

**OVERVIEW STATEMENT**  
**FY 2001 ANNUAL REPORT – Revised**  
**UVI/COOPERATIVE EXTENSION SERVICE**

The Cooperative Extension Service (CES) of the University of the Virgin Islands (UVI) is pleased to submit its FY 2001 annual report. This report is based on the 2000-2004 Plan of Work (POW), using the national goals established within the mission area of the Cooperative State Research, Education and Extension Service of USDA.

Using the five goals and objectives as our main focus, CES developed 16 strategic programs that positively impacted the lives of the people of the Virgin Islands in a manner that is beneficial and long lasting.

**GOAL 1: AN AGRICULTURAL SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY**

Sustainable Agriculture, Beef, Dairy and Livestock and Eastern Caribbean Extension Outreach and Interchange are programs featured in this unit. The VI Sustainable Agriculture Research and Education (SARE) programs incorporate educational workshops, farmers' markets, demonstrations and guided tours of the university's research plots to expose CES professionals, and to educate farmers about methods and expertise necessary to enhance their productivity. The Beef, Dairy and Livestock program, on the other hand, focuses on animal care and productivity. Stray animals are impounded and branded for identification, and tracking to eliminate problems such as ticks. It also assists beef farmers in monitoring their animals' productivity in relations to Beef Cattle Improvement program and the availability of local marketing. Dairy production testing helps to improve the herds' capabilities. Youth education programs are active in six (6) schools, working with first to fifth graders, where students are taught appropriate techniques in the proper care and raising of animals.

**GOAL 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM**

This unit includes Food Safety Nutrition, Basic Food Safety Education for EFNEP and EFNEP Youth. These two programs cater to adults and youth, teaching healthy dietary practices for optimal health. The annual Agriculture and Food Fair, World Food Day, and Mango Melee and Tropical Fruits Festival and the CYFAR program provide additional venues for the educational program.

**GOAL 3: A HEALTHY WELL-NOURISHED POPULATION**

The sole program in this unit, Improving Nutrition, Diet and Health educates individuals on basic nutrition, food preparation, food safety and shopping basics.

**GOAL 4:        GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT**

Through the programs: Urban Forestry, Backyard Composting, Urban Gardening, Water Quality Protection, Natural Resources and Environmental Management, CES staff attempt to bring harmony between agriculture and the environment. This is done through oral and poster presentations, workshops, exhibitors and trade representatives. As a result, CES staff conducted workshops on tree pruning, and worked in collaboration with St. Croix Mid-Island Rotary Club, VI Anti-Litter and Beautification Commission to plant trees and beautify the island. Backyard Composting Workshops educated students and the community. In addition, a youth gardening seminar resulted in three new school gardens being established. Through the assistance of grants, the VI\*A\*SYST program was expanded to conduct training workshops, to distribute home water quality test kits, and media outreach. Other programs that enhance the quality of life are discussed in this unit.

**GOAL 5:        ENHANCED ECONOMIC OPPORTUNITY AND QUALITY OF LIFE FOR AMERICANS**

The final unit discussed in this annual report includes Limited Resources: Individuals and Families, Marketable Skills, Volunteer and Youth Leadership, 4-H Club System, and 4-H Summer Day Camp.

The programs in this unit attempt to equip participants in family care, especially for the elderly and the disabled. It also helps to retrain and train adults in gaining marketable skills that are so vital to our existence, such as money management, child care and day care providers, and successful parenting skills. Stress workshop also helped to improve individuals' well-being.

The final programs address youth and leaders in their involvement in the 4-H Programs. Many schools- public and parochial, are involved in the multi-dimensional program. The Mini-Society, made possible through a grant from the Kauffman Foundation, introduced a completely new concept in the education of children ages 8-12.

# **ANNUAL REPORT**

(Revised)

**COOPERATIVE EXTENSION SERVICE**

**UNIVERSITY OF THE VIRGIN ISLANDS**

**Fiscal Year 2001**



GOAL 1:  
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# HIGHLY COMPETITI VE IN THE GLOBAL ECONOMY

## *Program 1 - Sustainable Agriculture*

The VI Sustainable Agriculture Research and Education (SARE) program began the reporting period with the 2000 World Food Day celebration, which featured educational workshops, a farmers' market, demonstrations, and guided tours of the university's research plots. One of the highlights, a tomato production workshop, was attended by more than 30 growers who benefited from presentations on varietal selection, production practices and marketing. A similar workshop was presented on the production of papaya, another popular commodity, which attracted nearly 40 producers.

The 2000 St. Thomas-St. John Agriculture & Food Fair showcased a simulated, miniature farm plot, which demonstrated sustainable crop production practices such as mulching, trickle irrigation, and inter-cropping. Approximately 1,500 fair patrons, including farmers, visited our exhibit, which also featured a composting workshop.

A marketing workshop was held on St. Thomas and St. Croix to provide an overview of the status of agricultural marketing in the Virgin Islands and to share suggestions for improving the marketing strategies of farmers. A total of 32 farmers and agricultural professionals showed a very enthusiastic response to this informative workshop, which was presented by Dr. Gerard D'Souza, a visiting agricultural economist from West Virginia University.

The local Professional Development Program (PDP) targeted mainly local agricultural professionals and farmers from the public and private sectors representing the entire territory and neighboring islands, including Puerto Rico and the British Virgin Islands. Approximately forty-four (44) participants engaged in professional networking and benefited from two days of technical presentations, ranging from organic farm production to program evaluation methods. Our special guest presenters were Dr. John O'Sullivan of North Carolina A & T State University and his wife, Dr. Rita O'Sullivan, who delivered very informative and dynamic presentations. The 2001 PDP activity focused on organic farm production in response to a need of local producers who desired to develop or improve organic food production systems. Consistent with the theme of the training, a very wide assortment of alternative pest control and fertilizer products for use in organic farm production was on display.

The second day of the PDP training entailed a field tour of an integrated farm which was also the site of previously conducted research in sustainable agriculture. The final activity of PDP 2001 was a field demonstration of the use of a soil testing kit for the benefit of farmers and technical outreach personnel.

Another major activity during the reporting period was the 2001 Agriculture and Food Fair of the Virgin Islands on the island of St. Croix, which attracted more than 20,000 people over a three-day period. Visitors to our fair exhibit benefited from a model of a sustainable agriculture farm operation, which featured inter-cropping, micro-irrigation, and mulching. In addition, numerous presentations were delivered regarding a display of assorted alternative pesticide and fertilizer products, which can be incorporated in organic crop production systems.

Subsequent to the Agricultural Fair on St. Croix, the Cooperative Extension Service (CES) staff was invited to make similar workshop presentations using our organic products display at the Agricultural Exposition on the island of Tortola in the British Virgin Islands. Our delivery was well received by the farmers on that island who were not familiar with the latest developments in sustainable agriculture or organic farm practices. More than seven thousand patrons attended the two-day exposition. Forty-nine farmers, as well as the administrators of the British Virgin Islands Department of Agriculture, requested follow up information regarding our sustainable agriculture program.

The popular annual fruit festival, Mango Melee and Tropical Fruits Festival, was held on St. Croix and St. Thomas in July 2001 and attended by more than 2,500 people. This festivity celebrates the versatility and usefulness of the mango as a popular tropical fruit. The Mango Melee also provided an opportunity to promote the potential for the development of an industry based on the production and marketing of mango as a fresh or processed fruit. On St. Thomas CES staff conducted a workshop to educate producers on all aspects of mango production, including varietal selection, cultural practices, and marketing. On St. Croix, one of the highlights of the festival was a workshop on the processing of various tropical fruits delivered by a Food Technologist from the Caribbean Industrial Research Institute. Farmers benefited from information on alternative strategies for marketing products, including packaging and processing to add value and extend the shelf life of crop commodities. Samples of about 30 mango cultivars and other tropical fruits were displayed and used as a part of the workshops.

In November of 2001, approximately 1,000 attendees (including farmers and home gardeners) at the St. Thomas-St. John Agriculture and Food Fair visited the CES exhibit area. The presentation featured a wide variety of locally made products, including jams, preserves and packaged medicinal herbs. The exhibit was a part of an on-going effort to address the need to develop a mutually beneficial network between producers and food preparers. Farmers were informed about alternative uses and outlets for their products in addition to the traditional retail sale of fresh produce. Simultaneously, food preparers were educated about producers and their respective commodities.

A total of forty (40) farmers attended two workshop presentations on the production of passion fruit, a popular commodity among Virgin Islands consumers for fresh fruit consumption and the making of beverages. This workshop was a collaborative effort between the Agricultural Experiment Station and Cooperative Extension Service of the University of the Virgin Islands. The objective of this activity was to share the latest research based information on varietal development, production practices and marketing strategies relating to passion fruit production.

Four members of the sustainable agriculture team attended the annual Caribbean Food Crop Society meeting held on the island of Trinidad; this experience was professionally stimulating and served to strengthen regional networking in agriculture. The conference featured a wide diversity of presentations on research aimed at low-input, sustainable food crop production systems. Collectively, the information disseminated was very representative of the scientific investigations being conducted throughout the Caribbean. The research papers presented covered several crop commodities of commercial significance throughout the Caribbean. The insight developed at this meeting served to enhance the professional development of the staff who participated, and who, in turn, conveyed the latest findings to our farming clientele.

One staff member of CES delivered an oral presentation entitled 'Evaluation of Organic Mulches for Culinary Herbs Production in the U.S. Virgin Islands' at an Organic Agriculture Colloquium in Martinique, French West Indies. This conference was attended



by scientists from several Caribbean nations who presented research papers on various aspects of Organic Agricultural Production.

During this reporting period, a major annual activity (World Food Day 2001) was canceled due to inclement weather. The World Food Day program serves as an educational outreach opportunity for farmers during which a variety of workshop presentations are delivered regarding sustainable crop production practices of selected food crop commodities.

During the reporting period, the technical staff of the CES responded to numerous inquiries from farmers via telephone contacts and on farm visits. Some of these concerns were related to cultural practices, pest control, and water resource management.

The USVI Sustainable Agriculture team assisted a farmer's organization on St. Thomas, We Grow Food, Inc., in preparing a grant request to the local Department of Planning & Natural Resources to acquire funds to conduct training in water shed management, and the cleaning and refurbishing of six (6) earthen dams in a major watershed area on the island. During the 2002 reporting period, CES staff will assist with the training and with the overall implementation of this initiative. Soil and water conservation practices will be demonstrated as a part of this training. As a result of this project farmers will realize increased water resources for their operations and decreased soil erosion.

During the 2002 reporting period, the Sustainable Agriculture Program of the Virgin Islands will continue to focus on initiatives to train farmers in organic farm production practices. An additional component of the program will seek to enhance the marketing strategies of local producers to improve the sustainability of their agricultural enterprises.

#### Impacts/Outcomes:

1. Approximately 65 crop and livestock producers increased their awareness of the principles and practices of sustainable agriculture.
2. Fifteen percent (15%) of local producers are currently and actively utilizing two or more sustainable agricultural practices as a result of our educational initiatives. These practices include trickle irrigation, mulching, and terracing.
3. The number of new sustainable agriculture enterprises and value-added initiatives was increased by approximately five percent (5%). This increase included the expansion and diversification of crop types grown by some farmers.
4. The number of new local and regional (governmental and non-governmental) organizational linkages with our institution was increased by seventeen percent (17%). Regional partners include the University of Florida, University of the West Indies, and Alcorn State University. As a result of these collaborations professional outreach staff and young farmers will receive training in Sustainable Agriculture.

#### Source of Funding:

Scope of Impacts: Territory-wide.

### ***Program 2 - Beef, Dairy and Livestock***

The livestock component of CES has continued to be active throughout the year, initiating and continuing program work as outlined in the plan of work. Stray animals continue to be impounded and permanently identified through hot branding. An overall identification program is in its initial stages to enforce the Virgin Islands law that states that all animals need to be permanently identified. The program will be implemented in conjunction with the Virgin Islands Department of Agriculture Livestock Division. This program will assist in verifying ownership of animals that are loose and cause damage or accidents. In addition, it will allow more accurate tracking of the animals affected by the ongoing tick survey/eradication program. The tick program, currently in operation through the cooperative efforts of USDA APHIS, the V.I. Department of Agriculture and the Extension Service, continues to monitor the eradication efforts against the *Amblyoma varegatum* tick on the island of St. Croix, in addition to the known population of *Boophilus microplus*. The tick teams have identified areas of the island that are “pockets” of infestation *Amblyoma* tick and are focusing their efforts to ensure that the ticks do not spread from there. Animals in these and surrounding areas are checked and sprayed with acaricide at regular intervals to control the ticks. Serious attention continues to be paid to the disease threat presented by the current infestation in order to restore the Virgin Islands ability to export animals to the United States mainland in the future.

Beef farmers continue to be assisted in monitoring the performance of the animals in their herd as per the guidelines set forth by the Beef Cattle Improvement Program. Cattle are periodically weighed and scored. The farmers also continue to face the challenge of marketing their product locally. The lack of a consistent market has caused one of the farms to disperse their herd in its entirety and cease operations in the past year. Programs are being designed to stress the benefits of locally produced products with the goal to enhance the local market and, therefore, the sales of locally produced meat.

Dairy producers continue to be involved in and serviced by the dairy production testing program. Through the efforts of the program farmers are continually improving the producing capability of their herds. Areas covered by the program include production monitoring on a monthly basis, assistance with fertility assessment in cows and bulls, identification of their stock and selection of replacement animals. With the continued advancements made through the program, the farmers have been able to supply all of the milk needed by the processing plant for the year, allowing them to forgo any supplemental milk shipments from outside the territory.

Forage test sites have been established in several areas of the island and tests are being done cooperatively with the Agriculture Experiment Station. Studies are being conducted in the areas of grazing, animal load capacity and sustainability of pasture resources.

Farmers continue to be encouraged to produce and consume their own locally produced animal products through the availability of day old chicks for sale to the farmers. Both layer and broiler chicks have been made available to interested farmers and hobbyists that would like to produce their own meat and eggs. Instruction and guidance is provided to ensure that they are successful in their endeavor. This program, while still successful, faces the increasing challenge of extremely limited consumption of locally produced meat products and the nationwide decrease in meat consumption overall. As with the beef farmers, the small livestock farmers that raise not only poultry, but also sheep, goat and rabbit, will benefit from the planned programs designed to address the benefits of locally produced products.

Youth education programs continue to be active in the schools. The programs focus on the proper care and raising of animals. Currently, the program is active in 6 schools working with children from 1<sup>st</sup> grade through 5<sup>th</sup> grade: Lew Muckle, Juanita Gardine, Alfredo Andrews, Eulalie Rivera, Ricardo Richards, and Evelyn Williams.

Impacts/Outcomes:

1. 213 impounded animals were permanently identified through branding. This included 120 cows, 70 goats and 23 horses. These animals were held at the Department of Agriculture's quarantine station. The quarantine of these animals helped prevent injury to people and property.
2. The rolling herd average has increased from 11,000 lbs./cow to 12,500 lbs./cow, which helped prevent importation of milk this year to supplement the needs of the V.I. community.

Source of Funding:

Ø USDA Smith-Lever

Scope of Impacts: Territory-wide.

### ***Program 3 - Eastern Caribbean Extension Outreach and Interchange***

The Cooperative Extension Service continued to provide leadership and coordination for the four agricultural organizations that we have linkages with in the Caribbean region: Caribbean Food Crops Society (CFCS), Caribbean Association of Researchers and Herbal Practitioners (CARAPA), Caribbean Council of Higher Education in Agriculture (CACHE), and the University of Puerto Rico (UPR). We are in the process of sponsoring an annual Forestry Conference that will bring Caribbean foresters and the urban foresters together for the first time in the Caribbean. We expect about 150 people from the region to attend this meeting. Two newsletters were published for the CFCS to help in information exchange and activities scheduled in the Caribbean region. CES specialists continue to provide consultation on sustainable agriculture, horticulture, livestock production and management to the other Caribbean islands. Assistance was given to the CFCS in the organization of the 37<sup>th</sup> annual meeting held in Trinidad and Tobago.

## GOAL 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM

### *Program 4 - Food Safety Nutrition*

Several adults received information from “Eating Right is Basic” (3<sup>rd</sup> ed.) booklet. These sessions were conducted in the UVI Food and Nutrition laboratory, community Head Start Centers, CES conference room and housing developments’ activity centers.

Both Head Start teachers and children, support staff and volunteer parents participated in a one-day observance of The Week of the Young Child. In District II, Head Start children received a presentation on healthy snack foods. Three workshops were held for food handlers to get them ready for the Agriculture and Food Fair, World Food Day, and the Mango Melee and Tropical Fruits Festival. A total of 92 persons participated. Four radio shows and one television program were broadcast to the public to make the community aware of food safety programs.

A proposal was submitted to the Department of Health to make it mandatory for all food handlers to take the food safety course before being licensed to operate.

#### Impacts/Outcomes:

1. Ninety-three (93) food handlers gained knowledge and acquired new skills in handling food.
2. Four radio shows and one television program were broadcasted to the public to make the community aware of food safety programs. Ninety-six individuals called in to the station to show their appreciation for information acquired.
3. As a result of these workshops, the Department of Health is interested in collaborating with the Family & Consumer Sciences Program to conduct ongoing trainings for foodhandlers.
4. One participant indicated that the information has helped her professionally but will be taught to all family members, as well.

Source of Funding: Smith-Lever

Scope of Impacts: Multi-Island

### *Program 5 - Basic Food Safety Education for EFNEP and EFNEP Youth*

Thirty-two teenagers participated in the Annual EFNEP (Expanded Foods and Nutrition Education Program) Summer Teen Program. The program provided information on planning meals, buying, preparing, handling and storage of foods. Dietary handouts, recipe adaptations, video presentations, staff/volunteer presentations and field trips were used to educate the teenagers on the concepts of health and nutrition.

The Agricultural Food Fairs in St. Croix and St. Thomas had displays, which focused on food safety practices in the home and for restaurateurs. An interactive safety quiz was presented

for fairgoers to participate. In both districts, several persons were assisted with questions on food safety.

EFNEP individuals received information on basic food safety practices, i.e., personal hygiene, food preparation, food storage and basic kitchen safety.

Thirty-seven individuals completed the Safety and Your Food Environment (SAFE) workshop. The workshop covered the following food safety topics: personal hygiene, food handling, food storage techniques, and time and temperature issues.

Radio call-in programs on food safety were broadcasted to the public.

Recruitment for the EFNEP Program was conducted in the Head Start Centers and the Bovoni Housing Community. A total of 73 people registered for the program.

The EFNEP program participated in the St. Thomas Agriculture and Food Fair. Also during that period Dr. Ramsey Johnson, Dr. Doris Sewer and Dr. Gloria Callwood conducted three presentations on obesity and high blood pressure. Seventy-five (75) people attended.

An ongoing effort to recruit individuals from the housing community occurred during this time through scheduling of several activities.

During December a holiday baking workshop was held with thirty (30) participants; twenty in the first class and ten in the second on St. Croix. A similar workshop was held on St. Thomas at the CYFAR Center for the residents of Tutu Hirise Community. From this workshop, three residents have started selling cakes in their neighborhood and plan on delivering cookies to small supermarkets.

#### Impacts/Outcomes:

1. Thirty-two (32) teenagers acquired new skills and gained knowledge in the Annual EFNEP Summer Teen Program. In light of the minimum or none existent emphasis in home economics classes, it is very crucial that young people get exposed to planning of meals, dietary requirements, etc. through the offerings at CES.
2. Thirty-seven (37) individuals completed the Safety and Your Food Environment (SAFE) workshop. The obesity and high blood pressure presentations were attended by over seventy-five individuals. This information is direly needed in the territory due to an inordinate rate of diabetes in this community.
3. Over thirty (30) persons learned how to bake in the baking workshops, as a result three (3) individuals have started selling cakes in their neighborhood; and plan to deliver cookies to small supermarkets in the area.

Source of Funding: Smith-Lever

Scope of Impacts: Multi-Island

### GOAL 3: A HEALTHY WELL-NOURISHED POPULATION

#### *Program 6 - Improving Nutrition, Diet and Health*

During March, April and May, twenty-eight (28) individuals participated in the nutrition program. They had the opportunity to receive information relative to basic nutrition, food preparation and food safety, and shopping basics. A workshop was held for the Week of the Young Child, 145 children and 58 parents had the opportunity to learn to budget their food dollars by making their own cookies, pizza and bread at home.

During June, July and August, twenty-six (26) teens participated in activities, which taught them to prepare their own snacks, learn about food safety and proper measuring techniques. In addition they learned to prepare a nutritious, well-balanced meal.

Fourteen (14) participants were a part of a basic foods and nutrition, food safety and budgeting and food preparation workshop during this period.

During this period, workshops were held in conjunction with the World Food Day observance. Papaya, tomatoes and tilapia were used in different recipes to demonstrate the part they could play in healthy diets. Thanksgiving and Christmas workshops were also held as part of the holiday season festivities.

In 2001, World Food Day, a one day fair was held on the University's grounds. The foods in focus were lamb and citrus. A demonstration on how to prepare various dishes with these foods was presented and the nutritional analyses of the items made available. In conjunction with World Food Day and the holiday season, three workshops were held. Pumpkin was the focus for the Thanksgiving holiday, and making sweet bread and fruitcake for the Christmas season. Thirty-nine (39) persons participated in these workshops.

#### Impacts/Outcomes:

1. Over three hundred and ten (310) individuals participated in nutrition, health and diet workshops between March-December; including 145 children and 26 teens. One hundred six (106) participants learned how to save money through baking their own holiday goods to make excellent holiday gifts.
2. Over 40% of the 106 participants indicated that they saved money by purchasing generic, substitute products to make nutritious meals for their families.

Source of Funding: Smith-Lever

Scope of Impacts: Multi-Island

GOAL 4: GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT

*Program 7 - Urban Forestry*

Staff members of the Cooperative Extension Service attended the 6th Annual Caribbean Urban Forestry Conference, which was held in San Juan, Puerto Rico. The conference consisted of oral presentations, poster presentations, workshops and exhibitors from educational institutions and trade representatives. Much information was shared by the presenters and among participants. The UVI Cooperative Extension Service offered to host the 7th Annual Caribbean Urban Forestry Conference. The offer was accepted.

CES staff conducted a number of workshops on Tree Pruning. The primary purpose of the workshop was to demonstrate the proper techniques for the removal of the stems and branches from trees. The lecture involved tree biology, reasons for pruning, methods of pruning, and how to make proper pruning cuts. Residents also learned to recognize hazardous structural conditions such as dead branches, crossing stems and branches, and symptoms of internal decay. The attendees were also instructed in the proper selection and use of pruning tools as well as tool safety. After the lectures and demonstrations, the attendees took part demonstrating what they had learned by pointing out trees with structural problems and getting an opportunity to prune trees. The overall goal of the workshops was to train residents to properly prune their trees.

CES staff cooperated with the St. Croix Mid-Island Rotary Club on a project to plant 1,000 trees on the island of St. Croix.

In response to a request from the V.I. Antilitter & Beautification Commission, St. Croix (ALBCX), CES staff conducted a series of plant care workshops on St. Croix for the participants in the ALBCX annual YES Summer Program. The program involves planting of trees at selected public parks, roadsides and schools as part of their beautification efforts.

Training in tree care and maintenance was also conducted for the staff of the following agencies ALBCX, UVI grounds maintenance, and the V.I. Department of Housing Parks and Recreation. The expected outcomes of these training activities are that trees on the properties where these personnel are employed will be properly cared for and maintained. A number of individuals, groups and organizations in the Virgin Islands have obtained funding from various sources for urban forestry related projects. CES played a very active role in most of these projects by providing technical advice and expertise.

Staff members made a number of visits to agencies, commercial properties and private residencies to view situations and provide the necessary technical advise on matters related to urban forestry.

Impacts/Outcomes:

1. Staff members participated in the Caribbean Urban Forestry Conference and obtained pertinent information that was useful in the training of local individuals.
2. Approximately 200 residents increased their awareness, knowledge and understanding of how to care for trees in urban areas, with special emphasis on proper pruning and planting.
3. Approximately 1,000 trees were planted in urban areas to provide shade and beautification.

Source of Funding: USDA Smith-Lever

Scope of Impacts: Territory-wide.

### ***Program 8 - Backyard Composting***

A number of training activities related to backyard composting were conducted during the year. These include presentations for the Anti-litter and Beautification Commission of St. Croix (ALBCX) YES Summer Program trainers and participants, ALBCX Greenhouse program staff, UVI Summer Science Enrichment Program students, UVI Math and Science Enrichment Program Saturday Academies participants, students from various public and private schools. Composting demonstration sites are now in place on both campuses of the University of the Virgin Islands. These sites were routinely utilized during all of the composting training activities.

Two ‘Train-the-Trainer’ Backyard Composting Workshops (one each on St. Croix and St. Thomas) were conducted in partnership with the Virgin Islands Resource Conservation and Development Council and the Virgin Islands Department of Agriculture. These workshops, which were held for the general public on the respective islands, included lectures, video presentations and practical ‘hands-on’ exercises. The classroom topics covered included the following: introduction to and history of composting; composting site selection; composting systems, structures and equipment; biology of composting; composting ingredients; the composting process; compost pile management; duration of the composting process; and testing of compost. The practical exercises involved building, monitoring and troubleshooting the compost pile. Attendees were required to become actively involved in composting and to encourage other persons to also start composting.

In addition to the training provided on the UVI campus, CES staff personnel took the message of composting into the classrooms of various schools. During these visits composting presentations were made to the students and their compost piles were visited. Schools not yet involved in composting were encouraged to do so. A result of these visits is that a number of schools now have active compost piles. On St. Croix, over 40 individuals, three schools (Good Hope School, Ricardo Richards School, and Charles H. Emanuel School) and one agency (V.I. Anti-Litter & Beautification Commission, St. Croix) are involved in composting. Elementary school students, in particular, have entered composting projects as science fair projects.

Backyard Composting demonstrations were conducted at the 2,000 St. Thomas/St. John Agriculture and Food Fair. Compost bins, composting ingredients and compost piles were



displayed for the entire duration of the fair, while demonstration workshops were conducted at specifically designated times. It is estimated that over 1,000 residents visited the composting display area.

A visit was made and discussions held with a company that is interested in starting a composting enterprise on a commercial scale.

The draft of a backyard composting factsheet has been prepared and is being reviewed. When published it will be made available to the general public.

During the year, a number of visits were made to private residences providing additional information, hands-on demonstrations, technical advice and troubleshooting their compost piles as a follow-up to the workshops and demonstrations.

The objectives of our training activities in composting are to: increase awareness about the importance of backyard composting; train residents on how to compost their backyard and household organic waste; and provide education about the benefits of using compost. The overall goal of the Backyard Composting Project is to substantially reduce the amount of yard waste in the Virgin Islands solid waste stream, which ultimately enters the landfills.

#### Impacts

1. Approximately 1,500 residents increased their awareness and understanding of backyard composting and the benefits and use of compost.
2. Approximately 100 persons received intensive train-the-trainer, classroom and hands-on instruction about backyard composting.
3. Three schools and one agency are actively composting, additionally 40 individuals have compost bins and are actively engaged in backyard composting. The benefits are a reduction in the amount of waste taken to the landfill and an increased use of compost in crop production as a soil amendment.

Source of Funding: USDA Smith-Lever

Scope of Impacts: Territory-wide.

### ***Program 9 - Urban Gardening***

Extension staff conducted the first youth garden seminar for selected teachers from private, public, and parochial schools in the St. Thomas/St. John school district. Six (6) schools including one from St. John were represented at the workshop. Fourteen (14) individuals including four (4) deaf students and their instructor were taught the fundamentals of seedling production, soil fertility and fertilizers, planning their garden and pest control. A tour of the demonstration gardens was also included with particular focus on the two (2) options for box garden construction. The participants were also provided with information from local and

national sources for financial and material assistance for their gardening projects. Various vegetable and herb seeds were donated by the V.I. Department of Agriculture as well.

As a result of this half-day workshop, three (3) new school gardens were established (one on St. John) and another school garden was upgraded significantly. The Principal of the afore mentioned school reported that they were able to improve their cultural practices so much so that the students reaped enough pigeon peas to supply the cafeteria. During that week, the students and teachers ate pigeon peas and rice with the peas coming from the school garden. It was a good learning experience for the students.

The annual Cooperative Extension Service (CES) 4-H summer camp brings together children from all aspects of Virgin Islands society for 6 weeks of fun and learning. The camp is divided into four (4) basic divisions one of which is the agriculture camp. In this year's camp, the attendees learned the fundamentals of agriculture with emphasis on gardening. During the first week, Extension staff presented lectures to 25 campers on planting seeds and caring for transplants. Each was then given a choice of a herb or a vegetable plant to cultivate at home for the duration of the camp, they returned with the plants at the closing ceremony. Extension staff made periodic visits to the camp to answer questions and give advice.

At the closing ceremony, 75% of the students brought their fully grown plants to put on display. Many of the parents indicated that their children were diligently following the instructions they were given in the lectures. Some of the children started a garden as a result of what they had experienced.

In the St. Croix district, Extension staff participated in a seven-week 'REACH' Enrichment Cluster at two (2) elementary schools. REACH is a component of the School-wide Enrichment Model and is designed to augment and enhance the schools curriculum. Gardening is one of the many enrichment activities provided in the Cluster.

Early in the program, forty-six (46) students participated in workshops that taught the basics of constructing or building a box garden and caring for seedlings.

At the end of week seven, the garden at one school was so productive that vegetables and herbs were distributed to students, teachers, and parents. In a thank you letter to the CES State Director, the Principal stated, "This activity was a huge success upon which we received many compliments from the community."

In an effort to assist home gardeners in defraying the high cost of food in the territory CES conducted several box gardening workshops. This growing system is designed to produce enough food for an average sized family with limited space. Over thirty-five people participated in the workshop. Within a week of attending the workshop, three (3) of the attendees had constructed their own box gardens and were seeking assistance and technical advice to ensure the complete success of their gardening endeavor.

Impacts/Outcomes:

1. A total of 138 youth from 5 schools increased their knowledge and understanding of vegetable gardening utilizing limited space and appropriate, sustainable practices.
2. Three (3) new school gardens were developed utilizing at least three (3) low input production practices.
3. One of the schools improved their management practices so well that it resulted in a large increase in pigeon peas yields. This saved the school \$25 - \$30 per serving in their food budget.
4. Five (5) of the youngsters developed their own personal gardens based on the knowledge acquired from participating in the agriculture camp experience.
5. Two elementary school gardens adopted at least three recommended management practices in their respective school gardens. By adopting the management practices, one school gardening club, was able to raise over \$300.00 in sales of crops, which aided the club with procuring items needed to continue the gardening program.

Source of Funding: USDA Smith-Lever

Scope of Impacts: Multi-Island.

### ***Program 10 - Water Quality Protection***

Seven grant proposals were submitted to fund Natural Resources program projects this fiscal year, all of which were awarded. Notification of award was received from the U.S. EPA Environmental Education Program July 17, 2001 for a proposal submitted to continue and expand the VI\*A\*Syst program through additional training workshops, distribution of home water quality test kits, and media outreach. CES partnered with DPNR-CZM in submitting a proposal to fund a Smart Growth (pre-NEMO, Nonpoint Education for Municipal Officials) project in the Virgin Islands that was submitted to NOAA Coastal Services Center for \$25,000 in funding. This grant received preliminary award notice. Three (3) Nonpoint Source Pollution (§319) grants were submitted to DPNR for funding and were subsequently awarded. UVI-CES was the lead on two of these (one to continue to fund the NPS Committee and one to continue funding of the NPS Newsletter) and a partner on the third (the second phase of the gut stabilization project at Estate Little LaGrange in St. Croix, with Annaly Farms as lead). CES also partnered with the USDA-CSREES/U.S. EPA Region 2 Liaison and Region 2 land grant universities in preparing a CSREES - Water Quality 406 competitive grant proposal seeking funding for a Regional Water Quality Coordination Project in USEPA Region 2. Award notification was received the end of FY 2001 and a formal contract is being drafted. This grant will supplement the VI\*A\*Syst program and initiate a V.I. NEMO (nonpoint education for municipal officials) program. A Healthy Homes mini-grant was submitted to USDA-CSREES to fund purchase of printed materials for VI\*A\*Syst outreach activities and was awarded July 2001.

CES continued to coordinate, with the Magens Bay Authority (MBA), a DPNR Nonpoint Source Pollution Management Program (319) grant (\$49,800.00) to retrofit two failed septic systems near the beach at Magens Bay with an alternative on-site sewage disposal system (OSDS). The trench-style OSDS uses plants and microorganisms naturally present on plant roots to digest and transform pollutants in septic effluent that could contaminate the waters of Magens Bay. Construction on both systems was completed by the end of November, 2000. WSTA, Channel 8 and Channel 12 conducted on-site interviews with project partners (Magens Bay Authority, UVI-CES, DPNR-DEP and the Project Designer). CES supervised the planting phase of the project. Staff selected plants that must tolerate slightly brackish water used in the Magens Bay bathhouses. Identifying plants that will tolerate and flourish in an OSDS with salt water inflow is experimental and has not been tried in the VI. Funding for the Magens Bay Tree Restoration Project through the Urban and Community Forestry Assistance Program (below) was used to purchase plants for the OSDS's. Staff prepared project reports for DPNR-DEP and submitted a change order to DPNR-DEP requesting supplemental funding of \$15,000 to cover construction cost overruns, which was subsequently approved. Both systems are functioning adequately despite the record number of tourists visiting the beach during the winter months. NR staff met regularly with the MB general manager and landscaping crew to discuss how the alternative OSDS projects were functioning and to make recommendations about plants in the systems. Staff worked with Dr. Henry Smith, WRRI Director, to coordinate sampling phase of the project and consulted with MBA manager, Bill Jowers, to upgrade OSDS performance by ordering more plants for the systems.

**VI\*A\*Syst** is a partner in the national Farm\*A\*Syst/ Home\*A\*Syst Program sponsored by USDA-CSREES, U.S. EPA, and USDA-NRCS. It is a voluntary pollution prevention program offering Virgin Islanders a simple and effective way to help protect water quality, public health and their quality of life, by helping residents change behaviors or implement practices to reduce pollution risks in and around their homes, yards or farms. This program is grant-funded through three grants. The USDA-CSREES grant (\$10,000) was completed this fiscal year with the printing of the "*Cropland Risk Assessment*" factsheet and uploading of the document on the VI\*A\*Syst web page. A final project report was completed and forwarded to USDA-CSREES.

***Train-the-Trainer Workshops*** are continuing through a FY 1998 Nonpoint Source Pollution Management grant from DPNR (\$25,000), a Healthy Homes grant from USDA-CSREES/HUD (\$2,300), and an EPA Environmental Education grant (\$14,130). The majority of DPNR funding was previously dedicated to household hazardous waste collection, but was reprogrammed through a UVI and DPNR-approved budget revision to continue education and outreach efforts. Five (5) *Safe & Healthy Home* workshops were conducted for 29 attendees on all three islands, and the workshops were advertised on Radio One's news program. The workshops provided training on toxic properties and adverse health effects of common household cleaning products and other items such as pesticides, furniture and treated fabrics. Trainees also learned how to read product labels and evaluate potential product toxicity, recipes for less-toxic cleaning alternatives using common household items and how to properly dispose of household hazardous waste. In addition, five (5) workshop folders were distributed to DPNR staff who requested them after hearing reports of the workshop. Over 260 *Recipes for a Non-*

*Toxic Household* booklets and *Recipes for a Non-Toxic Kitchen* posters were distributed during this period at workshops, fairs, the 6<sup>th</sup> Annual V.I. Nonpoint Source Pollution Conference, to parents of the St. Croix ALBC summer camp, and through individual client contacts resulting from radio PSAs, TV shows, workshop interactions, or the VI\*A\*Syst webpage. A record number of *Safe and Healthy Home* presentations (85) were delivered to 1318 students, and approximately 300 teachers and parents at SEA's *2001 EcoFair* at the St. Croix Botanical Gardens. The Montserrat Association also distributed *Recipes for a Non-Toxic Household* information they downloaded from the website at a recognition dinner (45 guests). *Safe and Healthy Home* presentations were delivered to 17 staff members and numerous students of the Headstart I, II, & III at Oswald Harris Court; at the CES Open House held on St. John; to St. Thomas Department of Education staff (25) and an additional ten packets were forwarded upon further request from staff; the Marcelli School Summer program (45 children, 4 teachers); the Kirwan Terrace Housing Community summer camp (35 campers, 8 adults); the VIMAS Clean Boating workshop (15 adults); and to Human Services Head Start staff at their annual training program held at Frenchman's Reef (25 adults).

Eight (8) pasture management assessments were distributed by VIDA at a St. Thomas livestock workshop. Staff developed and delivered a presentation on cropland and pastureland management assessments to 36 attendees at the SARE Professional Development Training workshop, and also distributed over 40 copies of each assessment and 10 copies of the assessment handbook. *Understanding Your Septic System Workshops* were held on St. Croix and St. Thomas for a total of 29 clients. Attendees were given folders including detailed information on septic systems, water conservation and the VI\*A\*Syst program. Subsequent to the workshop, DPNR-DEP employees requested 2 additional information packages to distribute to colleagues. "Safe & Healthy Drinking Water" workshops were conducted on all three islands at which home water quality test kits were distributed to 52 attendees. Information was provided on drinking water standards, how to maintain your cistern, how to know what contaminants to test for, how to use the water test kits, different types of home water treatment systems and how to choose a water filter. Assisted four clients with information a Safe and Healthy Drinking Water Supply. Followed up with the fifty participants who received water testing kits. The publication "Your Guide To Reducing Soil Erosion and Sediment Loss On Small Construction Sites" was revised for reprinting as a VI\*A\*Syst fact sheet. VI\*A\*Syst progress reports and were produced and submitted for approval to DPNR and the national Farm\*A\*Syst/Home\*A\*Syst annual survey was completed and forwarded to the national office.

The fiscal year 1999 grant cycle of the DPNR-grant funded V.I Nonpoint Source (NPS) Newsletter project was continued with the publishing and distribution of the 11<sup>th</sup> through 14<sup>th</sup> issues to a mailing list of approximately 1400 architects, engineers, contractors, developers, inspectors, government personnel and other interested persons and to DPNR offices on St. Croix and St. Thomas. Topics covered in these issues included: the 6<sup>th</sup> Annual NPS Conference, the Magens Bay alternative septic systems, the unveiling of CDC's Rapid Ecological Assessment Maps for St. John and St. Thomas, DPNR-CZM announcements of their new web page, draft Fish Bay Management Plan, and new database tracking system, Availability of DPNR-DEP NPS pollution grant funds, the CES SARE Professional Development Training workshop, Mapping of benthic habitats in Puerto Rico and the V.I., Sea Grant coastal water quality studies, Virgin

Islanders Capture 4 EPA Environmental Quality Awards, DPNR-DEP Announces New 319 Grant Projects, St. Croix Youth Learn About the Role of Wetlands in Reducing NPS Pollution, Volunteers Needed for SEA's Mangrove Restoration Project, UVI Coastal Hazards Workshop, Web Resources, Available Grants, and Upcoming Events. In addition, a new web site for NPS Update was developed and uploaded on the CES Water Quality web page. Back issues of the newsletter can be downloaded in Adobe Acrobat format from this site, and information can be sent to the newsletter editor from this site. Progress reports on the project were produced and submitted to DPNR. The mailing list continued to be updated to include new subscriptions.

UVI-CES was awarded a \$20,000 §319 (nonpoint source pollution management) grant to expand upon three (3) successful programs that provide education and training in the design and implementation of low-impact developments and successful erosion and sediment control practices (BMPS) to the construction industry (architects, contractors, draftsmen, developers, and engineers). The mission of this project is to raise the standards of the Virgin Islands' construction industry to comply with national pollution prevention standards. CES received the first installment (\$10,000) and set up the new account. Irrigation supplies, ground covers, stone chips and other materials were purchased and installed to improve the demonstration plots and the porous pavement parking lot. Chapters of the *Environmental Protection Handbook* were distributed to NPS Committee members and other recommended professionals for review prior to reprinting. The Handbook is being revised based on comments received from reviewers. The St. Thomas hydroseeder was loaned out on six (6) different occasions. Assistance was also given regarding types of grass seed and mulch to use. Staff continued to advise Montessori School on fertilization of the hydroseeded sports' field, which is now well-established and opened for use. A photo history of the field's development is also being maintained. An eroded site on Valdemar Hill Drive, St. Thomas, was photographed in addition to the lush, well-established, hydroseeded entrance to Market Square East. Quarterly progress reports were produced and submitted to DPNR.

UVI-CES was awarded a \$5,000 §319 (nonpoint source pollution management) grant (the first installment of a 5-year continuing grant) to set up and administer an operating account for the Nonpoint Source Pollution Control Committee to cover costs incurred by the Committee in its day-to-day business. These funds will also be used to promote Committee activities through the V.I. media. CES facilitated and organized the first NPS Committee meeting held in a year and a half in April 2001, and the second quarterly meeting in July 2001. A letter was forwarded to Yacht Haven Marina requesting information on the status of a marine pumpout unit that was purchased in 1996 by the marina with §319 monies. Information on UVI-CES 319 grant projects was provided to Committee members and regular updates on national federal and private foundation grant information as well as NPS pollution issues and resources were regularly distributed to Committee members. Quarterly progress reports were prepared and submitted to DPNR.

Twelve (12) government employees and local architects and engineers participated in a TR55 (Urban Hydrology for Small Watersheds) Computer Training Course sponsored by the CES water quality program, V.I. NPS Committee and USDA-NRCS, December 5th, 2000, at the UVI St. Croix Campus. During the five-hour classroom session, NRCS engineers described

engineering methods to estimate runoff volume and velocity, calculate travel time within a watershed, and calculate the detention basin storage volume required for a given runoff event. They also demonstrated how to use the USDA-NRCS TR-55 computer model to carry out each type of calculation described. CES organized the training and produced and distributed certificates of completion to workshop attendees.

Two workshops (St. Croix and St. Thomas) were conducted to train a total of 33 UVI and government personnel, contractors and landscapers on the proper use and operation of DPNR's hydroseeders for erosion control. Workshop participants attended a two-hour in-class workshop and a one-hour demonstration prior to taking the certification exam.

UVI-CES hosted and co-sponsored U.S. EPA Region 2's ***Toxic Release Inventory (TRI)*** workshops on St. Thomas and St. Croix. EPA representatives provided information to attendees (10 STT, 25 STX) about the Emergency Planning & Community Right to Know Act, the human health risk assessment process, and information provided to the TRI for the Virgin Islands. NR staff delivered a presentation on soils and soil amendments to improve fertility to 12 teachers and 4 hearing-impaired students from St. Thomas public and private schools during an ***Urban Gardening Workshop***. Staff also attended the ***WRI Coastal Hazards workshop*** and assisted in leading the afternoon tour of St. Thomas coastal erosion sites, attended the ***WRI Seminar on Wellhead Protection*** and participated in the ***Hurricane Preparedness Workshop***.

Staff attended and participated in the ***CSREES Southern Region Water Quality Coordinators Meeting*** October 22-25, 2000 in Atlanta, Georgia. The meeting brought together the network of Southern Region Extension water quality professionals to explore EPA funding opportunities, materials and linkages; provide input on the new Southern Region WQ database website; discuss opportunities to link with NGOs and 1890 Universities; expand our contribution to and participation in state, multi-state, and national issues; improve communication and outreach to partners and potential partners; and plan the upcoming 2002 Southern Region Water Quality Conference. Staff also attended and participated in the ***CSREES National Water Quality Coordinators Meeting*** March 10-14, 2001 in San Antonio, Texas. The meeting brought together the network of National Extension water quality professionals to explore USDA & EPA funding opportunities, materials and linkages; meet in regional sub-groups to explore partnering opportunities; develop regional theme teams to influence future Congressional funding for the CSREES Water Quality program; to expand our contribution to and participation in state, multi-state, and national issues; and improve communication and outreach to partners and potential partners.

Ms. Wright was one of approximately 500 people from around the country nominated to participate in the first ***National Watershed Forum*** held June 27 - July 1, 2001 in Arlington, Virginia. The goal of the Forum was to enable stakeholders to shape policies and motivate actions to sustain watersheds into the next century. Wright participated in the Smart Growth breakout session to develop recommendations to encourage implementation of smart growth strategies while conducting watershed planning activities. Information obtained at the National Watershed Forum was distributed to CES St. Croix, VIMAS and DPNR staff. Erosion and

watershed education and outreach materials were provided to SEA/V.I. Urban Forestry program and distributed to 25 attendees at the Southgate Pond (St. Croix) watershed group meeting.

Ms. Julie Wright, Natural Resources Program Supervisor, was awarded EPA Region II's Environmental Quality Award. Award recipients are recognized for the high level of their accomplishments in improving environmental quality in the region. Ms. Wright attended the award ceremony held in New York along with honorees from all four states and territories included in EPA Region II.

Natural Resources staff chaired three meetings of the Nonpoint Source Conference Planning Committee (this fiscal year) at which tasks were assigned and progress on the conference venue, program, youth education program, and promotion were presented and assessed. NR staff updated the conference main web page and subpages for the conference program, and created additional web pages for the posters and exhibits, and the youth education component. NR staff also mailed out letters of invitation to opening speakers and coordinated the contract for the hotel/conference venues. In addition, staff coordinated the conference A/V and display backdrops, moderated the opening session, and presented an oral presentation on "*VI\*A\*Syst - Water Quality Education & Outreach for Voluntary Pollution Prevention*" and poster presentations on "*Erosion & Sediment Control Education & Outreach*" and "*Changing Young People's View of Mangrove Ecosystems - Altona Lagoon, St. Croix*" at the conference.

Staff assisted with construction and preparation for the ***St. Thomas - St. John Agriculture and Food Fair***, supervised Fair operations and served as master of ceremonies for the Fair. A poster presentation on "*V.I. Beauty Begins with Your Yard*" and a VI\*A\*Syst "*Safe & Healthy Home*" display were presented at the St. Thomas Agriculture and Food Fair for an estimated audience of 155. Staff assisted the St. Thomas Marine Advisor in presenting a display on pollution prevention for boaters and marinas at the ***St. Thomas V.I. Charter Boat Show***. Staff assisted with preparation and setup for the ***St. Croix Agri-Fest***. Poster presentations and materials on "*V.I. Beauty Begins with Your Yard*" and "*Erosion & Sediment Control Education & Outreach*" were presented to Fair attendees. These displays presented information on erosion and sediment control practices and landscaping with native plants, along with information on how plants are beneficial to the environment to an estimated audience of 250.

Staff appeared on the TV2 talk show "*To Your Health*" to promote the CES "*Safe & Healthy Home*" program, which is part of VI\*A\*Syst (see above). Information from the "*Recipes for a Non-Toxic Household*" booklet was presented by staff during two taped segments of the show, aired March 21 and 27, 2001, which generated about a dozen requests for booklets immediately after. PSA's for the VI\*A\*Syst Safe & Healthy Home program and NPS pollution control practices continued to be broadcast on local radio stations. VI\*A\*Syst issues and watershed protection were discussed on WSTA's Eddie Donahue show.

The brochure "*Nonpoint Source Pollution in the USVI*" was revised and reprinted, and also uploaded onto the CES Water Quality web site. Articles on the Indoor Air Quality Training workshop and meetings with regional Extension/EPA partners were submitted to the CES newsletter. A brochure entitled *VI Beauty Begins With Your Yard* was revised, printed and



distributed to 24 Summer Academy students. The Used Oil, Lead in Your Drinking Water and Water Conservation Checklist for the Home publications were revised for reprinting and uploaded on UVI-CES website. Staff are also working with ALBC representatives on revisions of the Used Oil and Reduce, Reuse, Recycle publications, and corresponding PSAs (as part of VI\*A\*Syst program).

Information was provided to over 250 clients on soil erosion, soil types, erosion control, slope stabilization, V.I. soil survey, TR55, hydroseeding and grasses, cistern and septic system care and maintenance, alternative septic systems, gray water, home water test kits, VI evaporation data (to local engineer), groundwater, solid waste, household hazardous wastes, natural landscaping, nonpoint source pollution, and mangrove forests. CES developed a list of plants, by request, for CZM to recommend to the general public to use for soil conservation and provided information about alternative OSDS plant selection. CES also provided information to St. Croix VIMAS staff about plants included on the trail guide for the UVI Wetlands Reserve. Assistance was provided to six (6) elementary and secondary school students for science projects and to six (6) UVI students, writing research papers on nonpoint source pollution, erosion control, the use of native plants in landscaping, and plants and wetlands of St. Croix. Staff also distributed VI\*A\*Syst and erosion & sediment control materials to the Peter Bay Homeowners Association (St. John) and the St. John National Park, provided information on vegetation communities in Botany Bay, wastewater treatment and the Botany Bay APC assessment report to Senator Donastorg's office and EAST, provided erosion & sediment control materials to USDA-NRCS and DPW's roads and highways division, and met with a Federal Highway Administration representative to discuss erosion & sediment control plans for the Christiansted bypass

Four (4) site visits were conducted to recommend appropriate erosion and sediment control practices for construction at Turpentine Run gut on St. Thomas and at the Estate Little LaGrange gut rehabilitation project (Lawaetz museum) site and to determine appropriate vegetation and slope stabilization materials to install for phase II of the project. CES led an EAST-sponsored hike in Botany Bay, an Area of Particular Concern (APC), which has recently drawn attention because the current owners are proposing a large scale resort development on the site. The relatively pristine property not been previously accessible to the general public. Information about the vegetation communities and other natural resources of Botany Bay were provided to members of the general public, VI Historic Society, and Senate and Delegate staffers. Site visits were conducted at two clients' homes to provide technical assistance on erosion control for steep slopes.

CES served as a liaison between Beach Cleaning Services and UVI Physical Plant to develop a program for Beachie Clean to adopt and help maintain Brewers Bay with financial support from the cruise lines that visit the island and met with the Director of Facilities to reinstate the Brewers Bay Advisory Committee. Staff also edited an environmental handbook for VIMAS.

CES continued to provide technical assistance to DPNR's Coastal Zone Management program. Detailed comments were provided on CZM's Fish Bay (St. John) watershed

management plan regarding proper erosion, sediment and stormwater control and sewage disposal, and on the Pond Bay, St. John, EAR regarding proper erosion, sediment and stormwater control and sewage disposal, and participated in a Fish Bay watershed planning committee meeting to review a proposal to develop a Comprehensive Road Stabilization Plan for the watershed. Detailed comments were also provided to DPNR in reviewing FY 2001 §319 proposals submitted for funding. CES also participated in three (3) DPNR Marine Park meetings discussing selection of an organization to develop a Marine Park Management Plan for the Virgin Islands. A letter was also forwarded to the DPNR commissioner, in cooperation with USDA-NRCS and the VI Dept. of Agriculture Urban Forestry Program, regarding protection of gut ecosystems during land conversion activities. The letter included ways that these agencies could cooperate with DPNR to increase awareness of the importance of conserving native forests. Staff met with the U.S. EPA region 2 representative and the St. Thomas Chancellor to discuss UVI's participation in and collaboration with the Caribbean Pollution Prevention (P2) Center. Staff also provided technical assistance to Senator Donastorg's office, the League of Women Voters and EAST during two meetings regarding a new development planned for Estate Botany Bay, St. Thomas. A letter was forwarded to the DPW Commissioner regarding proper roadside clearing practices and offering training assistance. A presentation on the Natural Resources program (including the Water Quality Program) was prepared and delivered to CES Steering Committee members. Staff also met with two local Senators and provided them with information on the UVI-CES Natural Resources and VI\*A\*Syst programs, and provided one Senator & the Senate Planning & Environmental Protection Committee with information on the Safe Drinking Water Act and rooftop coatings certified for rainwater catchment system use. Staff attended a "Battery Summit" held by St. Thomas ALBC to involve local vendors and government agencies in battery recycling in the district.

The Rutgers Cooperative Extension Director, the Cornell Cooperative Extension Environmental and Natural Resources Management Program Leader, and the U.S. EPA Region 2 /Cooperative Extension Liaison visited the Virgin Islands February 25-27, 2001. Their trip initiated collaboration with UVI, UPR and the EPA Caribbean Division to expand the existing partnership already between EPA Region 2 and Rutgers and Cornell Universities to include all four Land Grant Universities operating in Region 2. During their trip, Region 2 representatives met with CES natural resources staff to discuss water quality, nonpoint source pollution, public policy and waste management issues facing the territory. Staff and EPA/ Extension representatives visited two CES pilot project sites: the alternative onsite wastewater treatment systems at Magen's Bay Beach, which utilize plants to treat wastewater, and the Montessori school athletic field planted using the DPNR/CES hydroseeder. The Bovoni landfill was also visited and examples of poor quality road cuts, improper building siting, development on steep slopes and in guts, and improper soil stabilization contributing to nonpoint source pollution problems in the territory were viewed. Rutgers, Cornell, UPR and UVI will now collaborate on a Regional Water Quality Coordination grant (see grant proposals, page 1) on issues such as erosion and sediment control, management of onsite wastewater treatment systems, enhancement of UVI's role in identifying incentives for environmentally sound development and "eco tourism," including such tools as 'green credits,' and collaborations related to public policy and planning, including NEMO implementation.

Two VI\*A\*Syst presentations on septic system design, operation, and maintenance were delivered to 29 Science 300 students. Staff also delivered a presentation on VI native plant habitats to 15 Puerto Rican college students visiting from the College of Math and Science. Two presentations were conducted for 77 students of the St. Thomas Saturday Science Academy on careers in agriculture and natural resources, vegetative zones on St. Thomas and least toxic household products. Tours of the Demonstration garden were also led for both groups. Presentations on *Environmental Threats in the Virgin Islands* and *Measuring the Universe* were delivered to 45 VI high school students selected to participate in the UVI Summer Academy program. Assistance was provided to Math & Science students on landfills in the V.I., household hazardous wastes, and less-toxic household products.

Eight presentations on preparing your soil, soil improvement, soil erosion, sedimentation, conservation and pollution prevention with dramatization of a rain event using the watershed model of NPS pollution, were delivered to school groups and 4-H clubs for 343 youths and 27 adults. Information and materials were presented and students were given information on careers in natural resources.

CES helped coordinate four hikes/tours to five St. Thomas beaches and two northside St. Thomas' botanical gardens for 12 UVI faculty and students, 50 horticulturists and botanists visiting from Canadian botanical gardens, and 25 Parks and Recreation summer campers. Youths (435 students) from three elementary, two junior high, and two high school (public & private), along with 4-H, SEA, Human Resources, and church summer camp programs participated in environmental education hikes throughout St. Croix (Jack & Isaacs Bay, Caledonia, Estate Adventure, etc.) discussing the coastal environment, native plants and habitats, the importance of marine habitats to the terrestrial environment and water quality. Students were tested orally to see what they learned from the hikes. Some teachers also had the students write essays of what they learned about the island environment.

#### Impacts/Outcomes:

1. Over 150 people increased their knowledge and awareness of best management practices to improve drinking water quality through workshops and media outreach (radio talk shows, fairs, PSAs), with 90 adopting one or more practices to improve drinking water quality (regular water testing, chlorination/disinfection, cistern cleaning, filtering, screening cistern pipes, checking MSDS for roof/cistern coatings). Fifty people tested their cistern water and/or implemented recommended treatment practices (monthly chlorination, filtering, cistern pipe screening, replace piping, clean gutters).

2. Over 2850 people increased their knowledge and awareness of NPS pollution issues and best management practices to protect and improve surface and ground water through workshops, presentations, fairs, media outreach (TV & radio talk shows, radio PSAs), and individual contacts. Over 1800 clients reported adopting best management practices, such as using native or water-conserving plant materials, soil conservation methods, proper septic system siting, design, operation & maintenance, use of least-toxic household products, reducing NPS pollution.

3. Over 335 business people, local government personnel, decision-makers and development professionals increased knowledge and awareness of nonpoint source pollution issues through training and technical assistance consultations, and 106 adopted BMPs to protect drinking water and to protect and improve surface and ground water by implementing erosion & sediment control practices, retrofitting failing septic systems, stream restoration, using least-toxic household products & properly disposing of household hazardous waste.

4. Irrigation supplies, ground covers, stone chips and other materials were purchased and installed to improve the demonstration plots and the porous pavement parking lot at the CES St. Thomas Home Demonstration Garden. Tours of the erosion & sediment control demonstration site were conducted for 25 regulators, government agency representatives, construction industry personnel, and homeowners interested in implementing BMPs on their home construction sites.

5. Revision of the 1995 *V.I. Environmental Protection Handbook* to incorporate lessons learned through local demonstration projects as well as practice innovations over the past six years to control or prevent nonpoint pollution from urbanizing areas began. The Handbook is a guidance manual produced for the V.I. Department of Planning & Natural Resources, which describes planning, erosion, sediment and stormwater control practices for use on construction sites. DPNR personnel refer Earth Change and CZM permit applicants to this manual for use in developing stormwater pollution prevention plans.

6. The St. Thomas hydroseeder was loaned out on six (6) different occasions to stabilize disturbed areas at local school and government construction sites. Increased use of this practice by the construction industry in St. Thomas is a success story of this project. Assistance was also provided to over 30 clients, by request, on erosion and sediment control practices, plant materials, and stormwater control.

Sources of Funding:

- Ø Magens Bay alternative OSDS – \$64,000 §319 grant
- Ø VIASyst Train-the-Trainer – \$25,000 §319 grant (FY 1998 multi-year grant)
- Ø LaGrange gut rehabilitation – \$65,000 §319 grant
- Ø EPA Environmental Education grant (VI\*A\*Syst outreach) – \$14,130
- Ø CSREES/HUD Healthy Homes grant – \$2,300
- Ø \$20,000 §319 (nonpoint source pollution management) grant from V.I. DPNR

#### Scope of Impacts:

Territory-specific; also consultation with Region 2 water quality coordinators to develop regional water quality coordination project (UPR, Rutgers, Cornell, Region 2 EPA/CSREES Liaison); assistance/information provided to New York, Florida, West Virginia, Wisconsin, Arizona, British Virgin Islands, USDA-NRCS, FHA; technical assistance also provided to FHA for a local project; government agency personnel and professionals in the British Virgin Islands.

### ***Program 11 - Natural Resources & Environmental Management***

Four grant proposals were submitted to fund Natural Resources program projects this fiscal year, all of which were awarded. Notification of award was received from the U.S. EPA Environmental Education Program July 17, 2001 for a proposal submitted to continue and expand the VI\*A\*Syst program through additional training workshops, distribution of home water quality test kits, and media outreach. UVI-CES was a partner on a Nonpoint Source Pollution (§319) grant that was submitted to DPNR for funding and subsequently awarded to conduct the second phase of the gut stabilization project at Estate Little LaGrange in St. Croix, with Annaly Farms as lead. A Healthy Homes mini-grant was submitted to USDA-CSREES to fund purchase of printed materials for VI\*A\*Syst outreach activities and was awarded July 2001. CES also partnered on a grant proposal with VI RC&D that was submitted to UCFAP to fund a series of three field workshops on St. Thomas to provide the public with information about innovative and beneficial land-use practices (conserve native trees, safely incorporate non-native plants into the landscape, and use appropriate earth change and landscaping techniques that reduce impact on native forests). This grant was awarded the end of FY 2001.

CES continued to coordinate, with the Magens Bay Authority (MBA), a DPNR Nonpoint Source Pollution Management Program (319) grant (\$49,800.00) to retrofit two failed septic systems near the beach at Magens Bay with an alternative on-site sewage disposal system (OSDS). The trench-style OSDS uses plants and microorganisms naturally present on plant roots to digest and transform pollutants in septic effluent that could contaminate the waters of Magens Bay. Staff is supervising the planting phase of the project. Construction on both systems was completed by the end of November, 2000. WSTA, Channel 8 and Channel 12 conducted on-site interviews with project partners (Magens Bay Authority, UVI-CES, DPNR-DEP and the Project Designer). Staff selected plants that must tolerate slightly brackish water used in the Magens Bay bathhouses. Identifying plants that will tolerate and flourish in an OSDS with salt water inflow is experimental and has not been tried in the VI. Funding for the Magens Bay Tree