2017 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

The merger of AES and CES under one administrative head (Dean and Director of Land Grant programs) has not been initiated yet. The committee of AES and CES faculty and staff developed a policy/procedure for the merger and it was approved in May 2017, with a proposed implementation date of October 1, 2017, but no further action has been taken on it by the central administration of UVI.
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. AES published the 2016 Annual Report highlighting research productivity of the AES scientists, staff and students (http://aes.uvi.edu).
The Agricultural Experiment Station supported a student to attend a summer internship at the College of Micronesia - Pohnpei. 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, seven students were mentored in AES labs while conducting research during 2017. 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. Four students were supported for a week long field educational tour of the University of Florida Institute of Food and Agriculture Sciences campus and off campus research facilities in March 2017. The students made a presentation to UVI students and faculty after their return.
The Animal Science program mentored one undergraduate student with support from MARC funds through the College of Science and Math. The students conducted work that was part of an ongoing multistate Hatch project (W-3173) on water consumption at 120 day weaning age in hair sheep ewes. 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 mentored two undergraduate UVI students who conducted research projects involving aquaponics. One was supported by UVI Emerging Caribbean Scientist program NASA-MARC funds. The second was supported by program generated funds. Two three-day workshops were conducted which brought local, national and international people interested in learning and hands-on training in the aquaponic system.
The Biotechnology & Agroforestry group worked with the Cooperative Extension Service on a Specialty

Crops Block grant they was awarded by the Virgin Islands Department of Agriculture. Cucumber trials were conducted in the fall of 2016 and the spring and summer of 2017. The focus was evaluating slicing and pickling cucumbers for Downy Mildew resistance. This disease devastates local cucumber production. Two UVI students were supported and who were involved in the research project. One student presented the results at a regional and Caribbean conference. The CES has used the results to make recommendations to local growers. There have been three active SCBG in cooperation with CES. These grants involved on-farm research a} evaluating pre-emergent herbicide use in sweet potato production b} using local supplies for trellising pitaya and c} evaluating potential for turmeric production in the US Virgin Islands. The Biotechnology & Agroforestry program also worked with the VIDOA with their Farm to School program. Participating farmers were trained on sweet potato production practices. Farmers were also supplied with sweet potato cuttings for planting material. A local entrepreneur was interested in sugar cane and obtained tissue culture material. Through a small grant to AES, studies were conducted on establishing plants from tissue culture in a greenhouse then transferred to the field. A thousand plants from five elite sugar cane lines were successfully acclimatized and established on farm.

The Agronomy Program was awarded a capacity building grant through the USDA-RIIA-AGFEI program titled "University of the Virgin Islands, Agricultural Experiment Station Rainwater Harvesting, Storage, and Micro-Irrigation for Water Self-Sufficiency" in 2017. This grant will allow UVI-AES to merge existing irrigation infrastructure with rainwater catchment, distribution, and irrigation technologies that provide state-of the-art solutions to water conservation and agricultural sustainability in the hot, humid tropics. The Agronomy Program continues to promote and develop cover crop management systems and farmer adoption of cover crop technologies. Dr. Stuart Weiss is a founding board member of the Southern Cover Crops Council and he attended the 2017 annual meeting that was held in College Station, Texas in July, 2017. Dr. Weiss is involved in humanitarian aid in Haiti where he conducts agricultural development work on the outlying island of Ile-a-Vache. His work involves the development and improvement of local farms and the establishment of a farm to school food program. These programs aim to increase both childhood and maternal health and nutrition. Additional research and extension carried out by the Agronomy Program continues to support disadvantaged farmers, focusing on small farm sustainability and hillside farming systems. Current work involves quantifying ecosystem services of diversified small farms and the integration of multipurpose trees to increase soil and water conservation.

The U.S. Virgin Islands continued to have economic challenges. The overall unemployment rate was 10%, with the district of St. Croix having the highest level of 11.3%. The employment environment seemed to be steadying during the year but the job market still remained weak. The territory is facing a financial crisis due to a very high debt level and a structural budget deficit. As a result of this, residents continue to be desirous of developing new marketable skills, enhancing their current skill levels and reducing their food bill by growing some of the food they consume. The Cooperative Extension Service responded by providing short courses, workshops, and demonstrations so that residents would acquire new skills and improve their abilities for future employment, including self-employment. The programs planned and executed by the Cooperative Extension Service were designed to transform the lives of Virgin Islanders by addressing the high unemployment rate and cost of living. A total of 87 short courses, 155 workshops, and 48 demonstrations were conducted for residents. The Cooperative Extension Service co-sponsored major outreach and educational events including the VI Agriculture and Food Fair, Mango Melee and Tropical Fruit Festival and World Food Day observance. Staff made local media appearances on radio and TV stations.

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 lives of Virgin Islands residents. Through these activities the CES staff engaged a significant percentage of Virgin Islanders and awarded 459 certificates of program completion to clientele. This summary is grouped under the national challenge areas of the National Institute of Food and Agriculture.

The programs under Food Security promoted agriculture production and recommended improvements in the capacity to address food security issues by endeavoring to meet the growing demand for food grown locally in the Virgin Islands.

The small livestock and beef production program conducted workshops, demonstrations, and training to help farmers develop their pastures as they tried to recover from the major drought they experienced in the preceding years. Producers were also given training in management of their flocks. Animal identification continued to be demonstrated to farmers to assist them in identifying their animals for better management practices. In collaboration with the Agricultural Experiment Station, six improved pastures that were established during the previous year were monitored; five on the island of St. Croix and one on the island of St. Thomas. These pastures are contributing to increased animal productivity and the income of the livestock enterprises.

The Sustainable Agriculture Program conducted short courses, workshops, and demonstrations to inform producers about sustainable agricultural practices including composting, microirrigation, and soil conservation. The demonstration gardens on both islands continue to be an attraction for farmers, visitors, and students to be informed about good agricultural practices. The St. Thomas garden attracts cruise ship visitors who come to learn about local tropical fruits, culinary and medicinal herbs and sustainable gardening 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 PBS television station continued to broadcast gardening programs to the general public, with guest appearances by Cooperative Extension Service personnel, on how to start, maintain, and harvest products from your garden. Thousands of residents increased their level of knowledge on the benefits of creating and maintaining a garden for themselves and their family. Some of these residents inform us of the savings they experienced in their monthly household grocery bill as a result of producing vegetables in their home gardens.

The Urban Forestry Program continued to assist local residents in the proper maintenance and use of trees in public places. Arborist training was conducted in both districts. These workshops provided knowledge including proper pruning techniques, introduction to arboriculture equipment, deciding when to remove a tree and the importance of native trees.

Projects under Climate Variability and Change provided knowledge to help develop an agricultural system that maintains high productivity in conditions of climate changes. These programs assisted the producers to plan for and make decisions to adapt to changing environments 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 along with low-impact tourism concepts. The Water Quality Program continued to focus on transmitting information on water quality protection. Workshops and demonstrations on the use of non-toxic household products were given to schools, corporate groups, government agencies and the general public. 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.

Programs in the Childhood Obesity Prevention area provided guidance so that individuals and families can make informed, science-based decisions about their health and wellbeing. The programs promoted nutritious foods that are affordable and easily available.

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 205 teens and teachers and provided four healthy living lessons for 2,216 youth. There were positive responses and involvement from children who acquired knowledge about healthy living and healthy lifestyles. Children gained knowledge on healthy eating and the importance of physical activity.

The Food Safety programs intended to reduce the incidence of food borne illnesses and provide a safer food supply by educating consumers and food safety professionals on developing food processing techniques to improve safety. The food safety program focused its attention on the importance of safe handling practices in the preparation by food vendors as well as educating low-income families about basic

nutrition and behavior change practices. Basic food safety information was disseminated through classes, demonstrations, experiential activities and lectures. The EFNEP program continues to target low-income, at-risk clientele. 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 continued to evaluate the results of its activities which showed that the children who received information continued to improve on their knowledge gained.
The 4-H Youth and Volunteer Development program continued 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 two school-based clubs and one special-interest based club was established on St. Thomas. The Water Ambassadors Club which operated in three schools and had 404 members. Seven UVI students acted as mentors and received training on leadership styles, strategies and skills. As a result, they were expected and encouraged to model and foster leadership in their respective clubs and programs. A total of 25 adults and 31 teen leaders provided leadership for nine 4-H clubs and other special interest groups. 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 the STEM Program.
The Computer Training and Technology program continued to positively impact the Virgin Islands community. Class participants utilized the knowledge and skills gained from the computer literacy classes to help them acquire new skills for job placement and to advance in their present career. A total of 277 persons graduated from the computer classes and received certificates to assist in future employment.
The Marketable Skills program continued to train residents in 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 helped the clientele to generate income by being able to sell products, that they made, to the local community and to tourists.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	33.3	{No Data Entered}	9.7	{No Data Entered}
Actual	27.5	0.0	9.0	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, then 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 Relations Office for distribution to the general UVI community and the general public bulletin board. Invitations were also sent to various farmers' groups such as St. Thomas Livestock Associates Farmers, 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 Farmer Organizations.
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, 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. 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. 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 continued 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
{No Data Entered}	{No Data Entered}	{No Data Entered}	{No Data Entered}

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	1672971	0	266464	0
Actual Matching	566244	0	131244	0
Actual All Other	242076	0	397705	0
Total Actual Expended	2481291	0	795413	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

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.5	0.0	1.6	0.0
Actual Paid	1.8	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**
95000	0	143980	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
60000	0	70916	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
10000	0	214895	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 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.

• Developed an information exchange between established and developing farmers through farm visits to see what can be done to improve management and protection.

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 drop 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
• Livestock producers in the tropics, greater Caribbean, Central and South America and the southern US.
• School Lunch Program
• Senior Citizens

3. How was eXtension used?

no data entered

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	650	2000	450	1500

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	5

Output #2

Output Measure

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

Year	Actual
2017	8

Output #3

Output Measure

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

Year	Actual
2017	3

Output #4

Output Measure

- Farms would be visited for parasite monitoring and evaluation.

Year	Actual
2017	2

Output #5

Output Measure

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

Year	Actual
2017	0

Output #6

Output Measure

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

Year	Actual
2017	2

Output #7

Output Measure

- Provide training to farmers in identification methods.

Year	Actual
2017	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

Output #11

Output Measure

- Using new method of artificial insemination with liquid semen as opposed to frozen semen
  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	Develop methods to distribute germplasm

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
2017	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers want more and improved pasture to combat drought conditions and improve and increase nutrition.

What has been done
Maintenance of 15 acres of established Guinea grass Mombasa variety among 3 farmers.

Results
Better forage, higher nutrition, drought resistant varieties.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
312	External Parasites and Pests of Animals
315	Animal Welfare/Well-Being and Protection

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension Staff, farmers and buyers and the public because animals are healthier and fatter.

What has been done
Maintenance of pastures established.

Results
Farmers are able to produce and 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
2017	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
School children to improve nutrition.

What has been done
Maintenance of poultry at school.

Results
Chicken 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
2017	4

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

2017 0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers, public and the Extension Staff.

What has been done
Maintenance of proper sanitation practiced.

Results
Animals are healthier with less 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

Develop methods to distribute germplasm

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
- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

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

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 a meeting of the International St Croix Hair Sheep Association

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.6	0.0
Actual Paid	0.0	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**
0	0	750	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	369	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	1119	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct Research Experiments

- Publish results
- Present data at conferences

2. Brief description of the target audience

Target audience is livestock producers in areas of heat stress and collaborators on the multistate research project.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	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: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Abstracts presented at conferences

Year	Actual
2017	3

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Stress in livestock can have negative imparts on productions traits. Determining how animals respond to stress, and how to evaluate that response, can lead to better understanding of stress.

What has been done
Ewe water consumption at weaning was evaluated using a weaning process that usually limits water consumption to help dry up the ewe milk production.

Results
These data show that hair sheep in the tropics do not exhibit signs of dehydration from water deprivation during a 48-h weaning process. Water deprivation does decrease udder volume which may help to manage udder health.

4. Associated Knowledge Areas

KA Code	Knowledge Area
305	Animal Physiological Processes
306	Environmental Stress in Animals

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The drought of 2015 impacted calf numbers even into 2016 and we were not able to do environmental stress studies with the cattle.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Data was collected and analyzed for presentation at a conference in 2018.

Key Items of Evaluation

Hair sheep are well adapted to the tropics, and the lack of any negative impact of water deprivation at 120 weaning age adds to this body of data.

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.6	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**
155000	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
40131	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 that taught participants how to use Microsoft Windows, Microsoft Word, E-

mail, and search for information using the World Wide Web.

2. Brief description of the target audience

The population consisted 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	277	2100	92	1000

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	9

Output #2

Output Measure

- Conduct three-day workshops on Internet communication.

Year	Actual
2017	5

Output #3

Output Measure

- Conduct six-day workshops on Microsoft Excel

Year	Actual
2017	3

Output #4

Output Measure

- Conduct five-day workshops on Microsoft PowerPoint

Year	Actual
2017	3

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
2017	99

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
Nine of the UVI CES seven-week 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
97% of individuals participated indicated that they acquired/increased 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
2017	99

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 knowledge or increase 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 their some task easier.

What has been done
Nine of the UVI CES seven-week Basic Computer Training Courses were conducted. These classes taught how to use Microsoft Word.

Results
100% of individuals participated 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
2017	127

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 to 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
Nine of the UVI CES Basic Computer Training Courses were conducted. These classes taught how to use e-mail account. Also three two-day Internet workshop were conducted. These workshops also taught how to use e-mail account.

Results
94% of individuals 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
2017	127

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 and the large volume of information available makes the internet a valuable tool in an individual's life. Individuals also can perform a variety of tasks using the internet such as shopping, banking and paying bills.

What has been done
Nine of the UVI CES Basic Computer Training Courses were conducted. These classes taught how to use the internet. Also three internet workshop were conducted.

Results
95% of individuals 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
2017	23

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 Excel. MS Excel is 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
100% of individuals 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
2017	28

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

Results
97% of individuals 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.)
- Economy
- Appropriations changes
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

There was an increase in the number of people shopping online to save money.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The pre and post evaluation indicated that a significant amount of participants increased their knowledge and skill of the computer.

Key Items of Evaluation

The key evaluation tools were used to evaluate participants.

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.2	0.0	0.0	0.0
Actual Paid	0.4	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**
100000	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**
5000	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Professional linkages were maintained with other agricultural organizations in the Eastern Caribbean. Shortcourses, workshops, and training sessions were conducted for agricultural specialists, youth leaders and volunteers. Extension specialists provided consultations on food and nutrition programs, sustainable agriculture, horticulture, and livestock production and management. Breeding animals were exchanged with other islands through the Breeders Exchange Program. A directory of individuals and institutions in agricultural research and development in the Eastern Caribbean was expanded and updated. UVI/CES telecommunication systems for collaborative training with other regional institutions was 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 was 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	300	750	150	600

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	3

Output #2

Output Measure

- International and regional workshops will be coordinated.

Year	Actual
2017	1

Output #3

Output Measure

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

Year	Actual
2017	0

Output #4

Output Measure

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

Year	Actual
2017	1

Output #5

Output Measure

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

Year	Actual
2017	450

Output #6

Output Measure

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

Year	Actual
2017	4

Output #7

Output Measure

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

Year	Actual
2017	150

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
2017	3

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
Regional and National Scientists made presentations, 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
2017	3

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
2017	450

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Livestock producers in Caribbean countries and territories who are interested in improving their production operations. Departments of Agriculture in the Caribbean who are interested in livestock genetic improvement in the Caribbean region. It is very difficult to get breeding stock on some islands.

What has been done
Four hundred 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
2017	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

V(I). Planned Program (Evaluation Studies)

Evaluation Results

n/a

Key Items of Evaluation

n/a

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
111	Conservation and Efficient Use of Water	20%		0%	
205	Plant Management Systems	20%		0%	
307	Animal Management Systems	20%		0%	
403	Waste Disposal, Recycling, and Reuse	20%		0%	
601	Economics of Agricultural Production and Farm Management	20%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	3.6	0.0	6.0	0.0
Actual Paid	5.1	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**
200000	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
65000	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
40000	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.

2. Publications (e.g. fact sheets) and newsletter articles were developed and published to disseminate information regarding sustainable production and marketing practices.

3. Announcements were made through the print and electronic media to promote educational activities and disseminate information about sustainable agricultural practices.

4. Farm visits and telephone contacts were made to address clientele problems and to disseminate information about the program.

5. Workshops and other projects were 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 general target audience consisted of crop and livestock producers, outreach professionals from government and academic institutions, students, and young adults who aspire to be farmers. The primary audience was 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	535	200	225	150

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Actual
2017	8

Output #2

Output Measure

- Nulmber of publications

Year	Actual
2017	0

Output #3

Output Measure

- Number of announcements through print and electronic media

Year	Actual
2017	18

Output #4

Output Measure

- Number of farm visits and telephone contacts

Year	Actual
2017	110

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 farm financial and operational planning, organizing, managing, and 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

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A limited number of producers and farm families are fully aware of the principles and practices of sustainable agriculture.

What has been done
To address this need eight (8) educational programs were conducted throughout the territory to increase knowledge and awareness of sustainable agriculture principles and practices.

Results
A total of 205 producers increased their knowledge of sustainable agriculture theory and practices as a result of the training activities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
205	Plant Management Systems
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse
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
2017	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A limited number of producers are aware of the value and potential benefits of value added agricultural practices.

What has been done
In addition to on-site farm visits this need was primarily addressed through demonstrations and other educational activities conducted at food fairs and exhibitions.

Results
An estimated 180 producers and other interested persons increased their knowledge regarding value added agricultural practices.

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 farm financial and operational planning, organizing, managing, and recordkeeping practices by 10%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	9

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers are in need of training regarding the business, farm financial planning, and record keeping aspects of the industry

What has been done
In response to this need workshops were conducted that focused on record keeping tax filing, and the cooperative business model.

Results
As a result of the educational initiatives conducted a total of 150 producers increased their knowledge of farming as a business.

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 complete implementation of all planned educational activities was hampered by the occurrence of two hurricanes in September 2017.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

no data entered

Key Items of Evaluation

no data entered

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
205	Plant Management Systems	95%		80%	
403	Waste Disposal, Recycling, and Reuse	5%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.2	0.0	4.5	0.0
Actual Paid	2.5	0.0	3.6	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**
175000	0	11111	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
50000	0	5473	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	16583	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
Vegetable trials
Microirrigation
Biotechnology
Aquaponics
Germplasm evaluation and breeding

2. Brief description of the target audience

•Homeowners •Horticultural Organizations •Public Housing Residents •Senior citizens homes
•School teachers •Policy Makers •Master Gardeners Candidates •Youth groups

3. How was eXtension used?

no data entered

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1425	850	450	150

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

Patent Applications Submitted

Year: 2017
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Actual
2017	12

Output #2

Output Measure

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

Year	Actual
2017	8

Output #3

Output Measure

- Number of educational classes in the benefits of proper gardening

Year	Actual
2017	12

Output #4

Output Measure

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

Year	Actual
2017	230

Output #5

Output Measure

- Number of articles/publications on urban gardening management

Year	Actual
2017	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

2017	3

Output #7

Output Measure

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

Year	Actual
2017	125

Output #8

Output Measure

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

Year	Actual
2017	2

Output #9

Output Measure

- Number of public and private entities and individuals establishing gardens

Year	Actual
2017	0

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
2017	500

Output #11

Output Measure

- Number of abstracts presented at conferences

Year	Actual
2017	0

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 residents, public and private agencies who will establish gardens by 10%
4	Increase the number of residents, public and private agencies who start composting by 5%
5	Increase the number of growers using microirrigation and controllers
6	Increase the number of root crop growers
7	Increase the number of commercial aquaponic systems

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

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
An increasing number of residents desire to increase their knowledge and awareness of the benefits of urban gardening.

What has been done
In order to address this need site visits and demonstrations were conducted, and guest presentations were delivered to students, home owners, and community groups. Information was also shared via social media.

Results
An estimated 500 persons throughout the territory increased their knowledge as a result of CES? efforts.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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
2017	6

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 in crop and urban gardening production.

What has been done
In response to this need the CES conducted workshops, demonstrations, as well as home and other site visits.

Results
As a result of CES' efforts approximately 800 residents increased their knowledge of this subject.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #3

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

2017	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many residents have expressed an interest in establishing home gardens to enhance their health and well-being in addition to reducing their food costs.

What has been done
In order to address this need the CES team conducted numerous visits and demonstrations in schools, private home and public housing communities.

Results
Approximately 150 residents have directly reported to the CES regarding grocery cost savings as a result of their home garden 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 start composting by 5%

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many residents throughout the territory continue to express an interest in increasing their knowledge regarding the science and benefits of composting.

What has been done
In response to this need the CES conducted several site home and farm visits and delivered

guest presentations and demonstrations on the topic.

Results

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

Increase the number of growers using microirrigation and controllers

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Local farmers and backyard gardeners. Water is a vital component of agriculture in a semi-arid environment of the U.S. Virgin Islands that experiences wet and extended dry season. Monitoring and controlling water usage is critical. New technologies use solar panels to control irrigation valves and soil moisture;

What has been done
The CES responded to this need by conducting several demonstrations and sharing information via social media.

Solar panels were employed to provide energy source to monitor crop soil moisture and activate irrigation watering needs on multiple vegetable crops.

Results
An estimated 100 persons implemented some level of micro-irrigation technology as a part of their urban gardening efforts.
The solar system was expensive and beyond the capacity to afford the system on small farms.
The system was also sensitive to our tropical rugged climate

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #6

1. Outcome Measures

Increase the number of root crop growers

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Small scale crop backyard growers.
The high pH soils with abundant potassium are beneficial for production of root crops. The tropical environment makes it possible for multiple cropping cycles in a year.

What has been done
Sweet potatoes were grown of early maturing varieties and harvested after 100 days. Varieties included orange, purple and white fleshed varieties.

Results
Three crops of sweet potatoes could be produced in one year. Harvesting at 100 days avoided weevils in the tuberous roots, Utilizing multiple flesh-colored varieties could increases the nutritional level and value of the crop.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #7

1. Outcome Measures

Increase the number of commercial aquaponic systems

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
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

The implementation of program initiatives was severely hampered by the impact of two major hurricanes during the month of September 2017. Not only did these storms destroy infrastructure of the islands and campus but also crop production.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

no data entered

Key Items of Evaluation

no data entered

V(A). Planned Program (Summary)

Program # 7

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: 2017	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**
130000	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**
12642	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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1610	4275	1125	1680

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of educational classes on the benefits of tree.

Year	Actual
2017	6

Output #2

Output Measure

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

Year	Actual
2017	2

Output #3

Output Measure

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

Year	Actual
2017	127

Output #4

Output Measure

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

Year	Actual
2017	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 become educated about and 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
2017	1250

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 about the role of trees in the environment, particularly in urban communities, maintains its importance. The VI economy is experiencing an economic downturn and many 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 residents with an emphasis on 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. Artisans, homeowners, landowners, persons interested in earning additional income, policymakers, youth, educators, persons concerned about the environment and the general public should all care about the contributions made by urban and suburban forests.

What has been done
Extension staff set up displays and provided one-on-one consultations with attendees at the Agriculture and Food Fair of the Virgin Islands, the Virgin Islands Native Trees and Flower Fair, Arbor Day and Earth Day events.

Technical assistance was provided to VI Territorial Park managers about protecting native coastal trees and continued to help the Magens Bay Authority develop a plan to train park field guides. Tree removal plans in areas slated for building construction were evaluated and information provided. Staff served on and provided information to potential enrollees in the VI-DOA Forest Stewardship and Forest Legacy Programs and reviewed program conservation plans.

Composting workshops and demonstrations were conducted in schools. 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 educational activities reported that they became more aware of the economic and environmental benefits of trees. Approximately 870 attendees at the agriculture fair and other educational outreach events learned of the economic potential for products from tree and tree parts. Youth who attended the composting workshops increased their knowledge about composting and the benefits of using compost.

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
2017	1180

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 occurrences 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 Virgin Islands Agriculture and Food Fair provided CES with the opportunity to influence a large group of clients and other residents over a three-day period in a concentrated effort. Extension staff had the opportunity to provide literature and conduct one-on-one consultations 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 were used as methods to provide them with current tree management information. Radio appearances also provided general information to a broad audience. On-site visits provided additional opportunities for hands-on practical demonstrations and providing technical information.

Staff participated in meetings, as members of the VI Urban & Community Forestry Council, Inc., with VI legislators and continued discussions on the progress of 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 proper pruning techniques, introduction to arboriculture equipment, deciding when to remove a tree and the importance of native trees in the ecosystem.

Results

CES contributed factsheets, brochures, and other tree care information materials to the VI Native Tree and Flower Fair on St. Thomas. There were 20 vendors including arts and crafts, wood turning sculpture workshop, broom making, along with native tree seedlings distribution. There were over one hundred persons in attendance. The Bill related to the Community and Heritage Tree law of the Virgin Islands is still being considered by the legislature. A legislative committee hearing was held recently. Staff participated in four urban forestry projects (three on St. Croix, and one on St. John).

Sixty 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 six hundred (600) individuals were directly impacted and thousands more indirectly by displays and interaction with Extension staff at the annual agriculture fair and other educational outreach activities. 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 become educated about and 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
2017	147

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 various sites, CES provided technical information about conserving and incorporating native and non-invasive exotic plants in public landscapes to government personnel, new business operators, personnel from NGOs involved in urban and community forestry projects, engineers/architects/contractors, students/faculty, and the general public. CES conducted urban tree tours for UVI students and CES summer camps. An urban forestry project on St. John project involved the planting of 70 native and endangered species trees.

Results
Recommendations were made to incorporate native trees in other projects and persons were trained on the proper methods of tree planting. Almost 200 trees were planted as part of urban and community forestry and other tree planting projects.

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.)
- Other (Disaster Recovery Efforts)

Brief Explanation

The worsening economic conditions in the Virgin Islands have resulted in UVI-CES budget cuts and staff reductions which continue to create challenges in program delivery. We closed the year with the islands being devastated by two Category 5 hurricanes. 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 # 8

1. Name of the Planned Program

Marketable Skills for Limited Resource Families, Youth and Comunities

☑ 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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.9	0.0	0.0	0.0
Actual Paid	2.1	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**
122971	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

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

• Provided orientation, training and professional development for volunteers, partners, 4-H/Family and Consumer Sciences/CYFAR staff, and CES personnel.

• Utilized multi-media outlets to promote FCS programs to attract potential clientele.

• Conducted workshops and short courses that help low-income, at-risk audiences build knowledge, skills and attitudes that will positively impact their quality of life.

• Collaborated 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	660	1500	65	450

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	4

Output #2

Output Measure

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

Year	Actual
2017	15

Output #3

Output Measure

- Number of special interest workshops conducted

Year	Actual
2017	4

Output #4

Output Measure

- Number of youth, volunteers, staff and partners trained

Year	Actual

2017	100

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
2017	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
Limited workshops, short courses and educational sessions were offered throughout the year.

Results
More frequent and 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
2017	45

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
2017	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Batik classes continue to be in demand on 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; hot to work with various methods of creating these designs and learn the steos in creating a batik fabric.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	25

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
2017	120

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
2017	120

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The community at large benefits from being better trained since there is a need to increase the number of 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
2017	20

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
2017	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The general community benefits from enhanced skills which leads 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
2017	20

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
2017	18

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 will, 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
2017	15

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
2017	12

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
2017	15

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. Category 4 and 5 Hurricanes in September devastated the territory's infrastructure and made it very difficult to conduct business as usual. It is anticipated that recovery will take a few years at the same time the weather forecast has cautioned the territory because of the prospect of another difficult cycle in hurricane season 2018.

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 # 9

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	3.8	0.0	0.0	0.0
Actual Paid	3.7	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**
125000	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**
102434	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/or 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.

- Developed a web page that relays information on issues relating to the program.

2. Brief description of the target audience

The program targets 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	455	750	1392	500

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	62

Output #2

Output Measure

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

Year	Actual
2017	4

Output #3

Output Measure

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

Year	Actual
2017	2

Output #4

Output Measure

- Number of web sites developed and maintained

Year	Actual
2017	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
2017	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
2017	43

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
2017	57

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
2017	1089

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Nutrition educators, health educators, department of education

What has been done
6-8 week classes in the 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
2017	30

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Nutrition educators, health educators

What has been done
6-8 week classes

Results
youth demonstrate 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
2017	346

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Nutrition educators; health educators

What has been done
6-8 week classes; pre-post tests

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
2017	346

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Nutrition educators, health educators

What has been done
Classes for the youth and adults

Results
Pre-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 is subjected to possible food borne illnesses . The recent category 5 hurricanes have increased this probability due to sporadic, limited electricity and limited water in some areas.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Pre- post tests demonstrated 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 # 10

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	3.7	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**
125000	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:

a beverage poster, brochure and/or flyer that lists the sugar and calorie content of commonly consumed beverages in the territory;

vegetable nutrient composition poster, brochure and/or flyer that highlights the nutritional value of local vegetables--it will include the vitamin, mineral, and fiber content of local vegetables;

a poster, brochure, and/or flyer detailing the sodium, fat, cholesterol, carbohydrate, and fiber content of commonly consumed local foods;

a diabetes exchange list booklet that include local foods and beverages; and

a culturally sensitive cookbook using local and familiar produce.

- 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/or 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.

- Developed a web page that relays information on issues relating to the program.

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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1275	650	1133	500

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	62

Output #2

Output Measure

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

Year	Actual
2017	4

Output #3

Output Measure

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

Year	Actual

2017	4

Output #4

Output Measure

- d. Number of web sites developed and maintained.

Year	Actual
2017	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
2017	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
2017	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
2017	894

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cooperative Extension Service, Department of Education, Department of Health personnel are concerned; the wellness of our population is important to help decrease nutrition 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
2017	43

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cooperative Extension Service, Department of Education, Department of health personnel all are concerned about the wellness of our population.

What has been done
6-8 week workshops with adults and youth

Results
90% improvement in one or more healthy life styles 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

2017	851

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cooperative Extension Service, Department of Education & Department Health personnel are all concerned about the wellness of our youth.

What has been done
6 weeks of nutrition lessons with the youth in the schools

Results
85% show a change in healthy life styles

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
2017	851

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cooperative Extension Service, Department of Education, Department of Health personnel care about the health of our youth and the prevention of 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
2017	500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Cooperative Extension Service, Department of Healthy, 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
2017	43

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 improved 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

The USVI lies in a hurricane prone zone. Natural disasters such as hurricanes will disrupt all aspects of life in the Virgin Islands - need survival skills to acquire safe food and water. Experienced 2 category 5 hurricanes within 2 weeks in September.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

none

Key Items of Evaluation

none

V(A). Planned Program (Summary)

Program # 11

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	0.0	0.0
Actual Paid	3.1	0.0	0.0	0.0
Actual Volunteer	6.0	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**
145000	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
31013	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

4-H ADULT and TEEN LEADER ENGAGEMENT
A total of 165 adults provided leadership for 4-H programs throughout the territory; 53 adults and teens received additional training using 4-H 101/102:

- St. Croix
  25 adult volunteers and 31 teens served as organizational and project leaders for (3) community based clubs; (4) school based clubs and (2) 4-H projects
  128 adults and 57 teens provided leadership for the 4-H Healthy Living Program
- St. Thomas/St. John:
  5 adult volunteers supported (2) school-based 4-H clubs
  7 adults and 2 teens provided leadership for the 4-H Healthy Living Program

4-H YOUTH ENGAGEMENT
A total of 3,097 youth were enrolled in nine (9) 4-H clubs and special interest groups territory-wide as follows:

- St. Croix
  412 youth enrolled in (3) community based clubs; (4) school based clubs
  2,216 youth engaged in 4-H Special Interest 4-H Healthy Living programming
- St. Thomas/St. John:
  65 youth enrolled in (2) school based clubs
  404 youth engaged in 4-H Special Interest Water Quality and Healthy Living programming

GRANTS:
2016-2017 4-H Healthy Living Grant

- Hired two adult volunteers to provide leadership and supervision
- Engaged 7 UVI students as mentors
- Recruited and trained 57 teens as teachers
- Partnered with 128 teachers, camp counselors, program staff to facilitate grant implementation
- Provided four healthy living lessons for 2,216 youth

2017 V.I. Department of Labor - Career Exploration Mini-Grant

- Trained 13 teens using "Skills to Pay the Bills" curricula
- Provided 13 teens with hands-on learning experiences serving as apprentice 4-H Health Ambassadors
- Four (4) teens are now enrolled in 4-H

4-H Military Partnership:

- Supported 17 youth enrolled in St. Croix Military 4-H Club
- Trained 5 adult military personnel as volunteers
- Conducted two 4-H workshops for military youth:
- Guard Youth Team Building (GYTB) - 52 youth; leadership, team building
- Month of the Military Child Family Connect - 14 youth; family relationships, STEM

4-H PROGRAMS, EVENTS and ACTIVITIES:

- 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 2017 UVI AgDiscovery program enrolling 20 teens including three teens from the territory.

2. Brief description of the target audience

- 4-H alumni
- < >

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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	500	950	4500	1000

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of volunteers serving

Year	Actual
2017	165

Output #2

Output Measure

- Number of volunteers trained

Year	Actual
2017	53

Output #3

Output Measure

- Number of clubs operating

Year	Actual
2017	9

Output #4

Output Measure

- Number of youth enrolled

Year	Actual
2017	3879

Output #5

Output Measure

- Number of positive youth development events organized

Year	Actual
2017	12

Output #6

Output Measure

- Number of counsellors hired

Year	Actual
2017	0

Output #7

Output Measure

- Number of campers enrolled

Year	Actual
2017	0

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
2017	165

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 host of adult volunteers (teachers, counselors, program staff) who facilitated implementation of the 4-H Healthy Living grant in addition to the 37 volunteers serving as organizational and project leaders supporting nine (9) 4-H clubs.

What has been done
In spite of several challenges, we have recruited and trained seven (7) new adult volunteers who joined a team of 28 adults. An energetic and growing team of 25 teen leaders plays a critical role in our being able to successfully organize and implement the many different 4-H programs, events and activities.

Results

Results
Over and above the 128 adult volunteers and 57 teens working in support of the 4-H Healthy Living grant, a total of 28 adults and 25 teens provide ongoing support and leadership for nine (9) 4-H clubs, special interest programming, 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
2017	53

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Empowering a team of caring, competent, compassionate adult and teen leaders is necessary to have high-functioning 4-H clubs. In addition to 28 adults and 25 teens providing leadership for nine (9) community, school-based and special interest groups, 2 adults, 7 UVI student mentors and 57 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 development, 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 165 adults and 82 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
2017	9

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-eight adult volunteers and 25 teens support nine 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 remains consistent with increased interest and engagement with older youth.

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
2017	3879

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 412 youth are enrolled in nine 4-H clubs; 2,281 youth are engaged in 4-H through special interest programming primarily in healthy living. The majority (396) 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
2017	12

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 currents 4-H members and potential new youth and leaders.

Results
Twelve (12) programs, events and activities have resulted in over 1,000 direct youth contacts of which just over 50% are 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

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

Number of campers enrolled in summer camp

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
- 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. The recent category 5 hurricanes adversely affected all aspects of youth activities.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

No formal evaluation of this program is planned.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 12

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: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.4	0.0	0.0	0.0
Actual Paid	1.8	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**
150000	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

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.

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.

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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2590	1500	860	600

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	33

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
2017	1

Output #3

Output Measure

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

Year	Actual
2017	22

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
2017	4

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
2017	3

Output #6

Output Measure

- Fairs

Year	Actual
2017	2

Output #7

Output Measure

- TV/Media

Year	Actual
2017	10

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	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.
3	Fifty (50) homeowners will improve cistern water quality by following CES recommendations.
4	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.

Not Reporting on this Outcome Measure

Outcome #2

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
2017	375

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, 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 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 about VI*A*SYST 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.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #4

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
2017	160

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

VI youth and their instructors need basic scientific information about the unique connections between land and sea and how human activities affect water quality. With the rapid urbanization in the VI, the youthful population will be the most affected by land-use impacts degrading water quality.

What has been done

CES provided UVI 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 undergraduate biology students conducting VI watershed research continue to use information provided by CES. 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

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 want to continue partnering with CES on new projects. Short and long-term effects of Hurricanes Irma and Maria on FY 17 WQ program outputs and outcomes await evaluation.

Key Items of Evaluation

All key items of evaluation were used.

V(A). Planned Program (Summary)

Program # 13

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: 2017	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**
150000	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

• Continued participation with the development and implementation of environmental management, habit protection and restoration plans for territorial parks and recreation areas.

• Continued 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.

• Developed 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.

• Developed 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.

• Utilized 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.

• 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, 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.

• Played 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.

• Conducted 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3600	1700	1100	700

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	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
2017	39

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
2017	1

Output #3

Output Measure

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

Year	Actual
2017	180

Output #4

Output Measure

- Tours of VI natural areas for students and community groups

Year	Actual
2017	4

Output #5

Output Measure

- E-education - NREM websites updated

Year	Actual
2017	1

Output #6

Output Measure

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

Year	Actual
2017	4

Output #7

Output Measure

- Fairs

Year	Actual
2017	3

Output #8

Output Measure

- TV/Media

Year	Actual
2017	10

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	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
2017	4

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 provided technical assistance to VI Territorial Park managers about protecting native coastal trees and cultural resources and continued to help Magens Bay Authority develop a plan to train park field guides. CES evaluated tree removal plans in areas slated for building construction, provided information regarding maintenance of coastal vegetation to hotel staff at one St. Thomas public beach, served on a regional committee to develop a Territorial Wildlife Management plan (incl. plants), and assisted the VI Div. of Fish & Wildlife Service (FWS) with VI cays invasive species. Management Plan. CES provided information to potential enrollees in the VI-DOA Forest Stewardship and Forest Legacy Programs and reviewed program conservation plans.

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 and one St. Thomas cay through the Forest Legacy and Forest Stewardship Programs. CES Information about VI plants of special concern were included in a draft Territorial Wildlife Management Plan and a VI Div. of FWS report regarding VI cays. CES assisted Magens Bay Authority in association

with Royal Caribbean Cruise Line and Fairchild Tropical Garden with developing a plan for replacing native trees destroyed by Hurricanes Irma and Maria.VI Territorial Parks followed CES recommendations and preserved native coastal trees in coastal area and landscape maintenance personnel (hoteliers, vendors and VI Parks and Recreation staff) at two popular St. Thomas beaches continue to follow CES recommendations regarding Sargassum nutans seaweed removal from beaches 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
2017	260

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 and Demonstration Garden visits, CES Facebook page and 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

UVI Students and other groups indicated that they learned about protecting and documenting VI native plants during CES herbarium tours. CES publications prompted client requests for information about native plant ecosystems, including plant identifications. The UVI Beautification Committee approved a plan for adding more educational signage to the CES Demonstration Garden including information about VI native plants and their natural habitats. CES displayed information about native plant habitats at the 1st annual STT-STJ VI Native Trees and Flowers Fair presented by the VI Urban Forestry Council to build community awareness of the importance of protecting and replanting V.I. native trees. VI students and other university environmental science graduate students used the UVI-CDC-CES field guide about VI plant and marine ecosystems. Requests for CES' book (1997) about VI traditional medicinal plants increased; students and a SCSEP trainee assisted updating the publication for reprinting. CES provided the Coral Bay Community Council (watershed assoc.) with additional information for its erosion control handbook and helped CBCC and others identify watershed trees. Through tours and consultations, CES provided participants in the CES-hosted Agricultural Enrichment Summer Camp with information about native tree habitats. Participants in a CES-sponsored Arborist Training Workshop learned about the importance of preserving VI native trees. CES provided the post-hurricane green-waste debris removal advisory group with information about uses of VI native trees.

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

2017 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 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 EPSCoR (Established Program to Stimulate Competitive Research) and Green Technology Center, and VI schools (CES Water Ambassadors Program, K-12). Contacts were made during site visits, class presentations, and advisory committee meetings, educational displays focusing on possible effects of climate change on local watersheds and ecosystems, and through distribution of watershed data/publications.

Results
CES' native tree selection and planting recommendations to protect areas disturbed by the construction of new marine research dock continued to be implemented by UVI's Center for Marine and Environmental Management. CES' routine interactions with stakeholders (vendors, lifeguards, managers) at public beaches addressed management issues and reduced impacts of land-based sources of pollution affecting coastal resources. CES' advise was followed by St. Thomas Territorial Park managers (Magens Bay Authority, Smith Bay and VI Government personnel) resulting in the protection of native trees near beaches and wetlands including an impacted STT mangrove swamp. Long-range strategies to purchase and conserve VI priority watersheds were developed with CES' assistance through the VI Forest Stewardship and Forest Legacy Program committees. CES information about plants was used in a VI Div. of Fish and Wildlife conservation plan for VI cays. Additional CES information was incorporated into watershed association publications, environmental management graduate students' research and UVI undergraduate Independent Student research projects.

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

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
2017	100

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, tourism-related businesses with information about VI natural and cultural history. CES assisted with the conservation of VI properties suitable for ecotourism and responded to requests from StT VI Territorial Park managers for help in developing a cultural and natural history tour guide training program and developed a plan to improve educational signage in the CES Demonstration Garden to increase its use for 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 CES publications about VI native ecosystems. 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. Following recommendations from VI SHIPO, CES partnered with the U. of Alabama Cultural Resources Investigator, Dr. Brook Persons, in a research proposal submitted to Magens Bay Authority outlining possible a curriculum for a tour guide training program and educational display development based on pre-historic and historic land-use and natural resource management practices in the park. The recently launched VI BigTree.net website provides tour business with locations of remarkable big trees.

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). Some of the employees in these agencies acknowledge the need for more comprehensive enforcement of environmental laws, but they indicate that they need additional staff support and technical assistance from partners to effectively enforce existing regulations. There may be significant short and/or long-term effects of Hurricanes Irma and Maria on FY 17 NREM program outputs and/or outcomes.

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 attending 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' 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' guidance and technical assistance; they also indicate that they want 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 # 14

1. Name of the Planned Program

Aquaculture

☑ 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
205	Plant Management Systems	0%		50%	
307	Animal Management Systems	0%		10%	
403	Waste Disposal, Recycling, and Reuse	0%		40%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	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	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
0	0	19615	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	9661	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	29276	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research Comparing 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	30	5	3	0

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Abstracts and presentations at conferences

Year	Actual
2017	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
2	Increase the number of commercial aquaponic systems

Outcome #1

1. Outcome Measures

Increase knowledge of the differences between aquaponics and nutrient film techniques

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	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
One trial was 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. A trial was conducted with 6 NFT systems. An inorganic nutrient solution was compared with an organic nutrient solution derived from fish fecal waste. Four varieties of red leaf lettuce were produced in each system. A leafy green vegetable trial was conducted in the Commercial Aquaponic System to select the most productive varieties.

Results
The direct comparison of NFT systems with inorganic nutrients with organic nutrients from two tilapia feeding rates yielded positive results. Managing nutrient concentration by measurement of electrical conductivity (EC) yielded greater production. The high feeding rate yielded higher production than the low feeding rate. The NFT trial comparing inorganic and organic nutrient solutions yielded strong results. When inorganic nutrients are provided they can be managed by measurement of EC and supplementation with additional nutrient salts. The organic nutrient source from oxidized fish fecal waste was more difficult to manage and resulted in lower production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
307	Animal Management Systems
403	Waste Disposal, Recycling, and Reuse

Outcome #2

1. Outcome Measures

Increase the number of commercial aquaponic systems

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers in the USVI are interested in implementing aquaponics in their farm plans. Aquaponics diversifies their income with the additional production of fish and is a sustainable method of reusing water resources, recovering waste nutrients into valuable vegetable crops and reduces waste discharge to the environment. Aquaculture production can provide a substitute to wild-caught fish and relieve pressure on fisheries.

What has been done
A commercial aquaponic system has been developed and tested for many crops, production strategies and income generation potential.

Results
A single UVI Aquaponic System can produce 5 MT fish per year and 6.5 MT of lettuce or other leafy greens per year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
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
- Competing Public priorities

Brief Explanation

Tropical force winds causing power outage can have a negative influence on aquaponic production and a backup generator is required. Two category 5 hurricanes devastated the Virgin Islands in September. Not only did these storms destroy infrastructure of the islands and campus but also crop production.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

N/A

Key Items of Evaluation

N/A

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

Agronomy - Evaluation of Integrated Tropical Cover Crop System

☑ 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%	
204	Plant Product Quality and Utility (Preharvest)	0%		30%	
205	Plant Management Systems	0%		40%	
307	Animal Management Systems	0%		20%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	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	1.8	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	91008	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	44825	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	135832	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct research project
- Present data at conferences
- Publish results in scientific journals
- Conduct local seminars and regional workshops

2. Brief description of the target audience

The greater target audience consists of crop farmers in the tropics, greater Caribbean, and the southern USA. The program's general target audience will consist of crop and livestock producers, outreach professionals from government and academic institutions, and students. The primary audience will be 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

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	75	0	25	0

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	0	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Actual
2017	5

Output #2

Output Measure

- Number of publications

Year	Actual
2017	1

Output #3

Output Measure

- Number of farm visits and telephone contacts

Year	Actual
2017	15

Output #4

Output Measure

- Number of announcements through print and electronic media

Year	Actual
2017	0

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%

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 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	5

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. Sunn hemp (Crotalaria juncea L.; [SH]) is an important warm season crop that has the potential to provide ecosystem services and cover crop legacy effects to subsequent vegetable crop rotations. Sunn hemp is also a high quality forage legume that can improve pasture quality and increase livestock performance. 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 in vegetable systems and invasive low quality grasses that invade, then diminish pasture quality. In vegetable systems, SH grown as a cover crop can be terminated with a roller-crimper and then used as in-situ mulch to suppress weeds. Adoption of this practice by farmers could reduce soil disturbance, provide extended weed suppression, and increase the soil quality and functionality. Additionally, SH can be no-till, direct seeded into low quality native pasture to improve pasture quality and increase livestock performance. This practice would increase farm productivity and reduce the need for complete pasture re-establishment that requires extensive soil tillage, herbicides, a long establishment period, and possible crop failure.

What has been done
Experiment 1.)
Experiments were conducted at two independent, on-farm field sites on St. Croix, USVI that began in 2016 and ended in 2017. Sunn hemp was established in both experimental fields on September 16, 2016 and mechanically terminated with a roller-crimper on January 18, 2017. Three treatments were replicated three times in a randomized complete block design. Treatments included: 1) sunn hemp mulch (SHM), 2) sunn hemp mulch plus hay (SHM+hay), and 3) sunn hemp mowed and soil incorporated that served as a check plot (SH+none). A tractor mounted minimum-till ripper was used to make planting furrows (1.5 m apart) in all treatments; then direct

seeded with Calabaza (West Indian) pumpkin (Cucurbita moschata). In-row seed spacing was 1.2 m with rows spaced at 1.5 m for an estimated 5,382 pumpkin plants/ha. Row and row-middle weed populations were assessed at 3, 6, 9, and 12 weeks after planting (WAP). Following each weed sampling all weeds were removed from each plot by hand labor. Hay mulch was applied to the pumpkin SHM+hay treatment directly following the 3-week weed assessment.
Experiment 2.)
This experiment determined if sunn hemp could be effectively no-till seeded into hurricane grass pasture and to evaluate post-weaning lamb performance as a measure of native vs. improved grazing system productivity. St. Croix x Dorper hair sheep lamb performance was evaluated from two different post-weaning grazing systems. The control grazing system represented conventional grazing on low quality native pasture (NP). The second grazing system consisted of similar low-quality NP and improved with the tropical legume Crotalaria juncea L. cv tropic sunn (Improved Pasture; IP). Post weaning lambs were stratified by weight into either the NP or IP treatment with three replicates (n=42). Both treatment grazing systems consisted of hurricane grass (Boithrocloa pertusa L.) and guinea grass (Panicum maximum L.). The IP treatment was improved with sunn hemp which was directly seeded into the hurricane grass sod using a No-Till Drill at a seeding rate of 45 kg/ha. Lambs were rotationally grazed on both the NP and IP for 98 days.

Results
Experiment 1.)
Above-ground biomass of sunn hemp at termination did not differ between fields; and measured 5,563 kg ha-1in field 1 and 5,701 kg ha-1 in field 2. Overall, weed biomass results (at 3, 6, 9, and 12 WAP) indicate that there was either no difference in weed biomass across treatments or that the SHM+hay treatment had less weeds than both the SHM and SH+none treatments, which were similar. Total pumpkin yield differed by field, but not by treatment yielding a mean of 56,027 kg ha-1 (10.4 kg ha-1 per plant). However, the two greatest pumpkin yields were measured in the SHM+hay and SHM treatments in field one at 79,973 and 70,796 kg ha-1, respectively. Unmarketable yield did not differ by treatment or field with a mean of 795.5 kg ha-1 accounting for approximately 1% of the total harvest. Results indicate that pumpkin cropping systems that soil incorporate SH residue (full tillage) did not provide increased weed suppression compared to conservation tillage pumpkin production systems when planted into in situ SH mulch. Therefore, conservation tillage when integrated with cover crop mulching strategies can provide alternatives to full tillage with similar or reduced weed biomass without sacrificing pumpkin yields.

Experiment 2.)
Lambs grazing improved pastures (IP) exhibited an increase in overall lamb performance compared to lambs grazing native pastures (NP). IP lambs gained 4.7 kg representing an increase of 30% compared to NP lambs that gained 3.3 kg over the 98-day grazing period ($p<0.0001$). Lamb ADG on IP measured 48 g x day-1 compared to NP lambs that gained less at 34 g x day-1 ($p<0.0001$). At the end of the study, IP lambs were heavier than NP lambs weighing 36 compared to 33 kg ($p=0.012$), respectively.

Increased ADG is positively correlated to increased total weight gain and heavier lamb live weight. Additionally, lambs grazing legumes prior to slaughter exhibit improved carcass quality that consumers are willing to pay a premium for. Heavier lamb slaughter weight and improved carcass quality can result in greater economic return for the farmer.

Total forage biomass was greater in the NP compared to in the IP at the onset of grazing, but was not different by day 60 of the trial due to an increase in grass and sunn hemp biomass. This indicates that NP forage biomass did not reduce NP lamb performance, rather lamb performance

was governed by forage composition. Improved lamb performance in the IP can be attributed to the presence of the legume sunn hemp that comprised 24% of total forage at the start of grazing and 22% of total forage on day 60. Sunn hemp leaves were eagerly selected and consumed by IP lambs that are high in crude protein and digestibility compared to low-quality hurricane and guinea grass.

Sunn hemp required no additional inputs to grow after planting. Since sunn hemp can be direct seeded into hurricane grass pasture, low quality hurricane grass pasture productivity was increased through the addition of sunn hemp. This reduced the environmental impact on the land by decreasing soil disturbance and reducing soil erosion by utilizing no-till planting methods. Hurricane grass pastures were planted and ready for grazing within 60 days. This allows farmers to utilize pastures sooner than if pastures were subject to complete forage re-establishment that can take up to 1 year before grazing can begin again.

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

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

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Sunn hemp grown as a cover crop and then terminated with a roller-crimper, followed by no-till vegetable transplanting can reduce soil disturbance as part of a greater conservation tillage approach and can provide weed suppression in vegetable cropping systems. Results indicate that soil conservation need not be compromised at the expense of weed suppression through the implementation of integrated mulching strategies.

Key Items of Evaluation

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
3375	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
0	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
30	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)	
0	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.