocation. After the Associate Director approved the programs,

they were sent to the State Director for his review and approval. The programs were then forwarded to the Vice Provost for Research and Public Service, the Provost, and the University's Office of Sponsored Programs for comments and approval. The programs that were accepted were then forwarded to the Extension Advisory Council for its input and approval. Approved programs were shared with specific Commissioners for their comments and inputs. The final programs were sent to the State Director for final approval and implementation.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups

Brief explanation.

AES stakeholder participation is encouraged through our advisory council and interaction at workshops, yearly agricultural fair and World Food Day activities. AES actively engages our stakeholders also through on-farm research projects.

CES encouraged participation by the general public by announcing all its public meetings, listening sessions and town hall meetings through the local radio stations, television stations, and two local newspapers. Information was also sent to the UVI Public Information Specialist for distribution to the general UVI community and the general public bulletin board. Invitations were also sent to various farmers' groups such as St. Croix Farmers Cooperative, We Grow Food Inc., and St. Croix Farmers in Action to encourage their members to participate in all extension programs and activities. Invitations were also sent to individuals who had attended any programs or activities conducted by CES or had contact with a specialist or agent, to participate in extension programs and activities. Volunteer groups, homemakers club, and other focus groups were sent special invitation to participate in extension program activities.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys
- Other ((Individual, direct contacts from the community))

Brief explanation.

Input was received from the CES Advisory Council and the Virgin Islands Farmers Cooperative. Input was also received from the Advisory Council of the Research and Public Service. A needs assessment was conducted on CES clientele. CES evaluated its programs by giving participants of all seminars, meetings, and workshops survey forms to complete. Farm and clientele visits were made to determine the impact of the programs and suggestions made by clientele, were recorded and used to make improvements in CES educational programs and activities. CES conducted listening sessions and public meetings that were used to upgrade programs. These listening sessions and program activities were advertised through local newspapers, the University's Research and Public Service Newsletter, and the local television and radio stations. An assessment was also conducted on CES programs to assess its value to its clientele and the general public. AES Advisory council was made up of members of the farming community who were selected based on their level of involvement and experience in a variety of areas of farming.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Survey specifically with non-traditional groups
- Meeting with invited selected individuals from the general public
- Other (Clients contact AES with specific requests)

Brief explanation.

CES collected information and recommendations from its stakeholders at the Advisory Council's meeting. The Research and Public Service Advisory Council also provided recommendations for CES. Surveys of CES stakeholders were conducted by program staff during CES programming to get stakeholders involvement in setting priorities and addressing emerging issues in the community. CES held two general public meetings where information was advertised on the local radio stations, televisions, and newspapers to ensure that the Virgin Islands population has an equal chance of recording their concerns. This enabled CES to upgrade its programs and ensure that community needs were met. AES used input from the Advisory Council and informal contact with community members to guide its research.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Action Plans
- To Set Priorities

Brief explanation.

AES uses stakeholder input to assist in designing research projects that benefit the farmers and local agricultural community. This input may result in on-farm trials to assist in resolving the local issue. Stakeholders' input was considered in the budget allocation of programs. Stakeholders' involvement helped CES in setting its priorities and addressing emerging issues in the community. During the year, CES strengthen its collaboration with the Virgin Islands Departments of Agriculture, Health, Labor, Education, Human Services, the Virgin Islands Housing Authority, and the Office of the Governor in addressing at-risk issues in the community. Stakeholders' input was also used in redirecting extension programs.

Brief Explanation of what you learned from your Stakeholders

CES stakeholders assisted the Extension Service in focusing on the needs of the community and also helped in focusing CES' activities on emerging issues. They enhanced CES programs and increased the number of participation in CES programs. AES scientists have been very responsive to our stakeholders and they have expressed how much they value the information we produce that they are able to incorporate into their agricultural operations.

IV. Expenditure Summary

| 1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS) | | | |
|--|-----------------------|-----------------|--------------------|
| Extension | | Research | |
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 1294083 | 0 | 1356634 | 0 |

| 2. Totaled Actual dollars from Planned Programs Inputs | | | | |
|---|--------------------------------|-----------------------|-----------------|--------------------|
| | Extension | | Research | |
| | Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| Actual Formula | 1294083 | 0 | 495153 | 0 |
| Actual Matching | 604793 | 0 | 243881 | 0 |
| Actual All Other | 207000 | 0 | 0 | 0 |
| Total Actual Expended | 2105876 | 0 | 739034 | 0 |

| 3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous | | | | |
|--|---|---|---|---|
| Carryover | 0 | 0 | 0 | 0 |

V. Planned Program Table of Content

| S. No. | PROGRAM NAME |
|--------|--|
| 1 | Global Food Security and Hunger: Small Livestock and Beef Production |
| 2 | Climate Change - Livestock production |
| 3 | Computer Training and Technology Program |
| 4 | Eastern Caribbean Extension Outreach and Interchange |
| 5 | Global Food Security and Hunger: Sustainable Agriculture |
| 6 | Global Food Security and Hunger: Urban Gardening |
| 7 | Global Food Security and Hunger: Biotechnology |
| 8 | Climate Change: Urban Forestry Program |
| 9 | Climate Change: Natural Resources and Environmental Management |
| 10 | Climate Change: Water Quality Program |
| 11 | Climate Change: Aquaculture |
| 12 | Marketable Skills for Limited Resource Families, Youth and Communities |
| 13 | Food Safety Education-EFNEP and EFNEP Youth |
| 14 | A Healthy, Well-Nourished Population |
| 15 | 4-H Youth and Volunteer Development |

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger: Small Livestock and Beef Production

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--|-----------------|-----------------|----------------|----------------|
| 301 | Reproductive Performance of Animals | 20% | | 5% | |
| 302 | Nutrient Utilization in Animals | 15% | | 0% | |
| 303 | Genetic Improvement of Animals | 0% | | 20% | |
| 306 | Environmental Stress in Animals | 0% | | 20% | |
| 307 | Animal Management Systems | 30% | | 35% | |
| 311 | Animal Diseases | 10% | | 0% | |
| 312 | External Parasites and Pests of Animals | 10% | | 10% | |
| 313 | Internal Parasites in Animals | 0% | | 10% | |
| 315 | Animal Welfare/Well-Being and Protection | 10% | | 0% | |
| 603 | Market Economics | 5% | | 0% | |
| | Total | 100% | | 100% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 1.5 | 0.0 | 1.6 | 0.0 |
| Actual Paid | 2.0 | 0.0 | 2.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 4.2 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 90000 | 0 | 143016 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 60000 | 0 | 70441 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 10000 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

- A "Buy Local, Eat Fresh" program was continued to further promote the purchase and consumption of locally produced animal products
- A parasite monitoring program was continued for all livestock farms to document parasite populations and concentrations, with data being used in tick control programs
- Test sites were set up and monitored for enhanced forage evaluation in pasture and drought conditions
- A program was continued to demonstrate to producers the health and financial advantages of proper and adequate housing for livestock
- Methods of nutrition evaluation were demonstrated to producers so that they can determine the effects of reproduction and performance
- Develop an information exchange between established and developing farmers through farm visits to see what can be done to improve management and protection
 - Broadcast regular radio programs focusing on different areas of livestock production
 - Research Activities:
 - Parasite burdens around parturition in hair sheep ewes were evaluated
 - Cattle data collection was hindered by the drought in 2015 which led to a very small calf crop in 2016 and insufficient animals to collect data on

2. Brief description of the target audience

- Virgin Islands livestock producers
- Virgin Islands consumers
- Virgin Islands youth
- School feeding program
- Senior citizens
- Livestock producers in the tropics, greater Caribbean, Central and South America and the southern US.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 600 | 1500 | 500 | 1200 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 1 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Workshops/demonstrations would be conducted on management, nutrition, housing, and identification of livestock.

| Year | Actual |
|------|--------|
| 2016 | 7 |

Output #2

Output Measure

- Pasture testing and demonstration sites would be set up for forage evaluation.

| Year | Actual |
|------|--------|
|------|--------|

2016 9

Output #3

Output Measure

- Farms would be visited for general evaluation of management techniques and counseling.

| Year | Actual |
|-------------|---------------|
| 2016 | 5 |

Output #4

Output Measure

- Farms would be visited for parasite monitoring and evaluation.

| Year | Actual |
|-------------|---------------|
| 2016 | 3 |

Output #5

Output Measure

- Farms would be visited to weigh animals to monitor performance.

| Year | Actual |
|-------------|---------------|
| 2016 | 0 |

Output #6

Output Measure

- Continue to implement a "Buy Local" campaign with local farmers for use by producers in the community.

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

Output #7

Output Measure

- Provide training to farmers in identification methods.

| Year | Actual |
|-------------|---------------|
| 2016 | 0 |

Output #8

Output Measure

- Number of farmers using late weaning of hair lambs

Not reporting on this Output for this Annual Report

Output #9

Output Measure

- Using tick burdens as a selection criteria in Senepol cattle

Not reporting on this Output for this Annual Report

Output #10

Output Measure

- Identifying traits of adapted livestock

Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Establish and/or monitor (5) sites annually to demonstrate the use of drought-resistant and nutritional forages for pastured livestock. |
| 2 | Decrease animal losses due to parasites and poor nutrition by 5%. |
| 3 | Increase the sales and consumption of locally produced livestock products such as meat and eggs by 5%. |
| 4 | Increase the number of livestock herds/flocks using complete identification and recordkeeping practices by 10% |
| 5 | Increase the number of pig farmers that are raising their livestock in recommended facilities by 5%. |
| 6 | Using tick burdens as a selection tool in Senepol cattle |
| 7 | Using late weaning to help control parasites |

Outcome #1

1. Outcome Measures

Establish and/or monitor (5) sites annually to demonstrate the use of drought-resistant and nutritional forages for pastured livestock.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 9 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farmers want more and improved pasture to combat drought conditions.

What has been done

Established 35 acres of Guinea grass (Mombasa variety) among 10 farmers.

Results

Better forage, higher nutrition, drought resistant variety

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---------------------------------|
| 302 | Nutrient Utilization in Animals |

Outcome #2

1. Outcome Measures

Decrease animal losses due to parasites and poor nutrition by 5%.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 10 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Extension staff and farmers because animals are in a healthier condition and fatter.

What has been done

Establishment of 30 acres of improved pasture among 10 farmers.

Results

Farmers are able to sell more animals.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|--|
| 301 | Reproductive Performance of Animals |
| 302 | Nutrient Utilization in Animals |
| 303 | Genetic Improvement of Animals |
| 306 | Environmental Stress in Animals |
| 307 | Animal Management Systems |
| 312 | External Parasites and Pests of Animals |
| 315 | Animal Welfare/Well-Being and Protection |

Outcome #3

1. Outcome Measures

Increase the sales and consumption of locally produced livestock products such as meat and eggs by 5%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 120 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

School children to improve nutrition.

What has been done

Established a poultry unit at the school.

Results

Eggs are produced locally by the school.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
| 603 | Market Economics |

Outcome #4

1. Outcome Measures

Increase the number of livestock herds/flocks using complete identification and recordkeeping practices by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
|-------------|---------------|

2016

6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The general public to identify roaming animals and for owners to keep proper records.

What has been done

Animals are being tagged.

Results

Animals are easily identified by their owners.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---------------------------|
| 307 | Animal Management Systems |

Outcome #5

1. Outcome Measures

Increase the number of pig farmers that are raising their livestock in recommended facilities by 5%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 1 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Public, farmers, and Extension staff.

What has been done

Concrete floor was built for piggery.

Results

Animals are healthier with less internal parasites.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 307 | Animal Management Systems |
| 315 | Animal Welfare/Well-Being and Protection |

Outcome #6

1. Outcome Measures

Using tick burdens as a selection tool in Senepol cattle

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Using late weaning to help control parasites

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 0 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Internal parasites are a major problem for small ruminant producers. Evaluating control methods will help minimize their impact and cost to producers.

What has been done

Hair sheep ewes were evaluated around the time of parturition, a critical time for parasite infestations, to determine internal parasite burdens in local breeds of resilient sheep.

Results

Parasite levels remained low in ewes before and after parturition, which is a common time for an increase in parasites due to the stress of parturition and lactation. This adds further evidence in support of the parasite resilient nature of local hair sheep breeds.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|-------------------------------------|
| 301 | Reproductive Performance of Animals |
| 306 | Environmental Stress in Animals |
| 307 | Animal Management Systems |
| 313 | Internal Parasites in Animals |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

A drought during 2015 severely impacted our ability to grow forage and resulted in a major decrease in production and reproduction in our cattle herd. Importing feed and hay was very costly and was still not enough to overcome the impact of the drought. Data collection on the cattle was not done due to insufficient numbers of calves produced in 2016 (only 10).

V(I). Planned Program (Evaluation Studies)

Evaluation Results

- Data on the sheep research was presented as part of the SCC 81 group in the southern region.
- Two presentations on hair sheep physiology were presented at an extension field day in Alabama.

Key Items of Evaluation

The parasite resilience of local hair sheep is noteworthy and will be valuable information to producers and scientists.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change - Livestock production

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---------------------------------|-----------------|-----------------|----------------|----------------|
| 305 | Animal Physiological Processes | 0% | | 50% | |
| 306 | Environmental Stress in Animals | 0% | | 50% | |
| | Total | 0% | | 100% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 1.6 | 0.0 |
| Actual Paid | 0.0 | 0.0 | 1.1 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 0 | 0 | 20479 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 0 | 0 | 10087 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

A study was conducted to evaluate behavior and stress in Senepol cattle in response to branding.

2. Brief description of the target audience

Target audience is livestock producers in areas of stress and collaborators on the multistate research project (W-3173).

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|--------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 0 | 0 | 0 | 0 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|--------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Abstracts presented at conferences

| | |
|-------------|---------------|
| Year | Actual |
| 2016 | 1 |

Output #2

Output Measure

- Student mentoring of a visiting student from an HSI (Texas A&M - Kingsville)

| Year | Actual |
|-------------|---------------|
| 2016 | 1 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Continued use of heat tolerant breeds in local livestock operations |

Outcome #1

1. Outcome Measures

Continued use of heat tolerant breeds in local livestock operations

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 0 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Stress in livestock can have negative impacts on production traits. Determining how animals respond to stress, and how to evaluate that response, can lead to better understanding of stress.

What has been done

The effect of branding on cortisol and behavior (pen score, chute score, exit velocity and flight distance) on young Senepol cattle was evaluated.

Results

Senepol cattle had minimal response to branding in cortisol concentrations. Behavior was not influenced by branding either. This further highlights the mild temperament of Senepol cattle, a trait the breed has selected for.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|--------------------------------|
| 305 | Animal Physiological Processes |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes

Brief Explanation

The drought impacted calf numbers and we were not able to do environmental stress studies.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Data was collected and analyzed for presentation at a conference in 2017.

Key Items of Evaluation

Senepol cattle have been selected for a mild temperament and this study provides more information supporting that based on behavior and physiology.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Computer Training and Technology Program

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--|-----------------|-----------------|----------------|----------------|
| 903 | Communication, Education, and Information Delivery | 100% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 1.6 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 3.0 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 170000 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 40010 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 20000 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Advertised the Computer Training and Technology Program. Conducted eight weeks Basic Computer Training Courses, teaching participants how to use Microsoft Windows, Microsoft Word, E-mail,

2016 University of the Virgin Islands Combined Research and Extension Annual Report of Accomplishments and Results
and search for information using the World Wide Web.

2. Brief description of the target audience

The audience consist mainly of computer illiterate adults in the USVI that are from low income households. Also members of the clothing construction and EFNEP classes.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 217 | 2800 | 80 | 1000 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Conduct a seven-week basic computer training course designed to increase the participants' knowledge and usage of computer in Basic Computer Maintenance, Microsoft Word, and E-mail/Internet.

Year **Actual**
2016 11

Output #2

Output Measure

- Conduct three-day workshops on Internet communication.

| Year | Actual |
|-------------|---------------|
| 2016 | 5 |

Output #3

Output Measure

- Conduct six-day workshops on Microsoft Excel

| Year | Actual |
|-------------|---------------|
| 2016 | 7 |

Output #4

Output Measure

- Conduct five-day workshops on Microsoft PowerPoint

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | Participants will acquire/increase their knowledge of Microsoft Window by 70%. |
| 2 | Participants will acquire/increase their knowledge of Microsoft Word by 70%. |
| 3 | Participants will acquire/increase their knowledge of E-mail by 70%. |
| 4 | Participants will acquire/increase their knowledge of the Internet by 70%. |
| 5 | Participants will acquire/increase their knowledge of Microsoft Excel by 70%. |
| 6 | Participants will acquire/increase their knowledge of Microsoft PowerPoint by 70%. |

Outcome #1

1. Outcome Measures

Participants will acquire/increase their knowledge of Microsoft Window by 70%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 128 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a large population of computer illiterate adults. Some of these individuals need to acquire these computer skills in order to get employment to better their household income and to take advantage of new technology.

What has been done

Ten of the UVI CES eight-weeks Basic Computer Training Courses were conducted. These classes taught how to use Microsoft Windows, Microsoft Word, E-mail, and search for information using the World Wide Web.

Results

Ninety-five (95) percent of individuals indicated that they acquire/increase their knowledge and usage of Microsoft Window.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 903 | Communication, Education, and Information Delivery |

Outcome #2

1. Outcome Measures

Participants will acquire/increase their knowledge of Microsoft Word by 70%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 128 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a large population that does not know how to use MS Word. Microsoft Word is the most widely used word processing software. By acquiring or increasing their skills in MS Word these individuals will be better equipped to seek employment or a promotion. They can also use MS Word in their day to day lives to make some tasks easier.

What has been done

Ten of the UVI CES eight-weeks Basic Computer Training Courses were conducted. The classes taught how to use Microsoft Word.

Results

Ninety-seven (97) percent of individuals indicated that they acquired/increased their knowledge and usage of Microsoft Word.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 903 | Communication, Education, and Information Delivery |

Outcome #3

1. Outcome Measures

Participants will acquire/increase their knowledge of E-mail by 70%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 128 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a large population that does not have and/or do not know how to use an e-mail account. Electronic mail, e-mail, is a very effective way to communicate. Using e-mail will save individuals time and money. Instead of waiting days to send documents, e-mail allows it be sent and received in a matter of minutes. It also does not cost an individual to send an e-mail.

What has been done

Ten of the UVI CES Basic Computer Training Courses were conducted. These classes taught how to use an e-mail account.

Results

Ninety-nine (99) percent of individuals who participated indicated that they acquired/increased their knowledge and usage of E-mail.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 903 | Communication, Education, and Information Delivery |

Outcome #4

1. Outcome Measures

Participants will acquire/increase their knowledge of the Internet by 70%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 172 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a large population that does not know how to use the Internet. The Internet offers a variety of benefits with the huge amount of information available making the Internet a valuable tool in an individual's life. Individuals also can perform a variety of task using the Internet such as shopping, banking and paying bills.

What has been done

Ten of the UVI CES Basic Computer Training Courses were conducted. These classes taught how to use the Internet. Also five Internet workshops were conducted.

Results

Ninety-five (95) percent of individuals who participated indicated that they acquired/increased their knowledge and usage of the Internet.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 903 | Communication, Education, and Information Delivery |

Outcome #5

1. Outcome Measures

Participants will acquire/increase their knowledge of Microsoft Excel by 70%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 58 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a large population that does not know how to use MS Excel. MS Excel is a very useful application when creating budgets, keeping track of loan payments, and a number of other useful mathematical calculations.

What has been done

Five workshops were conducted that focused solely on the uses of MS Excel.

Results

Ninety-seven (97) percent of the individuals that participated indicated that they acquired/increased their knowledge and usage of MS Excel.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 903 | Communication, Education, and Information Delivery |

Outcome #6

1. Outcome Measures

Participants will acquire/increase their knowledge of Microsoft PowerPoint by 70%.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 72 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a large population that does not know how to use the MS PowerPoint. MS PowerPoint is a very useful tool to give presentations and can also be used for learning within the classroom. Individuals who utilize PowerPoint are often more captivating and engaging with their audience versus an individual who uses standard note cards.

What has been done

Six workshops were conducted that focused solely on the uses of MS PowerPoint.

Results

Ninety-nine (99) percent of individuals who participated indicated that they acquired/increased their knowledge and usage of MS PowerPoint.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 903 | Communication, Education, and Information Delivery |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Eastern Caribbean Extension Outreach and Interchange

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--|-----------------|-----------------|----------------|----------------|
| 603 | Market Economics | 10% | | 0% | |
| 606 | International Trade and Development | 10% | | 0% | |
| 903 | Communication, Education, and Information Delivery | 80% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 1.2 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 1.2 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 90000 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 64673 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 5000 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Professional linkages will be established with other agricultural organizations in the Eastern Caribbean. Shortcourses, workshops, and training sessions will be conducted for agricultural specialists, youth leaders and volunteers. Extension specialists will provide consultations on food and nutrition programs, sustainable agriculture, horticulture, and livestock production and management. Breeding animals will be exchanged with other islands through the Breeders Exchange Program. A directory of individuals and institutions in agricultural research and development in the Eastern Caribbean will be expanded and updated. UVI/CES telecommunication systems for collaborative training with other regional institutions will be utilized to train extension specialists and agents. Proceedings, newsletters and other publications will be published for CFCS, CACHE, and CARAPA. CES will assist in the planning and execution of international and regional meetings for CFCS, CACHE, and CARAPA.

2. Brief description of the target audience

The target audience of this program will be extension specialists, extension agents, district supervisors, extension educators and research scientists in the Eastern Caribbean. Producers and farm operators will also be targeted for this program. Regional institutions, homemakers and youth will also be targeted.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 400 | 1000 | 200 | 750 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Agricultural linkages will be established with five organizations in the Eastern Caribbean countries.

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

Output #2

Output Measure

- International and regional workshops will be coordinated.

| Year | Actual |
|-------------|---------------|
| 2016 | 1 |

Output #3

Output Measure

- Proceedings, newsletters and other publications will be published for CFCS, CACHE, and CARAPA.

| Year | Actual |
|-------------|---------------|
| 2016 | 0 |

Output #4

Output Measure

- Update and expand directory of individuals and institutions in agricultural research in the Eastern Caribbean.

| Year | Actual |
|-------------|---------------|
| 2016 | 1 |

Output #5

Output Measure

- Animal breeding stock will be exchanged between countries in the Eastern Caribbean.

| Year | Actual |
|-------------|---------------|
| 2016 | 50 |

Output #6

Output Measure

- Extension specialists will provide consultation on sustainable agriculture, horticulture and livestock production and management.

| Year | Actual |
|-------------|---------------|
| 2016 | 3 |

Output #7

Output Measure

- Provide forum for training youth leaders and volunteers (amount of youth trained).

| Year | Actual |
|-------------|---------------|
| 2016 | 200 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Agricultural linkages established with regional organizations |
| 2 | International and regional workshops coordinated |
| 3 | Amount of animal breeding stock exported to Eastern Caribbean countries |
| 4 | Directory of individuals and institutions in agricultural research in the Eastern Caribbean |
| 5 | Proceedings, newsletters and other publications published for CFCS, CACHE, and CARAPA |

Outcome #1

1. Outcome Measures

Agricultural linkages established with regional organizations

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a need for agricultural scientists to network and share information on new research and technology.

What has been done

One regional conference was held for Caribbean Food Crop Society.

Results

Two hundred and fifty people exchanged ideas and networked.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 606 | International Trade and Development |
| 903 | Communication, Education, and Information Delivery |

Outcome #2

1. Outcome Measures

International and regional workshops coordinated

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 2 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

More international and regional workshops need to be conducted.

What has been done

One regional workshop was conducted.

Results

Participants gained a lot of knowledge and shared information.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|--|
| 606 | International Trade and Development |
| 903 | Communication, Education, and Information Delivery |

Outcome #3

1. Outcome Measures

Amount of animal breeding stock exported to Eastern Caribbean countries

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 150 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is very difficult to get breeding stock on some islands.

What has been done

One hundred breeding layers and fifty broiler chicks were exported to the island of St, Eustatius.

Results

These breeding animals were distributed to producers for genetic improvement.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|-------------------------------------|
| 603 | Market Economics |
| 606 | International Trade and Development |

Outcome #4

1. Outcome Measures

Directory of individuals and institutions in agricultural research in the Eastern Caribbean

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 1 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agriculture scientists and researchers need an avenue for scientific exchange.

What has been done

Directory of agricultural scientists and researchers were updated.

Results

Directory available for scientists and researchers.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 903 | Communication, Education, and Information Delivery |

Outcome #5

1. Outcome Measures

Proceedings, newsletters and other publications published for CFCS, CACHE, and CARAPA

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes

Brief Explanation

- Natural Disasters (drought, weather extremes etc.
- Economy
- Appropriations changes

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Global Food Security and Hunger: Sustainable Agriculture

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--|-----------------|-----------------|----------------|----------------|
| 101 | Appraisal of Soil Resources | 0% | | 10% | |
| 111 | Conservation and Efficient Use of Water | 20% | | 0% | |
| 204 | Plant Product Quality and Utility (Preharvest) | 0% | | 30% | |
| 205 | Plant Management Systems | 20% | | 40% | |
| 307 | Animal Management Systems | 20% | | 20% | |
| 403 | Waste Disposal, Recycling, and Reuse | 20% | | 0% | |
| 601 | Economics of Agricultural Production and Farm Management | 20% | | 0% | |
| | Total | 100% | | 100% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 3.6 | 0.0 | 6.0 | 0.0 |
| Actual Paid | 4.1 | 0.0 | 1.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 170000 | 0 | 91902 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 60000 | 0 | 45265 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 20000 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

1. Shortcourses, workshops, and demonstrations were conducted to disseminate information about recommended, research-based sustainable production practices, including composting, drip irrigation, etc. Approximately (10) shortcourses and other training programs and demonstrations (fairs and exhibitions) were conducted to disseminate information about recommended, research-based sustainable production practices. Topics included composting, drought monitoring, climate change, drip irrigation, Contour farming, cover crop establishment, record keeping, best management practices in crop and livestock production, cooperative business enterprise development, etc.

2. Although no publication (e.g. fact sheets and newsletters) were developed, several (approximately 8) educational handouts and Power point presentation were duplicated and disseminated to the farming clientele. Topic included drip irrigation, composting, record keeping and the cooperative business model.

3. Announcements were made through the print and electronic media to promote educational activities and disseminate information about sustainable agricultural practices. All outreach activities about sustainable agricultural practices were promoted utilizing multiple mean of information dissemination, including the print and electronic media as well as social media.

4. Farm visits and telephone contacts will be made to address clientele problems and to disseminate information about the program. Approximately 35 farm visits and 120 telephone contacts and office visits were made to address the needs of the CES clientele.

5. Workshops and other projects will be conducted in partnership with other entities to implement strategies to increase farm water supply and enhance the efficient use of this resource.

2. Brief description of the target audience

The program's greater audience consists of crop and livestock farmers in the tropics, the Caribbean and Southern USA. The programs outreach target audience were primary to professionals from government and academic institutions, students, and young adults who aspire to be farmers and farmers who are typically socially disadvantaged, limited resource individuals who lack the necessary technical training, technological tools, and infrastructure for optimum farm production.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 330 | 150 | 350 | 800 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 3 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of shortcourses, workshops, demonstrations, annual fairs and exhibits

| Year | Actual |
|------|--------|
| 2016 | 16 |

Output #2

Output Measure

- Number of publications

| Year | Actual |
|------|--------|
| 2016 | 11 |

Output #3

Output Measure

- Number of announcements through print and electronic media

| Year | Actual |
|-------------|---------------|
| 2016 | 30 |

Output #4

Output Measure

- Number of farm visits and telephone contacts

| Year | Actual |
|-------------|---------------|
| 2016 | 165 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | Increase the number of farmers who become more aware of sustainable agriculture practices by 5% |
| 2 | Increase the number of farmers who become more aware of value-added strategies to increase farm profitability by 10% |
| 3 | Increase the number of farmers who increase or enhance their knowledge of recordkeeping practices by 10% |

Outcome #1

1. Outcome Measures

Increase the number of farmers who become more aware of sustainable agriculture practices by 5%

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 12 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Tropical smallholder farmers that operate under low external input conditions often have integrated agricultural systems that include different combinations of agronomic, horticultural, and livestock interests. Agroecosystems that include cover crop technologies are complex and in need of further study. Cover crops are crops planted during fallow periods in between cash crop rotations to provide a variety of ecosystem services and conservation measures. Ecosystem services and conservation measures include providing primary soil cover to reduce soil erosion, serve to increase soil quality, increase soil water holding capacity, increase biodiversity, and provide alternative pest management to decrease pest populations in subsequent crop rotations. Sunn hemp (*Crotalaria juncea* L.; [SH]) is an important warm season cover crop that has the potential to provide ecosystem services and cover crop legacy effects to subsequent vegetable crop rotations. Farmers rely heavily upon mechanized soil disturbance and hand labor for weed control. Tropical small holder farmers have little incentive to reduce tillage events and minimize soil disturbance when faced with extreme weed pressure. One alternative conservation management strategy is to terminate SH with a roller-crimper and utilize the SH residue to form a dense weed suppressive mulch layer in which vegetables may be grown via no-till planting. Adoption of this practice by farmers could reduce soil disturbance, provide extended weed suppression, and increase the soil quality and functionality.

What has been done

Monocultures of sunn hemp were planted in two fields as a cover crop in October 2015. In January 2016 the SH cover crop was terminated using a roller-crimper. Experiments were conducted to further develop the use of SH as a cover crop to produce surface mulch (grown in-situ) in vegetable cropping systems to reduce herbicide reliance in conventional cropping systems and to provide alternative weed suppression strategies in organic cropping systems. Trials began with the establishment of sunn hemp (*Crotalaria juncea* L.) in all experimental areas 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

Results

Above-ground biomass of sunn hemp at termination did not differ between fields; and measured 3,717 kg ha⁻¹ in field 1 and 4,367 kg ha⁻¹ in field 2. In-bed weed suppression at three weeks after pepper transplant (WAT) was greatest for SHM+fabric, followed by SHM+hay, and lowest for SHM and SH+none treatments. At six WAT, SHM+fabric provided the greatest weed suppression with similar results for the remaining three treatments in field 1. In Field 2, SHM+fabric suppressed weeds as well as SH+none and SHM+hay. A similar trend was observed at nine WAT for both fields as described for field 1. Low frequency weeding at three-week intervals was generally as effective as weekly weed removal resulting in similar pepper yields. Overall, the SHM+fabric and SHM+hay treatments had the greatest Jalapeno yields with no differences between the SHM and SH+none treatments. Serrano pepper yields were greatest in the SHM+fabric, SHM+hay, and SH+none treatments; with the lowest yields recorded in the SHM treatment.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 101 | Appraisal of Soil Resources |
| 204 | Plant Product Quality and Utility (Preharvest) |
| 205 | Plant Management Systems |
| 307 | Animal Management Systems |
| 601 | Economics of Agricultural Production and Farm Management |

Outcome #2

1. Outcome Measures

Increase the number of farmers who become more aware of value-added strategies to increase farm profitability by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 5 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A limited number of producers are aware of the value and potential of value added agricultural practices.

What has been done

This need was addressed mainly through educational activities at food fairs and exhibitions during with demonstrations were conducted and written information disseminated.

Results

A total of 200 benefited from the planned outreach activities.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 111 | Conservation and Efficient Use of Water |
| 205 | Plant Management Systems |
| 307 | Animal Management Systems |
| 601 | Economics of Agricultural Production and Farm Management |

Outcome #3

1. Outcome Measures

Increase the number of farmers who increase or enhance their knowledge of recordkeeping practices by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 8 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Farmers are in need of knowledge and skills regarding the 'business of farming'. This need included knowledge of record keeping, farm financial planning, etc.

What has been done

Two training sessions were conducted regarding the cooperative business model which included strategies to improve farm record keeping skills. In addition, weekly sessions were held with a focus group of producers to discuss and disseminate information on this topic.

Results

As a result of the training activities, 180 farmers increased their knowledge and skills regarding record keeping.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--|
| 205 | Plant Management Systems |
| 307 | Animal Management Systems |
| 601 | Economics of Agricultural Production and Farm Management |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

The island continued recovery from the severe drought of 2015 that was. Drought again occurred which limited the establishment of cover crops and the need to reseed. The University's reduction in local funding negatively impacted the purchase of resources and limited inter-island travel.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Amount of participation in workshops and fields days. Topics covered in the workshops were of great interest to local crop and livestock farmers who took advantage of these workshops and field days to see and learn techniques to better manage their farms. Evaluation results showed an overall increase in knowledge and awareness of targeted subject areas.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Global Food Security and Hunger: Urban Gardening

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--------------------------------------|-----------------|-----------------|----------------|----------------|
| 202 | Plant Genetic Resources | 95% | | 40% | |
| 205 | Plant Management Systems | 5% | | 50% | |
| 403 | Waste Disposal, Recycling, and Reuse | 0% | | 10% | |
| | Total | 100% | | 100% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 1.2 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 2.2 | 0.0 | 2.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.6 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 100000 | 0 | 86187 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 50000 | 0 | 42450 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Educational classes, workshops, seminars
 Development of publications, resource materials, curriculum guides
 Conducting field days, field demonstrations, exhibits and tours
 One-on-one counseling
 On-site visits
 Use of electronic and social media
 Website development
 Evaluated the use of solar-powered sensor-based irrigation in okra and bell pepper production

2. Brief description of the target audience

- Home owners
- Horticultural Organizations
- Public Housing Residents
- Senior citizens homes
- School teachers
- Policy Makers
- Master Gardeners Candidates
- Youth groups

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 300 | 355 | 650 | 1000 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 2 | 2 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational classes to help residents to plan and create a garden

| Year | Actual |
|-------------|---------------|
| 2016 | 17 |

Output #2

Output Measure

- Number of workshops/demonstrations using low cost, efficient, technologies, practices and principles in gardening

| Year | Actual |
|-------------|---------------|
| 2016 | 12 |

Output #3

Output Measure

- Number of educational classes in the benefits of proper gardening

| Year | Actual |
|-------------|---------------|
| 2016 | 17 |

Output #4

Output Measure

- Number of consultations with residents, public and private agencies, about gardening

| Year | Actual |
|-------------|---------------|
| 2016 | 325 |

Output #5

Output Measure

- Number of articles/publications on urban gardening management

| Year | Actual |
|-------------|---------------|
| 2016 | 0 |

Output #6

Output Measure

- Number of fairs and exhibits displaying best management practices and other information pertaining to the Urban Gardening program

| Year | Actual |
|-------------|---------------|
|-------------|---------------|

2016 5

Output #7

Output Measure

- Number of print, electronic, and social media appearances/programs promoting urban gardening

| Year | Actual |
|-------------|---------------|
| 2016 | 50 |

Output #8

Output Measure

- Number of demonstration sites developed using urban gardening principles and practices

| Year | Actual |
|-------------|---------------|
| 2016 | 8 |

Output #9

Output Measure

- Number of public and private entities and individuals establishing gardens

| Year | Actual |
|-------------|---------------|
| 2016 | 20 |

Output #10

Output Measure

- Number of residents, non-profit organizations, and public and private entities becoming more aware of the benefits of composting.

| Year | Actual |
|-------------|---------------|
| 2016 | 7000 |

Output #11

Output Measure

- Increase the knowledge of solar sensor-based microirrigation

| Year | Actual |
|-------------|---------------|
| 2016 | 12 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | Increase the number of residents who will become more aware of the benefits of gardening by 10% |
| 2 | Increase the number of residents, who increase their knowledge of more efficient low cost technologies, practices, and principles by 10% |
| 3 | Increase the number of home gardeners who realize a reduction in their cost of living resulting from urban gardening by 10% |
| 4 | Increase the number of residents, public and private agencies who will establish gardens by 10% |
| 5 | Increase the number of residents, public and private agencies who start composting by 5% |

Outcome #1

1. Outcome Measures

Increase the number of residents who will become more aware of the benefits of gardening by 10%

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 17 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Urban gardening involved backyard gardeners, small scale farmers and limited space/container gardening. These stakeholders are interested in growing their own food to increase nutritious food for themselves and family. These stakeholders also want fresh quality produce.

What has been done

Solar microcontrollers with soil moisture sensors have been evaluated for regulating water usage for production of okra, bell peppers and cucumbers. Variety trials were included in these studies to determine the most productive and pest resistant vegetable varieties to be grown under the backyard and small scale environment.

Results

Solar microcontrollers have potential to regulate irrigation but the soil moisture sensors have not the reliability for consistent accurate input. This results in under or over irrigation of areas controlled by the soil moisture sensor that regulates when water is applied. Bell peppers, okra and cucumbers are highly prized vegetables for fresh use. Small variability for production was found between okra varieties if picked on a two or three day basis and production can last for two months. Viruses were a factor in bell pepper trials and no variety was found to significantly outperform.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--------------------------|
| 202 | Plant Genetic Resources |
| 205 | Plant Management Systems |

Outcome #2

1. Outcome Measures

Increase the number of residents, who increase their knowledge of more efficient low cost technologies, practices, and principles by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 8 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a lack of knowledge among many residents regarding the most cost efficient and energy efficient practices regarding crop and urban gardening production.

What has been done

In response to this need numerous workshops, demonstrations, and site visits were conducted at schools and residences.

Results

As a result of these efforts approximately 1000 residents increased their knowledge.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--------------------------|
| 205 | Plant Management Systems |

Outcome #3

1. Outcome Measures

Increase the number of home gardeners who realize a reduction in their cost of living resulting from urban gardening by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 8 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Residents have expressed an increased interest in establishing home gardens to enhance their health and well being in addition to reducing their food costs.

What has been done

In response to this need numerous private and community gardening demonstrations were initiated and school and home visits were conducted.

Results

An estimated 200 residents have actually expressed grocery cost savings as a result of their home gardening endeavors.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|--------------------------|
| 205 | Plant Management Systems |

Outcome #4

1. Outcome Measures

Increase the number of residents, public and private agencies who will establish gardens by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
|------|--------|

2016 20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many residents and private sector individuals are interested in establishing urban gardens example to other individuals and entities in the community as well as for health and cost savings.

What has been done

As a result of this need, the CES outreach staff have conducted many demonstrations, site visits to residential private and public entity locations. Individuals were also given tours of the CES.

Results

As a result of the CES educational efforts an estimated 150 urban gardens were establishes among individual residents, housing communities and private entities.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|--------------------------|
| 205 | Plant Management Systems |

Outcome #5

1. Outcome Measures

Increase the number of residents, public and private agencies who start composting by 5%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 7 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

An increased number of residents are interested in learning about the art and science of composting to reduce the burden on the current landfills , produce a no-cost soil amendment, and contribute to a more environmentally friendly Virgin Islands.

What has been done

In response to this need several workshops and demonstrations were conducted in addition to a television ad which was aired and viewed numerous times.

Results

As a result of the outreach efforts an estimated 500 persons in the private and public sectors have begun to practice composting.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--------------------------------------|
| 403 | Waste Disposal, Recycling, and Reuse |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Economic conditions on island has renewed interest in gardening and local production.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Number of gardeners using microirrigation and applying production techniques developed for okra, cucumber and bell peppers.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Global Food Security and Hunger: Biotechnology

- Reporting on this Program
Reason for not reporting
{No Data Entered}

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--------------------------|-----------------|-----------------|----------------|----------------|
| 202 | Plant Genetic Resources | 0% | | 50% | |
| 205 | Plant Management Systems | 0% | | 50% | |
| | Total | 0% | | 100% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-------------------|-------------------|-------------------|-------------------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual Paid | 0.0 | 0.0 | 2.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 0 | 0 | 82226 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 0 | 0 | 40499 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Evaluate the use of iron and zinc on papaya production in high pH calcareous soils.
 Use plant breeding to develop weevil tolerant purple-flesh sweetpotato

2. Brief description of the target audience

Small-scale farmers and backyard gardeners with limited resources and disadvantaged.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 35 | 12 | 7 | 0 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 4 | 4 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Abstracts and presentations locally and at conferences

| Year | Actual |
|------|--------|
| 2016 | 4 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Increase the knowledge of growers on the use of micro nutrients for papaya and new sweetpotato lines. |

Outcome #1

1. Outcome Measures

Increase the knowledge of growers on the use of micro nutrients for papaya and new sweetpotato lines.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 7 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Seasonal fruits and vegetables limit the availability of nutritious fruits and vegetables. Most of the island of St Croix has high pH calcareous soils that limit the fruits and vegetables able to be grown. Fruits and vegetables need to be evaluated that are productive year-round in these soils. Sweetpotatoes tolerate high pH soils but are plagued by weevils.

What has been done

Papaya is a fruit bearing tree with year-round production and tolerant to high pH soils but often has micronutrient. Chelated iron and zinc were evaluated in fertigation trials of papaya to study their influence on plant growth and production.

Reciprocal crosses were made between weevil resistant white fleshed and susceptible purple fleshed varieties to evaluate tuberous resistance to weevils, production and quality. From the crosses 180 seedlings were obtained and evaluated over four production cycles.

Results

Papaya benefitted from the use of FeEDDHA chelated iron on calcareous soils by increasing fruit production and quality. No significant difference was found when zinc was incorporated in the fertigation system.

A great diversity results when crossing the hexaploid sweetpotato. After two round of evaluation, 120 seedlings were eliminated. Following two more cycles of the 60 selected sweetpotato seedlings, 9 remain for further evaluation. These lines have either purple or white flesh, average 4 or more marketable tuberous roots, have weevil tolerance and good eating quality.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|--------------------------|
| 202 | Plant Genetic Resources |
| 205 | Plant Management Systems |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations
- Competing Public priorities

Brief Explanation

The US Virgin Islands experiences seasonal drought and hurricane potential rainy season that can be devastating to farmers and backyard growers. Sweetpotato is a low input crop that tolerates drought and hurricanes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

FeEDDHA chelated iron provides a benefit to papaya production on calcareous soils while supplemental zinc had appreciable benefit to papaya growth and production. Large numbers of sweetpotato seedlings need to be evaluated to obtain line better than what is currently on the market.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Climate Change: Urban Forestry Program

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---|-----------------|-----------------|----------------|----------------|
| 123 | Management and Sustainability of Forest Resources | 20% | | 0% | |
| 124 | Urban Forestry | 80% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.7 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 1.3 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 60000 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 50000 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Partnerships were established and strengthened with public and private agencies, and community leaders and groups to provide education, information, and technical advice to the general population. This was achieved through the use of publications, seminars, mass media, field days and exhibits as well as personal contacts.

2. Brief description of the target audience

The targeted audience was public and private landowners and agencies, community leaders and organizations, youth groups, and civic organizations.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|--------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 1044 | 4750 | 280 | 650 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|--------|-----------|----------|-------|
| Actual | 1 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational classes on the benefits of tree.

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

Output #2

Output Measure

- Number of workshops/demonstrations on tree care including pruning, planting, selection etc.

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #3

Output Measure

- Number of one-on-one consultation with residents about tree care.

| Year | Actual |
|-------------|---------------|
| 2016 | 64 |

Output #4

Output Measure

- Number of fairs and exhibits displaying best management practices and other information pertaining to the Urban Forestry

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | Increase the number of homeowners, landowners, policy makers who become more aware of the potential economic, social, and environmental contributions of the urban and suburban forest by 10% |
| 2 | Increase the number of homeowners, residents and landowners, public and private agencies, and nonprofit organizations who increase their knowledge of the care and management of the urban forest by 10% |
| 3 | Increase the number of landowners, public agencies and residents who plant trees properly in the urban and suburban forest by 10% |

Outcome #1

1. Outcome Measures

Increase the number of homeowners, landowners, policy makers who become more aware of the potential economic, social, and environmental contributions of the urban and suburban forest by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 955 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As urban expansion continues to reduce forested areas in the Virgin Islands the need for educating the public regarding the role of trees in the environment and particularly in urban communities is becoming more important. The VI economy is experiencing an economic downturn and some residents continue looking for opportunities to supplement their income. Trees and parts of trees (trunks, stems and branches) that can be made into money-making art pieces are still being sent to the landfill to be destroyed. Educating our young people is strategic to ensuring that the next generation can be involved in the management of trees in urban and other forest communities.

What has been done

Extension staff set up displays and provided one-on-one consultations with attendees at both the Agriculture and Food Fair of the Virgin Islands and the St. Thomas/St. John Agriculture and Food Fair. Other activities included Arbor Day and Earth Day events.

The 10th annual Virgin Islands' Woodworkers' Expo was held on St. Thomas, at the Ramada Hatch Haven Grand on December 11-13, 2015 and at the Star Fish Market December 18-20, 2015 on St. John. The Expo featured works by the finest woodworkers from St. Thomas and St. John. It offered the opportunity to view and purchase the exquisite quality work of some of the finest woodworkers in the Virgin Islands. Attendees purchased products and benefited from demonstrations conducted by master woodworkers.

CES responded to requests from Territorial Park Managers to help develop a training program for field guides who would conduct Magens Bay Arboretum tours and provided information for tree labeling projects at Magens Bay and Smith Bay Park. CES identified roadside urban trees where VI government road expansion was planned on St. Thomas.

Composting workshops and demonstrations were conducted for agriculture professionals and the general public. The emphasis was on what can be composted, the composting process and the benefits of using compost.

Results

Through personal contact and anecdotal information a majority of the persons who attended our educational activities reported that they became more aware of the economic and environmental benefits of trees. Approximately 400 attendees at the agriculture fairs and other learned of the economic potential for products from tree and tree parts. Woodworkers representing the St. Thomas/St. John District participated in the Woodworker Expo which drew approximately 200 persons to the events. The attendees became more aware of the economic potential of recycling forest products. Attendees at the composting workshops increased their knowledge about composting and the benefits of using compost.

CES worked with the VI State Historic Preservation Office (VISHPO) and the U. of Alabama's Archaeological Dept. to develop a plan for a Magens Bay Arboretum field guide training program that includes site research by the Univ. of Alabama Extension Service and the creation of educational interpretive outdoor displays featuring the area's trees and cultural resources. The Magens Bay Authority decided to set aside funding for a VISHPO project proposal developed by Univ. of Alabama Extension Service. CES recommendations regarding preservation of urban trees were incorporated into a plan for road expansion on St. Thomas. Over 150 UVI students were required to utilize the UVI Demonstration Garden for class assignments. UVI students incorporated information learned about urban trees on CES tours into class projects (incl. campus tree labeling and research).

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 123 | Management and Sustainability of Forest Resources |

Outcome #2

1. Outcome Measures

Increase the number of homeowners, residents and landowners, public and private agencies, and nonprofit organizations who increase their knowledge of the care and management of the urban forest by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 570 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Proper pruning and management of trees along with planting the right tree in the right place reduces the likelihood of trees coming into contact with utility lines and buildings. It also reduces the incidences of other conflicts involving trees. Correcting these problems can be costly, not only to the government and property owners but could also result in actions that can be detrimental to the trees. Homeowners, businesses, and organizations who plant trees for symbolic, therapeutic, environmental, and others reasons should care about appropriate tree care and management. Proper planting of trees ensures a good establishment of the tree and increases the likelihood of the root system adapting favorably to the soil environment in which it is growing.

What has been done

The annual Agriculture and Food Fairs of the Virgin Islands provided CES the opportunity to impact a large clientele over a two-day and three-day period in a concentrated effort. Extension staff provided literature and conducted one-on-one consultation with attendees on the subject of caring for trees and planting the right trees in the right places.

Home visits and one-on-one contact with residents, and public and private landscape crews continued to be used as a method to provide them with current tree management information. Radio appearances have also been used to provide general information to a broad audience. On-site visits provided additional opportunities for hands-on practical demonstration and providing information.

Staff participated in meetings, as members of the VI Urban & Community Forestry Council, Inc., with VI legislators and discussed the "Community and Heritage Tree law of the Virgin Islands."

An arborist training was conducted in both Districts for arboriculture/agriculture professionals and other interested persons. The topics covered included plant nursery establishment and maintenance, plant selection, and general landscape management best practices.

Results

Two articles were published in the VI Urban & Community Forestry Council, Inc. Newsletter. The Bill related to the Community and Heritage Tree law of the Virgin Islands is being considered by the legislature. Staff attended the Urban Forestry Conference in Puerto Rico. Staff participated in four urban forestry projects (2 on St. Croix, and two on St. John). The projects on St. Croix had a total of 110 participants and the projects on St. John had a total of 25 participants.

Seventy persons - including staff of the University of the Virgin Islands, the VI Department of Agriculture, certified arborists and other arboriculture/forestry professionals attended CES sponsored arborist training activities.

Approximately four hundred (400) individuals were directly impacted and thousands more indirectly by displays and interaction with Extension staff at the annual agriculture fairs. Many

other persons benefited from home visits and one-on-one consultations.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 123 | Management and Sustainability of Forest Resources |
| 124 | Urban Forestry |

Outcome #3

1. Outcome Measures

Increase the number of landowners, public agencies and residents who plant trees properly in the urban and suburban forest by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 570 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Elected and other public officials, arborists, forestry professionals, landscape architects, public planners and residents should all be concerned and care about planting trees in the urban and suburban forests. They should all recognize the importance of trees and other vegetation for improving communities through the social, economic and ecological benefits especially in this era of climate change.

What has been done

During informal meetings in offices, classrooms, and on sites, CES provided technical information about conserving and incorporating native and non-invasive exotic plants in public landscapes to government personnel, new business operators, engineers-architects-contractors, students/faculty, and the general public. CES helped UVI faculty and students select and plant native trees featured in a St. Thomas campus demonstration garden used for class instruction. CES conducted urban tree tours for UVI students and CES summer camps. National Arbor Day was celebrated with tree planting activities at elementary schools.

Results

About 100 persons participated in the National Arbor Day activities, including teachers, students and parents. Over 150 UVI students were required to utilize the UVI Demonstration Garden for

class assignments. UVI students incorporated information learned about urban trees on CES tours into class projects (including campus tree labeling and research).

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 123 | Management and Sustainability of Forest Resources |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Government Regulations
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

UVI-CES budget cuts and staff reductions continue to create challenges in program delivery. Elected officials have been working on tree laws for Virgin Islands for a very long time and still have not revised the existing ordinances. Turnover is high in some VI Government agencies and among elected officials. It is difficult at times to establish effective long-term relationships that can result in policy changes or effective training. Political pressures can impede enforcement and the development of new regulatory policies. However, CES maintains some long-term partnerships with individuals in VI environmental regulatory agencies resulting in client referrals and shared resource management initiatives.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Clients responded favorably to the informal evaluation methods used by CES, especially in-person, one-on-one conversations. Attendees verbally indicated interest in, endorsement of, and benefits derived from presentations and other information shared.

Key Items of Evaluation

All key items of evaluation were used.

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Climate Change: Natural Resources and Environmental Management

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---|-----------------|-----------------|----------------|----------------|
| 112 | Watershed Protection and Management | 35% | | 0% | |
| 123 | Management and Sustainability of Forest Resources | 35% | | 0% | |
| 134 | Outdoor Recreation | 20% | | 0% | |
| 136 | Conservation of Biological Diversity | 10% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 1.4 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 2.8 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|-----------------------|-----------------------|-----------------------|-----------------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 135000 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 50000 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Continue participation with the development and implementation of environmental management, habit protection and restoration plans for territorial parks and recreation areas.
 - Continue participation with the development and implementation of environmental management master plans for Magens Bay, Estate Adventure Trail, and Great Pond Park recreation areas and a Magens Bay watershed advisory committee. Habitat protection and restoration plans/procedures will also be used to restore and/or protect other critical habitats, areas of particular concern in the territory, and areas designated as part of the VI Territorial Park initiative established by the Legislature of the VI in 2004.
- Develop resource conservation education outreach materials to engage the islands' growing immigrant populations and disseminate materials and information utilizing an innovative approach that incorporates and builds upon indigenous knowledge and practices.
- Develop websites, educational materials, workshops, presentations and demonstrations (informal learning sites) that relay information regarding native plants, ecosystems and habitats; naturalized, exotic, endangered and threatened plant species; urban forestry and other resource conservation issues.
- Utilize the media to promote Natural Resources programs through various methods, including, but not limited to, radio and television PSAs, television video spots, E-education, local talk shows (radio & TV), and presentations.
- Identify and/or develop technical materials related to resource conservation; pollution control practices; and native, medicinal, naturalized, exotic, endangered and threatened plant species for use by researchers, policy-makers and regulatory personnel.
- Provide technical assistance on a variety of topics, including but not limited to, plant identification, selection and maintenance; native, naturalized, exotic, endangered and threatened plant species; natural products development, environmental assessment; ecotourism development and other resource conservation issues to government agencies, community groups, various areas of the private sector, students and the general public.
- Play a lead role in facilitating the interaction of community groups and leaders to address natural resource conservation and management issues, as well as pollution control and prevention.
- Conduct ecotours for local schools and groups (mostly on St. Croix) to stimulate interest in careers in science, ecotourism or environmental management and to provide students and others with a general introduction to VI natural and cultural resources.

2. Brief description of the target audience

- Policy-makers and regulatory personnel, community groups, teachers and students, business community, non-governmental organizations, and the general public.
- Those charged with managing public recreation areas including the Magens Bay Authority, VI Territorial Park Advisory Committee, St. Croix East End Marine Park Committee, and Great Pond Park.
- Local environmental associations and Rotary Clubs that engage in activities to conserve and manage the VI environment.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|--------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 0 | 0 | 0 | 0 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|--------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Education/Classes in natural resources management, VI forest ecosystems

| Year | Actual |
|------|--------|
| 2016 | 35 |

Output #2

Output Measure

- Workshops/presentations - VI forests, medicinal plants, environmental landscaping, watershed awareness, VI cultural and natural history, ecotourism, in-door air quality

| Year | Actual |
|------|--------|
| 2016 | 7 |

Output #3

Output Measure

- One on One consultation with residents, government employees, students

| Year | Actual |
|-------------|---------------|
| 2016 | 172 |

Output #4

Output Measure

- Tours of VI natural areas for students and community groups

| Year | Actual |
|-------------|---------------|
| 2016 | 12 |

Output #5

Output Measure

- E-education - NREM websites updated

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #6

Output Measure

- Publications, articles, posters related to natural resources and environmental management

| Year | Actual |
|-------------|---------------|
| 2016 | 7 |

Output #7

Output Measure

- Fairs

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #8

Output Measure

- TV/Media

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | The recommended environmental management BMP's will be adopted by one natural resource manager annually and successful BMP's will be used as prototypes for other critical habitats, parks and areas designated as part of the VI Territorial Park. |
| 2 | As a result of direct and indirect contacts or after attending non-formal education programs, the number of adults and students who adopt practices that protect native plants and their habitats because of their increased understanding of the human effects on native ecosystems will increase by 200. |
| 3 | Increase the number of stakeholders (government personnel, developers, community groups and students) who became more aware of the connections between terrestrial and marine communities, how watersheds function, and the importance of watershed protection by 500. |
| 4 | Based upon watershed research, the number of projects within targeted watersheds which protect water quality will increase by one, annually. |
| 5 | The number of Virgin Islands youth who increase their awareness of VI natural and cultural resources, and careers in environmental management and ecotourism will increase annually by 300 |

Outcome #1

1. Outcome Measures

The recommended environmental management BMP's will be adopted by one natural resource manager annually and successful BMP's will be used as prototypes for other critical habitats, parks and areas designated as part of the VI Territorial Park.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 11 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Magens Bay Authority and other local government agencies, Forest Stewardship Advisory Committee (U.S. Dept. of Forestry), St. Croix Environmental Assoc. and the Nature Conservancy (NGOs), or private landowners with natural conservation areas but are limited in their management resources. Hotel managers and developers are also responsible for implementing sound environmental management practices to protect their properties and critical natural resource habitats.

What has been done

CES responded to requests from Territorial Park managers for technical assistance and recommended plans for protecting native coastal trees in parks including potentially harmful trees. CES helped Magens Bay authority develop a plan to train park field guides. CES provided information to stakeholders (hotel and government staff) at two St. Thomas public beaches about how to manage washed up Sargassum seaweed and control jet ski traffic in swim zones and turtle habitats. CES reviewed native forest conservation plans for the VI-DOA Forest Stewardship and Forest Legacy Programs.

Results

CES approved native forest conservation plans locally administered through the VI-DOA including plans included in purchase agreements of large St. Croix conservation properties through the Forest Legacy Program. Landowners enrolled in the Forest Stewardship Program followed master plans approved by CES. VI Territorial Parks followed CES recommendations and preserved

native coastal trees with poisonous fruits while posting warning label and signs developed by CES. Stakeholders (hoteliers, vendors and VI Parks and Recreation personnel) at two popular St. Thomas beaches stopped removing Sargassum seaweed from beaches and utilized excess seaweed to build beaches following CES recommendations based on VI Div. of Fish & Wildlife and NOAA guidelines.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 134 | Outdoor Recreation |
| 136 | Conservation of Biological Diversity |

Outcome #2

1. Outcome Measures

As a result of direct and indirect contacts or after attending non-formal education programs, the number of adults and students who adopt practices that protect native plants and their habitats because of their increased understanding of the human effects on native ecosystems will increase by 200.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 250 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many educators, resource managers, students, environmental groups, developers, environmental professionals, architects, engineers and the general public want to increase their understanding of V.I. native plants/natural ecosystems and the effects of human alterations to natural ecosystems.

What has been done

Through site visits, CES herbarium visits, CES publications, permit evaluations and other direct and indirect contacts, CES delivered information about how humans impact native plants and

their habitats to students, watershed associations, businesses, developers, engineers, landowners and advisory committees. CES conducted tours with educators and students to evaluate human impacts on native plant ecosystems.

Results

Students and other groups indicated that they learned about the importance of protecting and documenting VI native plants during CES herbarium tours. CES publications prompted client requests (i.e., VI 6-12 teachers) for information about native flora and ecosystems, including plant identifications. UVI students and Yale University environmental science graduate students used the CDC-CES

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 123 | Management and Sustainability of Forest Resources |
| 136 | Conservation of Biological Diversity |

Outcome #3

1. Outcome Measures

Increase the number of stakeholders (government personnel, developers, community groups and students) who became more aware of the connections between terrestrial and marine communities, how watersheds function, and the importance of watershed protection by 500.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 350 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

CES stakeholders (government personnel, engineers, developers, community groups, resource managers, businesses educators, students) requested technical information to protect landscapes and the environment, comply with the VI government permitting requirements for earth-change operations and construction or to develop urban landscape plans.

What has been done

CES delivered information about watershed/ecosystem protection through contacts with: VI Forest Stewardship Program, community groups, Territorial Park/ beach managers, UVI science

faculty, UVI Environmental Management Studies program graduate students and Yale U. Watershed Management Program, and schools (CES Water Ambassadors Program K-12 outreach). Contacts were made during site visits, class presentations, and advisory committee meetings and through distribution of watershed data/publications.

Results

CES technical assistance provided to UVI’s Center for Marine and Environmental Management helped mitigate damage to nearshore resources during the building of a dock for marine research. CES recommendations were incorporated into a plan protecting vegetation (incl. mangroves) near CMES buildings. CES’s routine interactions with stakeholders (vendors, lifeguards, managers) at popular public beaches addressed management issues and reduced impacts of land-based sources of pollution affecting coastal resources. CES’s advise was followed by St. Thomas Territorial Park managers (Magens Bay Authority and Smith Bay) resulting in the protection native trees near beaches and wetlands. Long-range strategies to purchase and conserve VI priority watersheds were developed with CES’s assistance through the VI Forest Stewardship and Forest Legacy Program committees. CES information was incorporated into watershed association publications and environmental management graduate students’ research.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 112 | Watershed Protection and Management |
| 123 | Management and Sustainability of Forest Resources |
| 136 | Conservation of Biological Diversity |

Outcome #4

1. Outcome Measures

Based upon watershed research, the number of projects within targeted watersheds which protect water quality will increase by one, annually.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 7 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Those directly and indirectly responsible for watershed management (Magens Bay Authority, National Park Service, UVI, Governmental agencies, property owners, NGOs) require research-based information to be able to make the best decisions regarding watershed protection.

What has been done

CES assisted Yale School of Coastal and Watershed Management and UVI environmental management graduate student researchers monitoring VI wetlands and riparian areas. CES assisted engineers trying to reduce impacts to wetlands near a government road construction project on St. Thomas and helped a St. John watershed association develop a stormwater erosion control manual. 350 K-12 students in CES's Water Ambassadors Program collected water samples in St. Thomas and St. Croix guts.

Results

CES recommendations about native and non-invasive plants suitable for landscaping in erosion-prone watersheds were incorporated into an erosion control manual for Coral Bay, St. John watershed residents and the general public. CES-recommended native trees continued to be successfully planted in coastal VI territorial parks, on construction sites and coastal businesses in coastal areas, and gut outlets to help filter watershed stormwater runoff. CES publications and CES Facebook interactions prompted requests for additional information about native plant communities in watersheds. UVI and Yale graduate students continued to use a VI plant and coral reef field guide produced by UVI Conservation Data Center and CES for watershed research. As a result of CES site visits, tours and other direct consultations, clients indicated that their awareness of the issues affecting terrestrial resources increased. Developers incorporated CES recommendations to reduce impacts to native plants.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-------------------------------------|
| 112 | Watershed Protection and Management |

Outcome #5

1. Outcome Measures

The number of Virgin Islands youth who increase their awareness of VI natural and cultural resources, and careers in environmental management and ecotourism will increase annually by 300

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 50 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The VI has an economy based on tourism attracted by the natural and cultural resources and scenic beauty. Both residents, tourists and the local economy rely on the high-quality maintenance and conservation of these valuable resources. VI resource managers, tourism-related businesses, VI residents, and especially VI youth, need exposure to science-based environmental education, as well as guidance in career development that supports environmental management and protection.

What has been done

CES provided teachers, students, botanical garden owners, hotels and tourism-related businesses, taxi-drivers, and ecotourism developers with educational information about VI natural and cultural history. CES assisted with conserving VI properties suitable for ecotourism. CES responded to requests from VI Territorial Park managers to help them develop a training program for park field guides conducting natural and cultural history tours. The CES Water Ambassadors Program exposed VI youth to science-based education and possible career opportunities related to the VI natural environment.

Results

VI tour companies and the St. John National Park websites continued to recommend and promote CES publications about VI native ecosystems. Owners of ?botanical? gardens maintained as tourist attractions regularly contacted CES for information related to the naturally-forested areas of the gardens. The VI Economic Development Agency, State Historic Preservation Office (SHIPO), local businesses and landscape architects continued to incorporate CES recommendations into plans to restore natural landscapes in VI historic but deteriorated urban areas to enhance ecotourism in those areas.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
| 134 | Outdoor Recreation |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

CES maintained good relationships with staff in various VI governmental regulatory agencies charged with natural resource management (i.e., VI Dept. of Planning and Natural Resources (incl. Div. of fish & Wildlife, Div. of Environmental Protection, Div. of Enforcement, and Div. of, Waste Management Authority, the VI Dept. of Agriculture and the Environmental Protection Agency). There is a high amount of political turnover in the VI government agencies. Consequently, it can be difficult to establish very effective long-term relationships that can result in policy changes and/or training. Many of the employees in these agencies acknowledge the need for more comprehensive enforcement of environmental laws, but they indicate that they additional staff support to effectively enforce existing regulations.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Clients responded favorably to the informal evaluation methods used by CES, especially in-person, one-on-one conversations. Clients and viewers verbally indicated interest and approval after NREM presentations or media appearances. Standard evaluation forms are used during workshops and training programs, and Research project reports and publications were peer-reviewed. CES's Water Ambassador Program favored using pre and post testing methods with over 350 elementary students to evaluate the program's effectiveness. UVI students and faculty involved with CES in environmental research projects have indicated that they value CES's guidance and technical assistance; they also indicate that they wish to continue partnering with CES on new projects.

Key Items of Evaluation

All key items of evaluation were used.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Climate Change: Water Quality Program

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---|-----------------|-----------------|----------------|----------------|
| 101 | Appraisal of Soil Resources | 10% | | 0% | |
| 104 | Protect Soil from Harmful Effects of Natural Elements | 10% | | 0% | |
| 111 | Conservation and Efficient Use of Water | 10% | | 0% | |
| 112 | Watershed Protection and Management | 10% | | 0% | |
| 133 | Pollution Prevention and Mitigation | 60% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 1.4 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 1.9 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 135000 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 50010 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Trained local government agency personnel, maintenance professionals, community group and non-governmental organization representatives, and volunteers to deliver information on water quality protection to their respective audiences and the general public utilizing the V.I. Home & Farm Water Quality Assessment (VI*A*Syst) program.

Developed and disseminated locally-oriented outreach materials related to water conservation, drinking water protection, wastewater disposal and best management practices for pollution prevention for delivery through the VI*A*Syst program, with particular emphasis on materials targeted towards youth and under-served audiences.

Educated homeowners and renters about residential environmental management including use of least-toxic household products and non-point source pollution control to protect aquatic ecosystems utilizing VI*A*Syst materials.

Developed publications, workshops, and presentations that relay information on the issues of watershed protection, non-point source pollution control, drinking water protection, and wastewater disposal and best management practices to reduce impacts to the general public.

Utilized the media to promote Water Quality programs through various methods, including, but not limited to, radio and television PSAs, television video spots, local talk shows (radio & TV), and videotapes of workshops, presentations, and symposia.

Identified and/or developed technical materials related to resource conservation; pollution control practices; and native, medicinal, naturalized, exotic, endangered and threatened plant species for use by researchers, policy-makers and regulatory personnel.

Provided technical assistance on a variety of topics, including but not limited to, erosion, sediment, and stormwater control; xeriscaping - incorporating native, drought-tolerant plants into the landscape; watershed planning; water quality assessment; drinking water protection; and environmental assessment, to government agencies, community groups, various areas of the private sector, and the general public.

Utilized GIS technology to investigate the effects or potential impacts of land-based activities on water quality and marine resources.

2. Brief description of the target audience

Policy-makers and regulatory personnel, community groups, teachers and students, business community, non-governmental organizations, and the general public.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|--------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 360 | 310 | 80 | 500 |

2. Number of Patent Applications Submitted (Standard Research Output)
Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|--------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Education/Classes/Training in water quality protection and VI * A * Syst Program

| Year | Actual |
|------|--------|
| 2016 | 35 |

Output #2

Output Measure

- Workshops / Presentations about water quality protection, less toxic household products and NPS BMP's through the VI * A * Syst Program, on-site wastewater treatment, cistern care, and watershed protection.

| Year | Actual |
|------|--------|
| 2016 | 7 |

Output #3

Output Measure

- One-on-one consultations with residents, government employees, students

| Year | Actual |
|-------------|---------------|
| 2016 | 172 |

Output #4

Output Measure

- Tours of VI natural areas with students, community groups and others to raise awareness about watersheds and water quality protection.

| Year | Actual |
|-------------|---------------|
| 2016 | 12 |

Output #5

Output Measure

- Educational/research publications, articles, posters related to non-point source pollution, on-site wastewater treatment, watersheds, VI * A * Syst, and protection of VI native plant communities.

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #6

Output Measure

- Fairs

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #7

Output Measure

- TV/Media

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #8

Output Measure

- PSA's

| Year | Actual |
|-------------|---------------|
| 2016 | 0 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | Awareness of the health risks associated with water quality impairment and water and wastewater treatment systems will increase, and fifty (50) homeowners will learn how various household substances (i.e. Fat/Oil/Grease & Pharmaceuticals and Personal Care Products, etc.) potentially can negatively affect onsite wastewater treatment systems (OWTS), water resources, marine life and human health. |
| 2 | Ten (10) VI OWTS designers, wastewater practitioners and regulatory personnel will learn about OWTS designs and management practices recommended in CES training classes. |
| 3 | Requests for site visits and VI*A*SYST assessments and presentations will increase. 75 clients or more will each adopt at least one VI*A*SYST recommended practice such as the use of non-toxic household products, etc. |
| 4 | Fifty (50) homeowners will improve cistern water quality by following CES recommendations. |
| 5 | Over 100 VI youth will become aware of the vital connections between human activities and water quality, how land-based activities affect coastal water quality, and why watershed protection is important to them and their well-being. Youth and volunteer involvement in water quality protection and resource conservation will increase. |

Outcome #1

1. Outcome Measures

Awareness of the health risks associated with water quality impairment and water and wastewater treatment systems will increase, and fifty (50) homeowners will learn how various household substances (i.e. Fat/Oil/Grease & Pharmaceuticals and Personal Care Products, etc.) potentially can negatively affect onsite wastewater treatment systems (OWTS), water resources, marine life and human health.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 60 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrification and contamination of surface, groundwater and coastal waters from leaking septic systems is considered to be a major problem in the VI. Nonpoint Source Pollution from defective septic systems impacts human health and marine resources.

What has been done

CES continued to provide a St. John watershed association (Coral Bay Community Council - CBCC) with educational information about alternative on-site wastewater treatment systems. In partnership with the UVI GeoCas (GIS) division, Physics and Chemistry Departments, The CES Water Ambassadors (K-12 outreach) Program introduced teachers and students on St. Thomas and St. Croix to causes of water impairment problems in VI watersheds and methods of testing water quality.

Results

CBCC shared CES and University of Rhode Island On-site Wastewater Treatment Demonstration Center recommendations with Coral Bay, St. John watershed residents. The Water Ambassadors Program (WAP) received its current funding through a grant awarded by the Water Resources Research Institute. Over 350 students and 16 teachers participated in the Water Ambassadors Program. 150 WAP students learned water sampling research techniques and completed gathering samples in St. Thomas and St. Croix watersheds. Samples are currently being analyzed. 12 WAP students presented sampling methods and research objectives at various public events. WAP participants shared information about the causes of water quality impairment with parents.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|-------------------------------------|
| 112 | Watershed Protection and Management |
| 133 | Pollution Prevention and Mitigation |

Outcome #2

1. Outcome Measures

Ten (10) VI OWTS designers, wastewater practitioners and regulatory personnel will learn about OWTS designs and management practices recommended in CES training classes.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Requests for site visits and VI*A*SYST assessments and presentations will increase. 75 clients or more will each adopt at least one VI*A*SYST recommended practice such as the use of non-toxic household products, etc.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 0 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Custodial professionals, business owners, school students, the general public and the natural environment can be exposed to negative effects caused by the use of toxic household products. Many residents rely on maintaining healthy cistern catchments for their water supplies.

What has been done

CES promoted the use of non(or less)-toxic household products and integrated pest management products through the VI*A*SYST program presentations to individuals, schools, churches, scouts, businesses, housekeeping staff, government agencies, environmental groups, pesticide application professionals and trainees, etc. CES constantly updates this information through various sources, distributes CES publications (i.e. Recipes for a Non-toxic Household), and also

promotes cistern care.

Results

Based on responses from the general public, VI*A*SYST program presentations continue to be very popular with all segments of the VI community resulting in many requests for additional presentations and updates about new products. After attending these presentations or viewing CES TV interviews about VI*A*SYST that are continually run on local TV, many individuals indicated that they would stop using toxic household products. Several attendees have referred others to CES for VI*A*SYST information. CES clients indicate that they are following CES?s instructions to read product labels for safety instructions and purchasing more non-toxic products. Clients also notify CES when these products have run out of stock in various local stores. On St. Thomas and St. Croix, VI*A*SYST staff expanded outreach to pesticide application professionals/trainees by facilitating regularly-scheduled training and certification classes conducted by a retired CES entomologist from Puerto Rico.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-------------------------------------|
| 112 | Watershed Protection and Management |
| 133 | Pollution Prevention and Mitigation |

Outcome #4

1. Outcome Measures

Fifty (50) homeowners will improve cistern water quality by following CES recommendations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 450 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Custodial professionals, business owners, school students, the general public and the natural environment can be exposed to negative effects caused by the use of toxic household products. Many residents on rely on maintaining healthy cistern catchments for their water supplies

What has been done

CES promoted cistern care through its VI*A*SYST program presentations and Water Ambassadors Program K-12 outreach. CES constantly updates this information through various sources (webinars, etc.) CES also distributes publications (i.e. Help Yourself to a Healthy Caribbean Home, Recipes for a Non-toxic Household) and also promotes cistern care during presentations and consultations, as well as CES's VI Cistern Health factsheet (also available online).

Results

Based on responses, VI*A*SYST program presentations and recommendations continue to be popular with the VI community resulting in many requests for additional presentations and updates. CES's VI Cistern Health factsheet, available on line, continues to provide standard information to VI residents about basic cistern WQ management. After attending these presentations or viewing CES TV interviews about VI*A*SYST, individuals have referred others to CES for VI*A*SYST information about cistern care. CES continues to investigate the safest methods for maintaining cistern catchments to preserve healthy WQ, and clients are interested in learning about CES findings. The Water Ambassadors Project, funded by the Water Resources Research Institute, increased its outreach efforts in VI (K-12) schools and provided science-based information to over 350 students during its second year with renewed funding.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|-------------------------------------|
| 133 | Pollution Prevention and Mitigation |

Outcome #5

1. Outcome Measures

Over 100 VI youth will become aware of the vital connections between human activities and water quality, how land-based activities affect coastal water quality, and why watershed protection is important to them and their well-being. Youth and volunteer involvement in water quality protection and resource conservation will increase.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 1000 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

CES provided UVI graduate students with information for research projects related to the effects of land-based activities on coastal waters. CES conducted watershed tours for students and worked closely with UVI VIMAS to raise student-awareness of land-sea inter-relations. Publications co-authored by CES were used for instruction by educators. The CES Water Ambassadors Program presented information about VI land-sea connectivity and guided students in activities related to watershed protection.

What has been done

CES provided UVI graduate students with information for research projects related to the effects of land-based activities on coastal waters. CES conducted watershed tours for students and worked closely with UVI VIMAS to raise student-awareness of land-sea inter-relations. Publications co-authored by CES were used for instruction by educators. The CES Water Ambassadors Program presented information about VI land-sea connectivity and guided students in activities related to watershed protection.

Results

Outreach strategies developed by the CES Water Ambassadors Program in partnership with UVI's GeoCas (GIS) div., Physics and Chemistry Departments introduced VI youth to the connections between human activities and water quality. Similar goals were cooperatively introduced by CES and UVI VIMAS (VI Marine Advisory Service).STEM-related curriculum development activities promoted by WAP were well-received by VI school teachers participating in the program. WAP outreach methods are serving as models for other U.S. and international school districts. UVI's MMES (Marine and Environmental Management Program) and Yale University graduate students conducting VI watershed research continue to use information provided by CES, as well as UVI faculty and students conducting water quality monitoring in St. Thomas guts and watershed analysis. Librarians in various VI schools continue to introduce CES publications focusing on critical marine and terrestrial interconnections to students and teachers.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 101 | Appraisal of Soil Resources |
| 104 | Protect Soil from Harmful Effects of Natural Elements |
| 112 | Watershed Protection and Management |
| 133 | Pollution Prevention and Mitigation |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Awareness of the health risks associated with water quality impairment and water and wastewater treatment systems will increase, and one hundred fifty (150) homeowners will learn how various household substances (i.e. Fat/Oil/Grease & Pharmaceuticals and Personal Care Products, etc.) can potentially negatively affect onsite wastewater treatment systems (OWTS), water resources, marine life and human health.

Thirty five (35) VI OWTS designers, wastewater practitioners and regulatory personnel will learn about OWTS designs and management practices recommended in CES training classes. Requests for site visits and VI*A*SYST assessments and presentations will increase. 75 clients or more will each adopt at least one VI*A*SYST recommended practice such as the use of non-toxic household products.

Fifty (50) homeowners will improve cistern water quality by following CES recommendations, etc.] Over 250 VI youth will become aware of the vital connections between human activities and water quality, how land-based activities affect coastal water quality, and why watershed protection is important to them and their well-being. Youth and volunteer involvement in water quality protection and resource conservation will increase.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Clients responded favorably to the informal evaluation methods used by CES, especially in-person, one-on-one conversations. Clients and viewers verbally indicated interest and approval after NREM presentations or media appearances. Standard evaluation forms are used during workshops and training programs, and Research project reports and publications were peer-reviewed. CES's Water Ambassador Program favored using pre and post testing methods with over 350 elementary students to evaluate the program's effectiveness. UVI students and faculty involved with CES in environmental research projects have indicated that they value CES's guidance and technical assistance; they also indicate that they wish to continue partnering with CES on new projects.

Key Items of Evaluation

All key items of evaluation were used.

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Climate Change: Aquaculture

- Reporting on this Program
Reason for not reporting
{No Data Entered}

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--------------------------------------|-----------------|-----------------|----------------|----------------|
| 205 | Plant Management Systems | 0% | | 50% | |
| 307 | Animal Management Systems | 0% | | 40% | |
| 403 | Waste Disposal, Recycling, and Reuse | 0% | | 10% | |
| | Total | 0% | | 100% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-------------------|-------------------|-------------------|-------------------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual Paid | 0.0 | 0.0 | 1.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.5 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 0 | 0 | 71343 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 0 | 0 | 35139 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Comparison of Aquaponics with Nutrient Film Techniques Hydroponics

2. Brief description of the target audience

Local farmers and backyard gardeners on island and the Caribbean that are socially disadvantaged and low income.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 15 | 4 | 3 | 0 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 2 | 2 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Abstracts and presentations at conferences

| Year | Actual |
|------|--------|
| 2016 | 2 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | Increase knowledge of the differences between aquaponics and nutrient film techniques and cantaloupe quality |

Outcome #1

1. Outcome Measures

Increase knowledge of the differences between aquaponics and nutrient film techniques and cantaloupe quality

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Disadvantaged and low income farmers and consumers.

Year round production provides continuous production and source of income of these nutritious crops.

What has been done

Traditional field production uses manipulation of irrigation regime to enhance sweetness. Aquaponics does not have that capability because the root zone is continuously flooded. An alternative approach of cutting roots and canopy to cause hydration stress was used. Four regimes of 0, 25, 50, 75 percent of root and canopy (4x4 matrix) tested all combinations. Two trials were conducted in the 6 Recirculating Aquaculture Systems (RAS) and 3 Nutrient Film Technique (NFT) systems. Two tilapia feeding rates (60 g/m²/day and 100 g/m²/day) were used. An inorganic nutrient solution was used for NFT production. Four varieties of lettuce were grown in each treatment. The first trial was in the heat of summer when lettuce production is lowest.

Results

After evaluating four regimes of 0, 25, 50, 75 percent of root pruning and canopy tested in all combinations. The conclusion is that no treatment produced uniform sweetness in cantaloupe. Running the NFT trial gave us the opportunity to challenge and test the NFT channels and develop operating protocols. The second trial was a strong success. Data is being analyzed. The comparison trials will continue through the winter, spring and fall of 2017.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---------------------------|
| 205 | Plant Management Systems |
| 307 | Animal Management Systems |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Competing Programmatic Challenges

Brief Explanation

Tropical force winds causing power outage can have a negative influence on aquaponic production as a backup generator is required.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Root pruning of cantaloupe in an aquaponic system doesn't result in better quality fruit.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Marketable Skills for Limited Resource Families, Youth and Communities

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---|-----------------|-----------------|----------------|----------------|
| 801 | Individual and Family Resource Management | 75% | | 0% | |
| 802 | Human Development and Family Well-Being | 15% | | 0% | |
| 806 | Youth Development | 10% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 1.9 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 2.0 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 80000 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 40000 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct workshops and demonstrations to promote the different FCS program offerings. Set up volunteer recruitment booths at World Food Day, St. Thomas/St. John Agriculture and Food Fair, and the V.I. Agriculture and Food Fair (St. Croix).

- Provide orientation, training and professional development for volunteers, partners, 4-H/Family and Consumer Sciences/CYFAR staff, and CES personnel.
- Utilize multi-media outlets to promote FCS programs to attract potential clientele.
- Conduct workshops and short courses that help low-income, at-risk audiences build knowledge, skills and attitudes that will positively impact their quality of life.
- Collaborate with government departments, non-profit agencies, community-based programs, and special interest groups to recruit, train and support 4-H volunteer development.

2. Brief description of the target audience

- Current and newly recruited FCS participants,
- Low-income, at-risk, un- or underemployed adults residing in public/federally subsidized housing communities, and Children, Youth & Families at-Risk clientele.
- Clientele and staff being served through fellow UVI, CES and AES programs.
- Clientele referred from Department of Human Services, Department of Labor - Unemployment Office; V.I. Housing Authority- Tenant Services Office, and other agencies working with similar audiences.
- Parents of current 4-H club members and summer program participants.
- Youth and adults (general public) responding to multi-media 4-H volunteer campaign,
- Youth and adults indicating interest in FCS programs at World Food Day and fairs.
- Departments, agencies, clubs, and programs working with FCS.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 700 | 2050 | 85 | 750 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|--------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of short courses conducted

| Year | Actual |
|------|--------|
| 2016 | 7 |

Output #2

Output Measure

- Number of workshops facilitated as part of "Women at the Crossroads" short course

| Year | Actual |
|------|--------|
| 2016 | 20 |

Output #3

Output Measure

- Number of special interest workshops conducted

| Year | Actual |
|------|--------|
| 2016 | 5 |

Output #4

Output Measure

- Number of youth, volunteers, staff and partners trained

| Year | Actual |
|-------------|---------------|
| 2016 | 130 |

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

| O. No. | OUTCOME NAME |
|--------|--|
| 1 | Through participation in Basic Clothing Construction Short Courses, participants will develop knowledge and awareness of sewing machine parts, basic tools and equipment, fabric line and design, measuring techniques, use of patterns, and glossary of terms. |
| 2 | Through participation in Basic Clothing Construction Short Courses, participants will learn how to baste, stitch, trim and finish seam allowances using a serger, put in hems and waist bands, apply zippers, insert elastic, insert darts, and make button holes. Acquisition of these skills will allow participants to construct at least one simple outfit resulting in personal savings |
| 3 | As a result of completing the Basic Clothing Construction Short Course, 75% of participants will enroll in the Intermediate/Advanced level of this course. In addition to using basic skills developed in the basic course, participants will learn how to apply pockets and collars, put in linings, use more detailed patterns, and incorporate more difficult fabrics. Their skills and interest level will allow them to realize a savings and to use their skills to enhance their personal income by sewing for others |
| 4 | Through participation in the Basic Batik Short Courses, participants will become aware of the various types of batiik designs. Participants will learn how to design and develop batik designs for their fabric; hot to work with various methods of creating these designs and learn the steos in creating a batik fabric. |
| 5 | As a result of their training and interest in this area, participants will provide outreach to and train church, school and youth group members about how to create batik designs. |
| 6 | Through participation in Batik Short Courses, participants will learn how to make batik projects that can be used to beautify the home and serve as gifts. Additional personal income will be generated through either word-of-mouth sales or by establishing their own small home-based business. |
| 7 | Through 'Women at the Crossroads', participants will develop knowledge of workforce preparation, personal development, personal finances, women's health and wellness issues, leadership and volunteerism |
| 8 | Through 'Women at the Crossroads' participants will prepare a letter of application, build a personal resume, conduct a mock interview, complete a job application template and assemble a personal portfolio in preparation for an actual entry level employment interview. |
| 9 | Through 'Women at the Crossroads', participants will explore the impact that poise, personality, personal appearance, positive attitude and self-confidence have on enhancing family and workforce dynamics. As a result of their experiences, participants will select and model appropriate dress, and prepare and present a personal goals statement: |
| 10 | Through 'Women at the Crossroads', participants will develop a personal budget, establish a checking account, develop a living will and explore the benefits of investing |
| 11 | Through 'Women at the Crossroads', participants will learn about health issues impacting women, complete personal health screenings, identify nutritious foods and practice healthy eating habits |
| 12 | Through 'Women at the Crossroads', participants will build leadership skills needed to become effective volunteer leaders |
| 13 | As a result of graduating and being certified through the 'Women at the Crossroads' series, participants will successfully enter the workforce and/or improve their quality of living |

Outcome #1

1. Outcome Measures

Through participation in Basic Clothing Construction Short Courses, participants will develop knowledge and awareness of sewing machine parts, basic tools and equipment, fabric line and design, measuring techniques, use of patterns, and glossary of terms.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 80 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The improvement in sewing and craft skills increases the likelihood of generating additional income and increasing the buying power in a very fragile economy.

What has been done

Workshops, short courses and educational sessions were offered throughout the year.

Results

More advanced classes requested by participants.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #2

1. Outcome Measures

Through participation in Basic Clothing Construction Short Courses, participants will learn how to baste, stitch, trim and finish seam allowances using a serger, put in hems and waist bands, apply zippers, insert elastic, insert darts, and make button holes. Acquisition of these skills will allow participants to construct at least one simple outfit resulting in personal savings

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 60 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Participants benefit their community through development of more diverse skills and the potential to enhance the local economy by making and selling clothing and decorative products.

What has been done

Educational sessions, workshops, summer camp and individual instruction were provided.

Results

Participants completed basic course and requested more advanced courses.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #3

1. Outcome Measures

As a result of completing the Basic Clothing Construction Short Course, 75% of participants will enroll in the Intermediate/Advanced level of this course. In addition to using basic skills developed in the basic course, participants will learn how to apply pockets and collars, put in linings, use more detailed patterns, and incorporate more difficult fabrics. Their skills and interest level will allow them to realize a savings and to use their skills to enhance their personal income by sewing for others

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 65 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Batik classes continue to be in demand in St. Thomas where participants use their skills and market and sell products.

What has been done

Participants continue to request advanced classes.

Results

Requirements for completion of the classes were satisfied.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #4

1. Outcome Measures

Through participation in the Basic Batik Short Courses, participants will become aware of the various types of batiik designs. Participants will learn how to design and develop batik designs for their fabric; how to work with various methods of creating these designs and learn the steps in creating a batik fabric.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 36 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Participants reinforce their skills in making attractive items to wear, as well as decorative ones for their home and to sell.

What has been done

Mostly, six week classes were conducted.

Results

Participants completed all requirements to acquire new skills.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #5

1. Outcome Measures

As a result of their training and interest in this area, participants will provide outreach to and train church, school and youth group members about how to create batik designs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 130 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The entire community benefits from conservation of resources.

What has been done

Recycling information was disseminated to participants to be shared with neighbors, church members, family and others in the community, especially youth.

Results

Participants learned the value of recycling.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |
| 806 | Youth Development |

Outcome #6

1. Outcome Measures

Through participation in Batik Short Courses, participants will learn how to make batik projects that can be used to beautify the home and serve as gifts. Additional personal income will be generated through either word-of-mouth sales or by establishing their own small home-based business.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 130 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The community at large benefits from better trained and multiply skilled residents.

What has been done

Educational sessions were provided to enhance the earning potential of low-income participants.

Results

Low income residents acquired skills to enhance their earning potential.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #7

1. Outcome Measures

Through 'Women at the Crossroads', participants will develop knowledge of workforce preparation, personal development, personal finances, women's health and wellness issues, leadership and volunteerism

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 25 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The general community benefits from a well-educated populace.

What has been done

Individual instruction and workshops were provided.

Results

Participants developed the confidence to seek employment and prepare for all aspects of the process.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #8

1. Outcome Measures

Through 'Women at the Crossroads' participants will prepare a letter of application, build a personal resume, conduct a mock interview, complete a job application template and assemble a personal portfolio in preparation for an actual entry level employment interview.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 25 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The general community benefits from enhanced skills which lead to employment opportunities.

What has been done

Educational sessions were held to prepare participants for gainful employment.

Results

Participants completed requirements to prepare them for gainful employment.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #9

1. Outcome Measures

Through 'Women at the Crossroads', participants will explore the impact that poise, personality, personal appearance, positive attitude and self-confidence have on enhancing family and workforce dynamics. As a result of their experiences, participants will select and model appropriate dress, and prepare and present a personal goals statement:

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 25 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The more skilled residents become, the more wide ranging benefits are accrued to the community.

What has been done

Educational sessions were provided along with workshops to prepare participants for employment.

Results

All requirements for completion of sessions were done successfully.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #10

1. Outcome Measures

Through 'Women at the Crossroads', participants will develop a personal budget, establish a checking account, develop a living will and explore the benefits of investing

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 23 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Participants who are well prepared in financial operations can handle the fluctuation in the economy better.

What has been done

Budgeting, establishment of checking accounts, and investing were held.

Results

Participants developed a living well, prepared budgets and started investing small amounts in stocks.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #11

1. Outcome Measures

Through 'Women at the Crossroads', participants will learn about health issues impacting women, complete personal health screenings, identify nutritious foods and practice healthy eating

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 20 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

High incidences of diabetes, high blood pressure, heart disease and related illnesses are rampant in the territory; therefore it is imperative to disseminate information and encourage healthy eating practices.

What has been done

Educational sessions/presentations targeting low income residents and their families were offered along with emphasis on the need to exercise

Results

Improved food preparation and safety practices were reported by participants with more emphasis placed on utilization of healthier dietary practices

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

Outcome #12

1. Outcome Measures

Through 'Women at the Crossroads', participants will build leadership skills needed to become effective volunteer leaders

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 15 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Development of good leadership qualities is critical for the entire community so that all residents have an opportunity to realize their fullest potential.

What has been done

Leadership and volunteerism workshops were held.

Results

Participants participated in a number of community initiatives as volunteers.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |
| 806 | Youth Development |

Outcome #13

1. Outcome Measures

As a result of graduating and being certified through the 'Women at the Crossroads' series, participants will successfully enter the workforce and/or improve their quality of living

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 20 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The general community is concerned with full employment and its benefits.

What has been done

Educational sessions were conducted to improve opportunities for gainful employment.

Results

Participants explored various employment possibilities.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy

Brief Explanation

The economy continues to be fragile in the territory. The lack of private sector job generation continues to be a challenge, especially on St. Croix

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Pre/post evaluation results have been favourable.

Key Items of Evaluation

Focus groups and anecdotal data have been favourable , as well as follow- up interviews.

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Food Safety Education-EFNEP and EFNEP Youth

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---|-----------------|-----------------|----------------|----------------|
| 703 | Nutrition Education and Behavior | 65% | | 0% | |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins | 25% | | 0% | |
| 724 | Healthy Lifestyle | 10% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 3.8 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 3.5 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 1.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 70497 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 40100 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 100000 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Identified new locations to conduct classes.
- Recruited and trained staff and volunteers to deliver food safety information to EFNEP participants (adults and youth).
- Developed and obtained culturally sensitive food safety curriculum appropriate for EFNEP participants (adults and youth).
- Developed and maintained relationships with partners including government agencies, clinics, places of worship, public and private schools, senior citizen centers, and day care centers.

2. Brief description of the target audience

The program targeted all U.S. Virgin Islanders but especially low income individuals who are responsible for preparing the family's meal, school age children, and pregnant teens and adults.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 275 | 500 | 1087 | 500 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of 6-8 week class series conducted for EFNEP participants (adults and youth)

| Year | Actual |
|-------------|---------------|
| 2016 | 46 |

Output #2

Output Measure

- Number of volunteers recruited and trained to deliver food safety program

| Year | Actual |
|-------------|---------------|
| 2016 | 1 |

Output #3

Output Measure

- Number of fair-type settings in which food safety information will be presented

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #4

Output Measure

- Number of web sites developed and maintained

| Year | Actual |
|-------------|---------------|
| 2016 | 0 |

Output #5

Output Measure

- Number of partnerships with agencies and organizations that will assist in improving the food safety practices of U.S. Virgin Islanders

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Number of adults learning basic food safety information |
| 2 | Percentage of adults adopting and maintaining at least one food safety practice |
| 3 | Number of school age children learning basic food safety information |
| 4 | Percentage of children adopting and maintaining at least one food safety practice |
| 5 | Increase awareness among the EFNEP participants about food safety issues related to personal hygiene, food storage, food preparation, and food handling |
| 6 | Increase awareness among the EFNEP participants about food safety issues related to eating away from home (e.g., restaurants, mobile food vans, food booths) and purchasing food from street vendors (e.g., fish) |

Outcome #1

1. Outcome Measures

Number of adults learning basic food safety information

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 46 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrition educators and health educators because of the warm climate and the number of street vendors, etc.

What has been done

Classes, workshops, demonstrations, handouts.

Results

Clients have demonstrated their knowledge and awareness of food safety practices.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins |
| 724 | Healthy Lifestyle |

Outcome #2

1. Outcome Measures

Percentage of adults adopting and maintaining at least one food safety practice

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 46 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrition educators, health educators.

What has been done

Classes, workshops, demonstrations, handouts on food safety

Results

46 clients demonstrated their knowledge of food safety.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 703 | Nutrition Education and Behavior |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins |
| 724 | Healthy Lifestyle |

Outcome #3

1. Outcome Measures

Number of school age children learning basic food safety information

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 1089 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrition educators, health educators, Department of Education.

What has been done

Six-eight (6-8) week classes in schools.

Results

Children demonstrated knowledge through written test and verbal demonstration.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 703 | Nutrition Education and Behavior |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins |
| 724 | Healthy Lifestyle |

Outcome #4

1. Outcome Measures

Percentage of children adopting and maintaining at least one food safety practice

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 85 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrition educators, health educators.

What has been done

Six-eight (6-8) week classes.

Results

1,089 youth demonstrated their knowledge of food safety.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 703 | Nutrition Education and Behavior |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins |
| 724 | Healthy Lifestyle |

Outcome #5

1. Outcome Measures

Increase awareness among the EFNEP participants about food safety issues related to personal hygiene, food storage, food preparation, and food handling

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 1089 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrition educators, health educators.

What has been done

Six-eight (6-8) week classes; pre- and post-test.

Results

Increase in knowledge.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 703 | Nutrition Education and Behavior |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins |
| 724 | Healthy Lifestyle |

Outcome #6

1. Outcome Measures

Increase awareness among the EFNEP participants about food safety issues related to eating away from home (e.g., restaurants, mobile food vans, food booths) and purchasing food from street vendors (e.g., fish)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 1011 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutrition educators, health educators.

What has been done

Classes for youth.

Results

Pre- and post-tests show an increase in knowledge; youth demonstrate verbal knowledge.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 703 | Nutrition Education and Behavior |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins |
| 724 | Healthy Lifestyle |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Other (Cultural Environment)

Brief Explanation

The islands have street vendors serving food and due to the hot climate food can cause food-borne illnesses.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Pre- and post-tests demonstrate a gain in knowledge.

Key Items of Evaluation

Questions as related to food safety on evaluation instrument; verbal demonstration of knowledge.

V(A). Planned Program (Summary)

Program # 14

1. Name of the Planned Program

A Healthy, Well-Nourished Population

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|----------------------------------|-----------------|-----------------|----------------|----------------|
| 701 | Nutrient Composition of Food | 20% | | 0% | |
| 703 | Nutrition Education and Behavior | 60% | | 0% | |
| 724 | Healthy Lifestyle | 20% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 3.7 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 1.5 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 0.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 93586 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 40000 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

Developed culturally sensitive nutrition and health education products and resources to be made available to professionals, students, and the public. The following are examples of the products and resources to be developed and made available for distribution:

- Conducted disease specific workshops, short courses, seminars, and other educational activities focusing on nutrition education and behavior change modification.
- Recruited and trained staff and volunteers to deliver nutrition, diet, and health relevant information to the community.
- Developed and obtained culturally sensitive nutrition/health curriculum appropriate for school age children at all grade levels.
- Developed and maintained relationships with partners including government agencies, clinics, places of worship, public and private schools, senior citizen centers, and day care centers.

2. Brief description of the target audience

This program is directed at all U.S. Virgin Island residents. However, special attention is given to high risk groups such as residents diagnosed with diseases such as diabetes, hypercholesterolemia, hypertension, and obesity; senior citizens; and school age children.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 275 | 500 | 1133 | 500 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|--------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- a. Number of 6-8 week class series conducted for EFNEP participants (youth & adults)

| Year | Actual |
|------|--------|
| 2016 | 46 |

Output #2

Output Measure

- b. Number of volunteers recruited and trained to deliver nutrition education program.

| Year | Actual |
|------|--------|
| 2016 | 1 |

Output #3

Output Measure

- c. Number of fair-type settings in which nutrition/health information will be presented.

| Year | Actual |
|------|--------|
| 2016 | 4 |

Output #4

Output Measure

- d. Number of web sites developed and maintained.

| Year | Actual |
|------|--------|
| 2016 | 0 |

Output #5

Output Measure

- e. Number of nutrition and health education materials developed and made available to professionals, students, and the public.

| Year | Actual |
|------|--------|
|------|--------|

2016 0

Output #6

Output Measure

- f. Number of partnerships with agencies and organizations that will assist in improving the health practices of U.S. Virgin Islanders.

| Year | Actual |
|-------------|---------------|
| 2016 | 4 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Number of individuals who have indicated benefits from developed educational materials. |
| 2 | Percentage of adults adopting and maintaining at least one healthy lifestyle practice. Percentage of adults helping youth to practice healthy lifestyles in order to prevent childhood obesity |
| 3 | Number of school age children learning basic nutrition information and physical fitness |
| 4 | Percentage of children adopting and maintaining at least one healthy eating habit and exercise activity |
| 5 | Increase awareness among the general public of the relationship between food intake, physical fitness, stress management and disease prevention. |
| 6 | Number of individuals who report improvement in health status (e.g., lower blood sugar, and/or cholesterol level). & increase awareness of participants about prevention of childhood obesity. |

Outcome #1

1. Outcome Measures

Number of individuals who have indicated benefits from developed educational materials.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 1133 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cooperative Extension Service, Department of Education, Department Healthy- the wellness of our population is important to help decrease related diseases.

What has been done

6-8 weeks of workshops with adults and youth

Results

There has been an improvement in nutrition practices with adults and youth.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|----------------------------------|
| 703 | Nutrition Education and Behavior |

Outcome #2

1. Outcome Measures

Percentage of adults adopting and maintaining at least one healthy lifestyle practice. Percentage of adults helping youth to practice healthy lifestyles in order to prevent childhood obesity

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 46 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cooperative Extension Service, Department of Education, Department of Health- are all concerned for the wellness of our population.

What has been done

6-8 week workshops in one or more healthy lifestyles with adults.

Results

90% improvement in one or more healthy lifestyles with adults.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|-------------------|
| 724 | Healthy Lifestyle |

Outcome #3

1. Outcome Measures

Number of school age children learning basic nutrition information and physical fitness

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
|------|--------|

2016 1133

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cooperative Extension Service, Department of Education and Department health- concern for the wellness of our youth.

What has been done

6 weeks of nutrition with the youth in the schools.

Results

85% show a change in healthy lifestyles.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|----------------------------------|
| 703 | Nutrition Education and Behavior |
| 724 | Healthy Lifestyle |

Outcome #4

1. Outcome Measures

Percentage of children adopting and maintaining at least one healthy eating habit and exercise activity

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 1133 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cooperative Extension Service, Department of Education Department of Health- we care about the health of our youth to prevent nutrition related diseases.

What has been done

6 week classes with the youth in the schools

Results

85% of youth show improved nutrition knowledge and practices.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|----------------------------------|
| 703 | Nutrition Education and Behavior |
| 724 | Healthy Lifestyle |

Outcome #5

1. Outcome Measures

Increase awareness among the general public of the relationship between food intake, physical fitness, stress management and disease prevention.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 500 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cooperative Extension Service, Department of Health, Department of Education

What has been done

Nutrition information given out at Agricultural Fairs, Health Fairs and other public events

Results

Positive Feedback as related to nutrition from the general public.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
|----------------|-----------------------|

| | |
|-----|----------------------------------|
| 701 | Nutrient Composition of Food |
| 703 | Nutrition Education and Behavior |
| 724 | Healthy Lifestyle |

Outcome #6

1. Outcome Measures

Number of individuals who report improvement in health status (e.g., lower blood sugar, and/or cholesterol level). & increase awareness of participants about prevention of childhood obesity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|------|--------|
| 2016 | 46 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cooperative Extension Service, Department of Health, Department of Education.

What has been done

6-8 week nutrition lessons

Results

90% of adults increased their nutrition practices.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|----------------------------------|
| 703 | Nutrition Education and Behavior |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Other (Cultural Environment)

Brief Explanation

Natural Disasters (drought, weather extremes , etc.
Economy
Other (cultural environment)

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The USVI lies in a hurricane prone zone. Natural disasters such as hurricanes will disrupt all aspect of life in the Virgin Island- need survival skills and acquiring safe food and water.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

4-H Youth and Volunteer Development

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--|-----------------|-----------------|----------------|----------------|
| 802 | Human Development and Family Well-Being | 15% | | 0% | |
| 803 | Sociological and Technological Change Affecting Individuals, Families, and Communities | 5% | | 0% | |
| 806 | Youth Development | 80% | | 0% | |
| | Total | 100% | | 0% | |

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

| Year: 2016 | Extension | | Research | |
|-------------------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 6.0 | 0.0 | 0.0 | 0.0 |
| Actual Paid | 2.0 | 0.0 | 0.0 | 0.0 |
| Actual Volunteer | 4.0 | 0.0 | 0.0 | 0.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 100000 | 0 | 0 | 0 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 60000 | 0 | 0 | 0 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 52000 | 0 | 0 | 0 |

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Recruited and trained 6 new adult volunteers; provided additional training and support for 21 volunteers (including 5 military personnel) and 28 teens; conducted one (1) in-service training for 4-H/F&CS staff and partners (VING and 4-H Healthy Living).
- Supported 4-H clubs and special interest groups as follows:
 - St. Croix: (3) community based clubs; (4) school based clubs
 - St. Thomas: (2) school based clubs; (1) special interest group
- Implemented two grants:

2015-2016 4-H Healthy Living Grant

- Hired two adult volunteers to provide leadership and supervision
- Engaged 12 UVI students as mentors
- Recruited and trained 136 teens as teachers
- Partnered with 232 teachers, camp counselors, program staff to facilitate grant implementation
- Provided four healthy living lessons for 5,021 youth
- Partnered with Department of Labor to provide soft skills training for 13 teens

2015-2016 4-H Military Partnership grant

- Supported St. Croix Military 4-H Club
- Trained 5 adult military personnel as volunteers
- Conducted two 4-H workshops for military youth:
 1. Guard Youth Team Building (GYTB) - 52 youth; leadership, team building
 2. Month of the Military Child - 14 youth; family relationships, STEM

- Organized and implemented twelve (12) experiential learning programs, events and activities: 4-H National Youth Science Day; Hunger Banquet; 4-H Youth Super Chef Competition; 4-H Youth Garden Workshop; 4-H Christmas Ornament Festival; V.I. Agriculture and Food Fair; (3) 4-H for the Health of It days; and 4-H Safety Day and 4-H/V.I. Department of Labor Workforce Preparation workshops (2)
 - Served as 4-H Military and 4-H Healthy Living liaison
 - Served as Director of Youth Activities, V.I. Agriculture & Food Fair Board
 - Provided technical assistance and temporary staffing for CYFAR afterschool program
 - Co-coordinated inaugural UVI AgDiscovery program enrolling 19 teens

2. Brief description of the target audience

- 4-H alumni
- Community
- School-aged youth residing in the Virgin Islands
- Current 4-H members, volunteers leaders, parents
- Geographic dispersed military youth
- High school students needing community service hours to fulfill graduation requirements
- UVI students interested in mentoring
- Clientele served by other UVI, CES and AES programs

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

| 2016 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| Actual | 700 | 1200 | 5500 | 1500 |

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| 2016 | Extension | Research | Total |
|---------------|-----------|----------|-------|
| Actual | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of volunteers serving

| | |
|-------------|---------------|
| Year | Actual |
| 2016 | 286 |

Output #2

Output Measure

- Number of volunteers trained

| | |
|-------------|---------------|
| Year | Actual |
|-------------|---------------|

2016 54

Output #3

Output Measure

- Number of clubs operating

| Year | Actual |
|-------------|---------------|
| 2016 | 10 |

Output #4

Output Measure

- Number of youth enrolled

| Year | Actual |
|-------------|---------------|
| 2016 | 5534 |

Output #5

Output Measure

- Number of positive youth development events organized

| Year | Actual |
|-------------|---------------|
| 2016 | 12 |

Output #6

Output Measure

- Number of counsellors hired

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

Output #7

Output Measure

- Number of campers enrolled

| Year | Actual |
|-------------|---------------|
| 2016 | 32 |

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|--------|---|
| 1 | Number of volunteers serving |
| 2 | Number of volunteers trained |
| 3 | Number of clubs operating |
| 4 | Number of youth enrolled as reported on ES-237 |
| 5 | Number of positive youth development events organized |
| 6 | Number of counsellors hired for summer camp |
| 7 | Number of campers enrolled in summer camp |

Outcome #1

1. Outcome Measures

Number of volunteers serving

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 286 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Caring, competent, compassionate volunteers form the backbone of any successful 4-H program; this is even more impactful when we take into account the over 232 adult volunteers who facilitated and supported implementation of the 4-H Healthy Living grant.

What has been done

In spite of several challenges, we have recruited and training six (6) new adult volunteers who join a dedicated team of 21 club and community-based volunteers augmented by a dedicated groups of 28 teen leaders.

Results

Over and above the 232 adult volunteers and 136 teens working in support of the 4-H Healthy Living grant, a total of 21 adults and 28 teens provide ongoing support and leadership for ten 4-H clubs and 12 annual 4-H programs, events, and activities.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 802 | Human Development and Family Well-Being |
| 806 | Youth Development |

Outcome #2

1. Outcome Measures

Number of volunteers trained

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 54 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Empowering a team of caring, competent, compassionate adult and teen leaders are necessary to have high-functioning 4-H clubs. In addition to 26 adults and 28 teens providing leadership for ten (10) community, school-based and special interest groups, 2 adults, 14 UVI student mentors and 136 teens were trained as teachers to successfully implement the 4-H Healthy Living grant.

What has been done

4-H 101 and 4-H 102 have been used to conduct training. The fundamentals of establishing a 4-H club with special emphasis on how to incorporate the essential elements of positive youth develop, and how to employ the experiential learning model have been covered to support exemplary club programming. Choose Health: Food, Fun and Fitness (CHFFF) was use to provide training for the 4-H Healthy Living team.

Results

A total of 286 adults and 164 teen leaders were trained and now lead and/or support 4-H clubs and special interest groups throughout the territory.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|---|
| 802 | Human Development and Family Well-Being |
| 806 | Youth Development |

Outcome #3

1. Outcome Measures

Number of clubs operating

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 10 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The community-based club along with the school-affiliated club are the most common 4-H models in the territory. Together they provide members with a safe, nurturing environment in which they can learn, grow and explore interests in partnership with caring, competent, adult leaders.

What has been done

Twenty-one adult volunteers and 28 teens support ten 4-H clubs (5 community clubs, 4 school-based clubs and 1 special interest group) and 12 positive youth development programs, events and activities.

Results

4-H enrollment has increased 7%.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
| 806 | Youth Development |

Outcome #4

1. Outcome Measures

Number of youth enrolled as reported on ES-237

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 5534 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

With its population declining, the Virgin Islands now has just over 17,000 school-aged youth representing a sizeable target audience for 4-H.

What has been done

Although there is seemingly a large pool of youth available, there are many competing activities. The in-school or school-affiliated club model has proven to be successful and should be tapped further.

Results

A total of 513 youth are enrolled in ten 4-H clubs and special interest groups throughout the territory. The majority (480) of 4-H members reside on and participate in seven 4-H clubs on St. Croix.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
| 806 | Youth Development |

Outcome #5

1. Outcome Measures

Number of positive youth development events organized

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 10 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The 4-H Calendar of Events replete with exemplary positive youth development programs, events and activities, is a proven method to identify and connect potential new volunteers and members.

What has been done

The 4-H office organizes programs, events and activities designed to engage both current 4-H members and potential new youth and leaders.

Results

Ten (10) programs, events and activities have resulted in over 1,000 direct youth contacts of which just over 50% were 4-H members.

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
| 806 | Youth Development |

Outcome #6

1. Outcome Measures

Number of counsellors hired for summer camp

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 2 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
| 806 | Youth Development |

Outcome #7

1. Outcome Measures

Number of campers enrolled in summer camp

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

| Year | Actual |
|-------------|---------------|
| 2016 | 32 |

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|----------------|-----------------------|
| 806 | Youth Development |

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The current economic climate continues to adversely impact the territory. This has been manifested in budget cuts across the university, with vacant positions remaining unfilled. Volunteers are also feeling the impact resulting in increasing difficulty attracting new leaders, and in some cases, retaining current leaders.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

No formal evaluation of this program was conducted

Key Items of Evaluation

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

| | |
|---|--|
| Childhood Obesity (Outcome 1, Indicator 1.c) | |
| 0 | Number of children and youth who reported eating more of healthy foods. |
| Climate Change (Outcome 1, Indicator 4) | |
| 6 | Number of new crop varieties, animal breeds, and genotypes with climate adaptive traits. |
| Global Food Security and Hunger (Outcome 1, Indicator 4.a) | |
| 20 | Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources. |
| Global Food Security and Hunger (Outcome 2, Indicator 1) | |
| 4 | Number of new or improved innovations developed for food enterprises. |
| Food Safety (Outcome 1, Indicator 1) | |
| 0 | Number of viable technologies developed or modified for the detection and |
| Sustainable Energy (Outcome 3, Indicator 2) | |
| 0 | Number of farmers who adopted a dedicated bioenergy crop |
| Sustainable Energy (Outcome 3, Indicator 4) | |
| 0 | Tons of feedstocks delivered. |