

R&PS RESEARCH AND PUBLIC SERVICE NEWSLETTER

UNIVERSITY OF THE VIRGIN ISLANDS

Volume 6, No. 1

News from the UVI Research and Public Service Component

February 2003

AES SCIENTISTS ASSIST AWARD-WINNING UVI STUDENTS WITH RESEARCH PROJECTS

Dr. Bob Godfrey, Animal Science Program Leader at the Agricultural Experiment Station, served as a mentor for an undergraduate student from the Division of Science and Math. A Minority Biomedical Research Support - Research Initiative for Scientific Enhancement (MBRS-RISE) grant from the National Institutes of Health (NIH) that was coordinated by Dr. Teresa Turner of Marine Sciences funded the program. Dr. Godfrey is a collaborator on the four-year grant and agreed to mentor students in his laboratory.

The student, Okesiha Isles, had just completed her freshman year when she joined Dr. Godfrey's lab in the summer of 2002. Ms. Isles' project involved measuring physiological temperatures in hair sheep rams and relating them to the environmental temperatures. The project was conducted to develop a procedure for use in cattle in the tropics as part of a southern regional research project on heat stress in dairy cattle.

A four-channel temperature data logger was used to collect physiological temperatures (subcutaneous, rectal and scrotal) of the rams using appropriately placed probes. The data logger was held in place by attaching it to a breeding harness



A St. Croix White and a Barbados Blackbelly ram are shown in the pasture with the physiological temperature data loggers used in the study by Okesiha Isles, who worked with Dr. Bob Godfrey



Nina St. Brice, who worked with Dr. Tom Zimmerman, is shown in the Biotechnology and Agroforestry Program greenhouse with papaya seedlings used in her project

with duct tape. A second data logger in the pasture collected ambient temperature and relative humidity throughout the 48-hour data collection period. Ms. Isles was responsible for collecting and collating the data on the days of the experiment. Dr. Godfrey assisted her in conducting the statistical analyses and then Ms. Isles created graphs and tables that were used in poster and oral presentations.

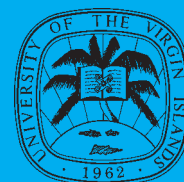
Dr. Thomas Zimmerman in the Biotechnology & Agroforestry program mentored Latashia Joseph and Nina St. Brice in his lab. Each of Dr. Zimmerman's students also presented their research results at the Emerging Caribbean Scientist Research Symposium on St. Thomas. The first prize in the competition was awarded to Nina St. Brice for her title "Selection of transgenic papaya seedlings utilizing kanamycin and DMSO." Latashia L. Joseph tied for third place for "Micropropagation of cassava plants."

Ms. Isles was also awarded third place for her poster, "Evaluating relationship between environmental temperature and physiological temperatures

Continued on p. 11

INSIDE

- 2 2002 World Food Day
- 3 In Print: New Handbook, Book Chapters
- 4 ECC Launches New Technology
- 5 VI-EPSCoR Update
- 6-7 AES Aquaculture Program Constructs System in New Jersey
- 8 SBDC Briefs
- 9 UVI Sponsors Senepol Research Conference
- 10 AES Researcher Conducts Workshops in Nigeria and Bangladesh
- 11 New Hydroseeders Trained
- 12 Upcoming events





THE UNIVERSITY OF
THE VIRGIN ISLANDS
RESEARCH & PUBLIC SERVICE
(R&PS) NEWSLETTER
IS AN INFORMATIONAL
NEWSLETTER ON THE UNITS
THAT MAKE UP THE
R&PS COMPONENT.
[HTTP://RPS.UVI.EDU/](http://rps.uvi.edu/)

VICE PROVOST
HENRY H. SMITH, PH.D.

EDITORIAL BOARD
VELMA ABRAMSEN,
EXECUTIVE ASSISTANT TO
THE PRESIDENT
LORNA CHESTERFIELD,
ASSISTANT TO THE VICE PROVOST
CLARICE C. CLARKE,
PUBLIC INFORMATION SPECIALIST
HELEN DOOKHAN,
ADMINISTRATIVE SPECIALIST
RAQUEL SANTIAGO SILVER,
ADMINISTRATOR
JACQUELINE SOMERSALL-
BERRY,
FORMER ASSISTANT TO THE
ECC DIRECTOR
PATRICE JOHNSON,
DIRECTOR OF PUBLIC RELATIONS

LAYOUT & DESIGN
ROBIN STERNS

DISTRIBUTION
KIMA GATON

MAIL LETTERS OR COMMENTS TO:
LORNA CHESTERFIELD
UVI RESEARCH & PUBLIC SERVICE
#2 JOHN BREWERS BAY
ST. THOMAS, VI 00802
TELEPHONE: (340) 693-1061
FAX: (340) 693-1065
LCHESTE@UVI.EDU

THE UNIVERSITY OF
THE VIRGIN ISLANDS
IS AN EQUAL OPPORTUNITY,
AFFIRMATIVE ACTION,
TITLE IX, SECTION 504,
PL 101-542 EDUCATOR
AND EMPLOYER.

WORLD FOOD DAY 2002

On October 16, 2002, residents of the United States Virgin Islands joined people from all over the world commemorating World Food Day. On St. Croix, educational activities were held on October 20 on the grounds of the University of the Virgin Islands.

Focusing on the theme "Water: Source of Food Security," Dr. Henry Smith, UVI's Vice Provost for Research and Public Service and director of the Water Resources Research Institute, gave the keynote address. Dr. Smith stated that the demand for fresh and healthy drinking water will increase by 50 percent in 20 years. "Water directly affects food production and is more precious than oil, for it has no substitute," Smith said.

In her workshop presentation to World Food Day attendees, Julie Wright, Extension Program Supervisor, pointed out safe and healthy drinking water practices. Information on how to maintain cistern water quality, how to get water tested and methods of water treatment were stressed. Other workshops included the use of drip irrigation, aquaculture options for the Virgin Islands, and hot pepper, citrus and poultry production.

As usual, the food demonstration activities for



Charles Smith, Extension Assistant, explaining the concept of growing vegetable crops in a small area using box gardens

adults and youth were a big hit. However, one of the biggest events was the "plant-a-seed" activity by the 4-H Youth Club. This activity gave the youngsters an opportunity to learn the recipe for a good soil mix and proper seedling transplant techniques. Under several red, white and blue tents were food vendors. They sold food, drinks, tarts, jams, and many other goodies. Farmers were also a part of this year's activities and they had a variety of fresh produce for sale.

The highlight of World Food Day, however, was the vegetable seedling distribution. And, as usual, the public was not disappointed. More than 8,000 tomatoes, cucumber and hot pepper seedlings were distributed to attendees. The significance of World Food Day was said best by attendee Sam Carr. He said, "This is wonderful, I look forward every year to getting my seedlings from Extension Service. It definitely helps when I can grow and eat fresh vegetables."

World Food Day was sponsored by UVI's Cooperative Extension Service in partnership with the UVI Agricultural Experiment Station.



World Food Day participant accepting a tray of seedlings from Randy Macedon, Extension Agent

THE CARIBBEAN WRITER EXPANDS ITS REACH IN THE REGION

The Research Publications Unit recently participated in the first Caribbean Book Fair and Conference held in Port of Spain, Trinidad, from November 2 to 5, 2002. The book fair was sponsored by the Caribbean Publishers Network (CAPNET), a non-profit network of pan-Caribbean publishers which was created to support and build a vigorous indigenous publishing industry in the Caribbean.

The book fair and conference attracted participants from 25 countries which included the Caribbean islands, Belize, Cuba, Puerto Rico, the Virgin Islands and mainland U.S.A.

Copies of both *The Caribbean Writer* (past and current issues) and *Contemporary Drama of the Caribbean* were displayed and completely sold out by the end of the fair. However, the greater goal of

participating in the Book Fair and conference was to publicize the publications and gain exposure within the publishing industry in the Caribbean.

The Caribbean Writer also attained a distributor in Trinidad and preliminary discussions were held with a Canadian distributor for possible distribution in that country. Meetings were also held with Caribbean newspapers that were more than happy to provide featured publicity for *The Caribbean Writer* and *Contemporary Drama of the Caribbean*, since these publications have a regional focus. Several Caribbean printing companies also voiced their interest in conducting business with future publications of the Research Publication Unit.

For additional information on these publications call (340) 692-4152 or visit our website at www.TheCaribbeanWriter.com

IN PRINT...

UVI-CES COMPLETES REVISED ENVIRONMENTAL PROTECTION HANDBOOK

Sediment eroded and transported from construction sites, unpaved roads, driveways, parking areas and other bare soils is the primary nonpoint source pollutant harming Virgin Islands' coastal waters and degrading our coral reefs. Most construction and earth change projects in the VI do not use effective erosion and sediment control practices. In many cases, those erosion and sediment control practices that are used fail due to improper design, installation and lack of maintenance.

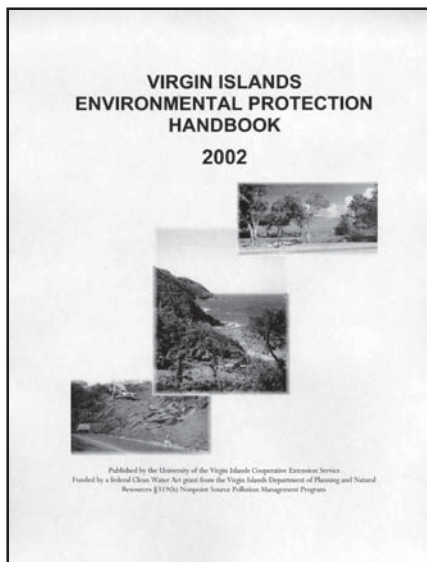
Recognizing that public education and outreach are essential to reducing nonpoint source pollution caused by land-clearing activities, The Department of Planning and Natural Resources (DPNR) contracted the UVI Cooperative Extension Service (CES) to revise and reprint the Virgin Islands Environmental Protection Handbook, a manual describing proper practice design, installation and maintenance.

The handbook presents up-to-date information on design practices for low-impact developments, specifications for erosion, sediment and stormwater best management practices (BMPs), and describes predictive models that can be used to estimate erosion and runoff.

The handbook is specifically designed for the construction industry (architects, contractors, draftsmen, developers, and engineers), but is also useful for individual property owners. DPNR's goal is to raise the standards of the Virgin Islands' construction industry to comply with national pollution prevention standards.

The Virgin Islands Environmental Protection Handbook was unveiled at the 7th Annual V.I. NPS Conference, where principal author Julie Wright presented information on a number of the practices detailed in the handbook.

Members of the BVI nonprofit group Island Erosion were so impressed with the material pre-

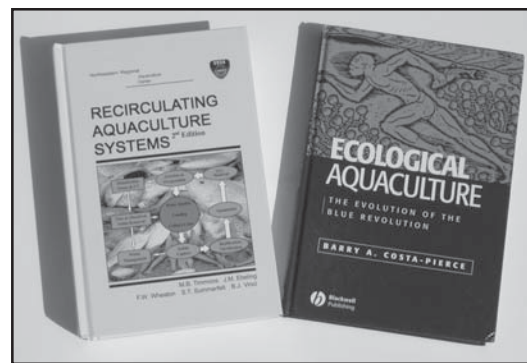


sented that they requested an encore presentation at their Island Erosion workshop held June 21, 2002, at Lavitty Stout Community College on Tortola.

To date, over 100 copies of the handbook have been distributed to NPS Committee members and other handbook reviewers, DPNR & UVI staff, local architects, engineers, surveyors, contractors, real estate agents, and NGO representatives, including clients from the BVI and Dominica.

CES has been promoting the handbook via local newspapers and radio talk shows and through announcements in NPS Update, the newsletter of the V.I. Nonpoint Source Committee and on the UVI home page.

Hard copies of the Virgin Islands Environmental Protection Handbook are available for \$15.00 per copy. To order a copy, contact either Ms. Julie Wright, UVI-CES, at (340) 693-1082, or Ms. Faye Williams, V.I. RC&D, at (340)692-9632 x. 101. The handbook is also available in Adobe Acrobat® format through UVI's website at <http://rps.uvi.edu/UVI-CES/VIEnvironmentalProtectionHandbook.pdf>.



AES RESEARCHER PUBLISHES BOOK CHAPTERS

Dr. James Rakocy, AES Director and Research Professor of Aquaculture, wrote chapters for two new books, which were published in 2002. The authors of these books wanted to include chapters on the unique aquaculture systems that have been developed at the University of the Virgin Islands and invited Dr. Rakocy to contribute.

One book, titled *Recirculating Aquaculture Systems, 2nd Edition* (769 pages and a CD), was published by the Northeastern Regional Aquaculture Center. The authors, all of whom are aquacultural engineers, are Dr. Michael Timmons from Cornell University, Dr. Fred Wheaton from University of Maryland, and Drs. James Ebeling, Steve Summerfelt and Brian Vinci from the Freshwater Institute in West Virginia. The book provides a comprehensive description of the principles involved in the construction and operation of recirculating fish culture systems. Dr. Rakocy contributed Chapter 18, "Aquaponics: Vegetable Hydroponics in Recirculating Systems" (pp. 631-672).

The other book, titled *Ecological Aquaculture: The Evolution of the Blue Revolution* (394 pages), was published by Blackwell Science, based in London, and is distributed in the United States by Iowa State Press. The editor is Dr. Barry Costa-Pierce, Director of the Rhode Island Sea Grant College Program and Professor of Fisheries and Aquaculture at the University of Rhode Island. The book provides information spanning a spectrum of activities from artisanal to high technology approaches to producing aquatic organisms in a balanced and environmentally friendly way. Dr. Rakocy contributed Chapter 9, "An Integrated Fish and Field Crop System for Arid Areas" (pp. 263-285).

These chapters provided an excellent opportunity to summarize many years of research on the aquaponic and greenwater tank culture technology developed at the University of the Virgin Islands. The information in these chapters will form the basis for future research at UVI and at other organizations conducting aquaculture research. The chapters also signify that UVI's Aquaculture Program has gained widespread recognition for its valuable contributions to the field of aquaculture.

COASTAL WATER QUALITY STANDARDS REVISED

The Virgin Islands' Code requires the Department of Planning and Natural Resources (DPNR) to review the water quality standards once every three years, and to amend, repeal, or adopt new standards as appropriate.

DPNR's Division of Environmental Protection (DPNR-DEP) has entered into an agreement with the University of the Virgin Islands (UVI) for the purpose of reviewing and revising as necessary the coastal water quality standards.

The project commenced April 1, 2002. The general approach taken in revising the water quality standards is to analyze existing water quality data collected and stored by DPNR. That data was supplemented by research conducted locally, as well as from other U.S. states and territories.

UVI assembled a Technical Advisory Group, consisting of professionals from government agencies, private sector firms, and non-governmental organizations, which provided general advice to UVI on the standards.

The proposed standards were submitted to DPNR for its review. Once the proposed standards are accepted by DPNR, they will be submitted to the Environmental Protection Agency (EPA) for review. Upon approval by the EPA, the proposed standards will be submitted to the VI Legislature for passage into law.

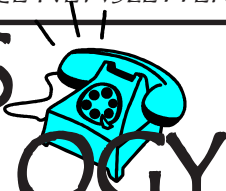
Keep on the alert for announcements from the DPNR regarding public hearings on the proposed standards.

For more information on the project, contact Mr. Hector Squiabro, Division of Environmental Protection, Department of Planning and Natural Resources. Telephone: (340) 774-3320.



[HTTP://RPS.UVI.EDU/](http://rps.uvi.edu/)

ECC LAUNCHES NEW TECHNOLOGY



Whenever the layman in the Virgin Islands hears about a UVI survey, he generally thinks of an interviewer going from house to house with a questionnaire in hand. This is probably because he associates a survey with the last three decennial censuses that the Eastern Caribbean Center (ECC) has conducted.

In addition to house-to-house surveys, ECC also conducts telephone surveys. These telephone surveys mostly employ random digit dialing (RDD) procedures. This method ensures that each household in the survey is randomly selected. A modern approach to this method is CATI, or computer assisted telephone interviewing.

In the CATI procedure, an interviewer uses the telephone to contact a household, and once a respondent agrees to the interview, the CATI software enables the interviewer to read off the questions from a computer, often a laptop, and enter the responses directly into the computer.

Telephone interviewing is often a preferred mode of data collection because it is cheaper than the house-to-house method, it is carried out faster, and there is greater data quality control. For these reasons, ECC has sought for quite some time to maximize the benefits from this survey sampling procedure. That goal of establishing a centralized telephone center was recently realized when ECC initiated the conduct of its first large-scale CATI survey from its new location.

The telephone survey was made possible by a grant to ECC from the Office of the Governor that is managed by the Bureau of Economic Research. The sponsor of the grant is the US Department of Health and Human Services, the Health Resources and Services Administration (HRSA). The funds provided by HRSA to the VI government are to identify the characteristics of residents without health insurance coverage, and to develop approaches for providing access to affordable coverage for VI citizens.

Prior to the receipt of this grant, ECC set out to develop a telephone survey facility that would house 12 carrels. Each of these carrels is equipped with a laptop computer with a mouse, a telephone headset consisting of a mouth and ear piece, a telephone keypad the size of a hand, and a desk lamp. From these



Field supervisor Myrtle Peters monitors interviews with digital telephone set

carrels, 12 interviewers can conduct 12 interviews simultaneously anywhere in the Virgin Islands.

A new piece of equipment that supports the calling center is a supervisor's console. This consists of a sophisticated digital telephone that allows the supervisor to sit at her desk in another room nearby and to monitor any of the conversations taking place between the interviewer and the respondent. Neither the respondent nor the interviewer knows when the conversation is being monitored. The only reason for this unobtrusive intervention is to ensure quality control of the process.

The survey is carried out in collaboration with the State Health Access Data Assistance Center (SHADAC) at the University of the Minnesota's School of Public Health. SHADAC produced the software used in the CATI instrument.

The topics included in the survey are health insurance status and type of coverage, health status, access to care and use of services. Those lacking in insurance were asked about their access to coverage through their employer or a family member, knowledge of public programs, and the main reason they do not have coverage. Information on the demographic characteristics of the respondents is also collected.

The telephone interviewing was conducted under the supervision of part-time employee Myrtle Peters. Staff of ECC's Research Institute, Annette Gumbs and James Richardson, provided full technical support in all aspects of this project. Dr. Frank Mills was the Principal Investigator of the survey.

VI-EPSCOR UPDATE

The Virgin Islands is now recognized as "an EPSCoR state or territory" by the National Science Foundation (NSF). EPSCoR (Experimental Program for the Stimulation of Competitive Research) was started by the NSF over two decades ago to allow states to upgrade their research infrastructure as a means of improving their competitiveness for research grants from the NSF and other government agencies.

It seeks to nurture high-quality research that serves the needs of each EPSCoR community in building its economy. The program is applicable to university research but also to activities in the private and public sectors of the community. States that attract substantial portions of the NSF budget are not eligible.

In the Virgin Islands, EPSCoR is administered by the University with the encouragement of the Virgin Islands Government. With the approval of the planning grant, NSF was, in effect, welcomed into the national EPSCoR family. Neighboring Puerto Rico has been in EPSCoR since the 1980s. The National Science Foundation requires broad community participation in the EPSCoR process. In some states, the lead university works closely with the state's office of science and technology (or the equivalent). Some state governments have an EPSCoR liaison office.

"BY THE END OF THE SPRING 2003 SEMESTER, VI-EPSCOR MUST PREPARE A TEN-YEAR IMPLEMENTATION PLAN FOR THE PROMOTION OF RESEARCH IN THE VIRGIN ISLANDS. SPECIFIC RESEARCH FOCUS AREAS WILL BE IDENTIFIED AND PROPOSALS WILL BE GENERATED TO ACQUIRE THE NEEDED SUPPORTIVE INFRASTRUCTURE."

To help establish EPSCoR in the Virgin Islands, the NSF awarded a planning grant to the University. Dr. Henry H. Smith, who is UVI Vice Provost, is the VI-EPSCoR Program Director and Professor Roy Watlington is VI-EPSCoR coordinator. By the end of the spring 2003 semester, VI-EPSCoR must prepare a ten-year implementation plan for the promotion of research in the Virgin Islands. Specific research focus areas will be identified and proposals will be generated to acquire the needed supportive infrastructure. As required by the NSF, cross-disciplinary and inter-organizational collaboration will be encouraged.

Consistent with both NSF guidelines and the dictates of the University's Strategic Plan, VI-EPSCoR is reaching out to interested organizations and welcoming all inquiries or expressions of interest. VI-EPSCoR further wishes to identify organizations and/or entrepreneurs that may be able to define new research focus areas for the Territory.

VI-EPSCoR will continue to welcome community guidance and assistance in the identification of the

Territory's strengths, resources, weaknesses, interests and unmet research needs. Towards this end, a group of community advisors is being invited to provide the counsel of their knowledge and experience to the VI-EPSCoR Planning Committee.

These community advisors will meet in the near future to advise about a process for identifying the strengths, interests and weaknesses of the Virgin Islands with respect to fostering research and technological and developmental activities. They will also be asked to give their perspectives on opportunities for growth and on challenges to the success of the effort. Interested parties should contact VI-EPSCoR for more information.

The VI-EPSCoR office is in Room 226 of the UVI Sports and Fitness Center. The telephone number is (340) 693-1478. Roy Watlington's e-mail address is rwatlin@uvi.edu.

To learn more about EPSCoR, log into the National Science Foundation's EPSCoR web page at <http://www.ehr.nsf.gov/epscor/>. UVI expects to mount its own EPSCoR web page soon.

YOUTH GET POINTERS ON CONFLICT RESOLUTION

Finding solutions to minimizing or resolving conflicts among V.I. youth was the focus of a two-day workshop held at the University of the Virgin Islands, St. Croix campus. The workshop on conflict resolution was conducted by the Cooperative Extension Service's Children, Youth and Family At-Risk Program (CYFAR) on November 14-15, 2002.

The objectives of the workshop were: to develop an understanding that because people are different we will have conflicts; to show that conflict is not always a bad thing but can be turned into one if not handled correctly; to develop problem-solving skills that can aid in resolving conflicts; and to teach how to adopt behaviors that will minimize conflict.

The workshop included a

PowerPoint presentation, role playing, and fun ice-breakers. The theme of the workshop was "Suppressing the Hulk in Me Will lead to a Better Community!" Because of the recent rise in crime, CES wanted to show the youth that there is a better way to solve their problems. SAY NO TO violence AND YES TO peaceful resolution!

Topics included looking at what can happen when conflict is handled correctly; proper handling of conflict, which can lead to unity of purpose and collaboration and better decision making and bring about positive changes; and three steps to cooperative conflict resolution: analyzing exactly what is the conflict or misunderstanding, analyzing your issues and interests and their issues and interests, and finding solutions for both parties.



[HTTP://RPS.UVI.EDU/](http://rps.uvi.edu/)

UVI-AES AQUACULTURE PROGRAM CONSTRUCTS AQUAPONIC SYSTEM AT NEW JERSEY ECOCOMPLEX

"THE TECHNOLOGIES DEMONSTRATED AT THE NEW JERSEY ECOCOMPLEX COULD COME TO ST. CROIX ONE DAY AS WELL. WITH THE ANGUILLA LANDFILL SOON TO CLOSE, IT TOO COULD BE CAPPED AND METHANE GAS BURNED IN GENERATORS TO PRODUCE ELECTRICITY FOR THE ISLAND. THE WATER OF THE CARIBBEAN COULD BE DESALINATED WITH POWER GENERATED BY THE MICROTURBINES AND DISTRIBUTED TO INDUSTRY AND FARMERS."

The UVI Aquaculture Program designed and built an aquaponic system in Columbus, New Jersey over the past year and the system is now operating at full capacity. The project was funded by a contract with Rutgers University through a grant from the U.S. Environmental Protection Agency (EPA). The "Waste to Food" project is located at the New Jersey EcoComplex, Burlington County Research and Development Greenhouse.

Dr. James Rakocy and Mr. Donald Bailey from UVI-AES constructed the aquaponic system in the winter and spring of 2002 with the assistance of employees from the greenhouse. The system is similar to the aquaponic system on the St. Croix campus. The only major modification made for this system is 2 ft. wide hydroponic tanks to facilitate the harvest of tomatoes.

The system is installed inside a greenhouse where temperatures can be controlled to that which is suitable for year-round agriculture. The system can produce over 10,000 lbs. of tilapia annually. Vegetable crop production is also continuous through the year. The greenhouse staff has planted half of the system with

tomatoes and the other half with other vegetables including lettuce, basil, cucumbers, eggplant and okra.

UVI continues its involvement with the project. Every six weeks, 700 sex-reversed male tilapia fry are shipped to the greenhouse. These fry are grown in a separate recirculating system to a size suitable for stocking before they are stocked into the aquaponic system. The greenhouse manager, Dr. Joseph Willis, came to St. Croix in June to attend the Aquaculture Program's 4th annual "Aquaponics and Tilapia Aquaculture Short Course."

In addition, Mr. Bailey most recently traveled to the greenhouse to participate in the grand opening press event that introduced the project to the public. The New Jersey Secretary of Agriculture, the EPA Region 2 Administrator and a number of other local dignitaries attended this event.

The UVI Aquaponic System installation and operation is part of a larger resource management project. The goal of the "Waste to Food" project is to demonstrate technologies that limit the consumption of new resources and reuse waste generated by other activities. The EcoComplex and Greenhouse are located at the



UVI aquaponic system at the EcoComplex in New Jersey



Hydroponic plants being nourished by aquaculture effluent, showing (from left to right) tomatoes, lettuce, cucumbers, basil and lettuce

site of the Burlington County landfill and recycling center. Some areas of the landfill have been closed and capped with a geomembrane. This membrane traps methane gas produced from the decomposition of organic waste that is buried in the landfill. Four microturbine generators burn this gas producing 120 kw of electricity that is used to run the aquaponic system pump and air blowers and to light the greenhouse. The aquaponic system water and the greenhouse environment are heated by hot water produced in heat exchangers on the generators' exhaust manifolds. The aquaponic system water is desalinated seawater and is used to demonstrate that no freshwater resources are required or diminished to operate the system.

While the nearby landfill produces the energy to operate the UVI Aquaponic System, the system itself conserves water resources and reduces waste discharge that would normally be associated with separate aquaculture and hydroponic production systems. Fish wastes provide most of the nutrients required by plants and the plants use the nutrients to produce a valuable by-product.

Unlike separate fish culture units and hydroponic systems which discharge wastes to the environment, the aquaponic system recovers fish culture waste into valuable plant production. The discharge of nutrient solutions, common in standalone hydroponic systems, is eliminated.

UVI's status as a leader in aquaponic system design has been spotlighted by involvement in this project. Building and operating a UVI Aquaponic System in a temperate zone greenhouse will demonstrate the suitability of the technology in regions other than the tropics. Access to production information and to the system itself by U.S. farmers will increase contacts by UVI with others interested in this technology. EPA administrators are now better aware of the research conducted on St. Croix.

One result of this is that the Program recently received a \$5,000 subcontract as part of a planning grant "EcoComplex of Puerto Rico and the Greater Caribbean Basin." This contract is part of a \$174,000 EPA grant that will study the establishment of an environment-controlled EcoComplex at the San Juan Landfill.

The technologies demonstrated at the New Jersey EcoComplex could come to St. Croix one day as well. With the Anguilla landfill soon to close, it too could be capped and methane gas burned in generators to produce electricity for the island. The water of the Caribbean could be desalinated with power generated by the microturbines and distributed to industry and farmers. Finally, an aquaponic industry that produces fresh fish and vegetables and reduces land and water use, when developed, can enhance the local agriculture industry and support the local economy.

"UVI'S STATUS AS A LEADER IN AQUAPONIC SYSTEM DESIGN HAS BEEN SPOTLIGHTED BY INVOLVEMENT IN THIS PROJECT. BUILDING AND OPERATING A UVI AQUAPONIC SYSTEM IN A TEMPERATE ZONE GREENHOUSE WILL DEMONSTRATE THE SUITABILITY OF THE TECHNOLOGY IN REGIONS OTHER THAN THE TROPICS."

R&PS

[HTTP://RPS.UVI.EDU/](http://RPS.UVI.EDU/)

UVI-SBDC AND VITEMA SPONSOR NATURAL HAZARD MANAGEMENT FORUM/TRADE FAIR

In August 2002, the Small Business Development Center joined forces with the V.I. Territorial Emergency Management Agency (VITEMA) in sponsoring a forum and trade fair on natural hazards management. The free events were coordinated to give the residents of this territory an interactive means of acquiring pertinent information relating to disaster preparedness planning, the insurance industry, mitigation, earthquake and hurricane preparedness and exemplary practices in emergency management.

The forum, moderated by attorney and former Lieutenant Governor Derek M. Hodge, featured presentations by various public and private sector entities including the Office of the Lt. Governor (VI); DPNR; Tropical Shipping; FEMA; VI Insurance Association; National Guard; the U.S. SBA; in addition to UVI's Professor Roy Watlington; Dr. Gloria Callwood, RN; and SBDC's State Director Warren Bush.

The Trade Fair held the following day at Tutu Park Mall afforded residents an opportunity to see the latest products and services available for the protection of life and property. About two dozen agencies, including non-profit entities, emergency service representatives, retail and other organizations provided instructional displays and giveaways to all those who traversed the mall.

UVI-SBDC was pleased to provide its resources in support of such a very vital community-based initiative and is eagerly looking forward to assisting VITEMA in its efforts to help better secure and empower all the residents of the Virgin Islands.

ASBDC ANNOUNCES SELECTION OF LINROY E. FREEMAN AS 2002 STATE STAR AT FALL CONFERENCE

Donald Wilson, president of the Association of Small Business Development Centers (ASBDC), announced that Linroy E. Freeman was selected as the 2002 State Star of the University of the Virgin Islands Small Business Development Center (SBDC) network.

The recognition ceremony occurred at the recent ASBDC Fall Conference held at the Opryland Hotel in Nashville, Tennessee.

"I am pleased to make this announcement, and to recognize Linroy Freeman for extraordinary contributions to the work of the SBDC network and small business in the U.S. Virgin Islands," said Wilson.

Mr. Freeman is Senior Business Counselor at the UVI-SBDC. He was chosen by the SBDC network for being an exemplary performer, making a significant contribution to the UVI-SBDC program, and showing a strong commitment to small business in the Virgin Islands.

America's Small Business Development Center Network is a partnership uniting private enterprise, government, higher education and local nonprofit economic development organizations. It is the Small Business Administration's largest partnership program, providing management and technical assistance to help Americans start, run and grow their own businesses. With more than 1,000 centers across the nation, the SBDC network assists about 600,000 small businesses every year in face-to-face counseling and training, in addition to assisting hundreds of thousands more small businesses through fax-on-demand and e-mail.

SBDC HELPS LAUNCH NEW ENTREPRENEURIAL INITIATIVE IN ST. CROIX

The SBDC and collaborative partner New Image Foundation held an opening ceremony in October 2002 commemorating the initial St. Croix-based program of WNET (Women Network for Entrepreneurial Training). WNET, a nationally recognized federal program co-sponsored by the SBDC, provides opportunities for professional women (men also invited) to have monthly roundtable discussions on various small business-related principles.

SBDC has always supported the initiatives of this program and was delighted to celebrate the expansion to the island of St. Croix. The first program concentrated on providing service excellence and was held at the Small Business Development Center's Training Facility in Sunshine Mall (Fredriksted).

The WNET program series promises to be another vital link in the University's Small Business Development Center strategic approach to improving economic conditions territory wide, with special emphasis on St. Croix.

SBDC: VITAL ROLE IN NATIONAL DISABILITY MENTORING DAY CELEBRATION

Warren Bush, State Director and active board member of the Work-Able non-profit agency, was very instrumental in assisting Work-Able's Director, Gwendolyn Powell, in coordinating the successful events of October 16, 2002, designated as National Disability Mentoring Day and for the first time simultaneously celebrated in the US Virgin Islands.

In addition to several other participating public and private sector organizations, SBDC played host to two high school disabled students as part of the job shadowing activity organized for the day. Those students spent hours at the SBDC and were coached by all the members of the staff. They received instruction on small business management principles and the daily operations and functions of the center. The students were also treated to a comprehensive tour of the St. Thomas campus and thoroughly enjoyed their visit.

The SBDC has continued to ensure that youths are given a fair and just opportunity to gain full exposure to small business principles. If interested in participating in next year's celebration, please contact the SBDC at (340) 776-3206 or 692-5270

YOUTH OUTREACH TRAINING UPDATE

Both offices of the SBDC have been extremely successful in their attempts to take the entrepreneurial spirit into the halls of the territory's elementary through senior high schools. Most recently, the training coordinators and business counselors at both offices offered a variety of applicable training exercises to several schools including Ricardo Richards Elementary School and Elena Christian Jr. High School, both on St. Croix, and the Gomez and Jane E. Tuitt Elementary Schools on St. Thomas.

As part of the growing initiative to help educate the youth at an early age on the principles of entrepreneurship, the exercises covered various topics. Included among those are starting a business, banking products, the importance of reading, writing, and arithmetic, and business planning.

The students demonstrated a sincere interest in the information, and the SBDC will remain firm in its attempt to help incorporate these principles into the schools' curriculum on a regular basis.

UVI SPONSORS SENEPOL RESEARCH CONFERENCE

A Senepol cattle research conference was held at UVI on November 8-9, 2002. The title of the conference was "Senepol – Cattle for the New Millenium." The conference was organized by Dr. Bob Godfrey of the Agricultural Experiment Station, Mr. Kofi Boateng and Ms. Sue Lakos of the Cooperative Extension Service and Mr. Hans Lawaetz of Annaly Farms, St Croix. Support for the conference was provided in part by the Senepol Cattle Breeders Association and Mr. Art Martinez, President, Dr. John Hough through U.S. Livestock Genetics Export, Inc. and Mr. Paul Engler of Cactus Feeders, Amarillo, Texas.

There has been a long-standing partnership between UVI and Senepol cattle producers on St. Croix. The name "Senepol" is derived from Senegal and Red Poll because the breed was developed on St Croix by crossing N'Dama cattle from Senegal in West Africa with a Red Poll bull from Trinidad. The resulting offspring were evaluated and selected for desirable traits such as lack of horns, heat tolerance, the ability to survive under tropical conditions, mild disposition, good milk production and tender meat production.

In the 1960's the work of UVI staff and local cattle producers led to the initiation of record keeping within the breed which was followed by the formation of the breed association in 1977. A Senepol conference was held on St. Croix in 1987 in order to provide a forum for researchers to present their data that was specific to the Senepol breed.

The more recent conference was held in honor of the 25th anniversary of the Senepol Cattle Breeders Association and provided researchers an opportunity to update the scientific information on Senepol cattle available to the producer and the research community. There were 51 people in attendance at the conference from places such as Brazil, Colombia, Panama, Paraguay, Puerto Rico, the USA (Alabama, Mississippi, Nebraska, Texas, Georgia, Florida and Tennessee), and Venezuela in addition to the USVI. There were a total of 13 presentations of research or production data from the USA mainland,



*Top: The conference participants posed for this picture with the hills of Annaly Farms in the background
Bottom: Conference participants are shown viewing cows and calves at the cattle pens of Annaly Farms*

Puerto Rico, Virgin Islands, Brazil, Paraguay and Venezuela.

Topics included fertility evaluations of bulls, evaluation of Senepol cattle under a variety of environments and management practices, an overview of the US feedlot industry and the use of in vitro fertilization as a method of propagating cattle. The proceedings of the conference are being posted on the Internet (http://rps.uvi.edu/AES/Senepol/Main_Page.html) and will also be distributed in electronic format on CD in English and Spanish.

A tour of Senepol farms on St Croix was also included as part of the conference. After a seaside lunch on the west end of the island, the conference attendees traveled through the scenic rain forest to Annaly Farms to view Senepol cows and calves. From there they traveled along the south shore to Castle Nugent Farms to see some young heifers and bulls as well as cows in the breeding herd. The end of the conference was highlighted by a West Indian style dinner at the Buccaneer Hotel.

ANIMAL SCIENTIST CONDUCTS SHEEP WORKSHOPS IN NIGERIA AND BANGLADESH

Dr. Bob Godfrey, Animal Science Program Leader at the Agricultural Experiment Station, conducted workshops on sheep management in Nigeria during two weeks in June 2002. This was Dr. Godfrey's second trip to Nigeria as a volunteer for Land O'Lakes International Development Division's Farmer-to-Farmer program funded by USAID. The main objective of the assignment was to present workshops on sheep management to the faculty and students at the Federal College of Education (Technical), Bichi in northern Nigeria near the town of Kano.

Dr. Godfrey traveled to Abuja, the capital of Nigeria, and met with Mr. Godfrey Tafida, one of the Land O'Lakes staff members. From Abuja he traveled to Kano where he met with Mr. Ilyas Ahmed, a local official from Kano State Agriculture and Rural Development Authority (KNARDA), who was coordinating the workshops with the Federal College.

Dr. Godfrey spent six days at the college conducting workshops that were attended by students and faculty. The course was based on information in a booklet on hair sheep production written by Dr. Godfrey, with modifications to suit the local conditions and practices. There was interest in topics such as selective breeding, animal health management and marketing. Dr. Godfrey also provided several books on livestock production for use as reference material in the library of the college.

Dr. Godfrey also traveled to Bangladesh as a volunteer for Winrock International's Farmer-to-Farmer program that is also funded by USAID. He conducted workshops on sheep management in Bangladesh during two weeks in July 2002. The objective of this assignment was to present workshops on sheep management to the members of the Bangladesh Association of Rural and Social Advancement (BARSA) cooperative in the village of Satkhira and the Intermediate Technology Development Group (ITDG) in Faridpur.

Upon arriving in Dhaka, the capital of Bangladesh, after three days of traveling, Dr. Godfrey met with Dr. P.K. Barua, Program Country Advisor for Winrock International, and planned his schedule. Mr. A.K.M. Anisur Rahman, of BARSA, coordinated the workshops and visits to



Dr. Godfrey visiting with villagers near Faridpur, Bangladesh. Dr. Muhammad Ali of ITDG and P.K. Barua of Winrock International are standing to the left of Dr. Godfrey.

local farms around Satkhira. One of the main thrusts of BARSA is to encourage women to participate in small ruminant farming. In many villages there are women who are divorced or widowed and due to the culture and social structure they have few opportunities for generating income. By providing assistance to these women BARSA is helping them to be able to provide for themselves and their children.

After the workshops were completed Dr. Godfrey visited the Bangladesh Livestock Research Institute (BLRI) at Savar near Dhaka and met with Dr. Khan Shahidul Huque, Principal Scientific Officer & Head and other members of the animal production staff.

Due to the interest of ITDG to visit with Dr. Godfrey and obtain assistance with goat production, some time was allocated to spend with ITDG. Dr. Muhammad Ali, Manager, Food Production of ITDG took Dr. Godfrey for a visit to Faridpur to see the goat production program that ITDG is implementing in that area. People in the nearby villages are provided assistance in obtaining and raising goats through ITDG. The majority of the beneficiaries of the program are divorced or widowed women and raising goats is their main source of income. One woman was able to buy a new metal roof for her grass hut with the money she made raising goats. This improvement

had a major, positive impact on her life and she was hoping to raise more money to further improve her home and help pay for the education of her children. One woman kept several male goats (bucks) at her farm and she would lease them to other farmers for use as breeding animals. The bucks were obtained with the assistance of ITDG and their extension staff.

In Faridpur Dr. Godfrey also visited a local livestock center that serves as a training facility and resource for cattle artificial insemination (AI) and met with Kbd. Imdadul Haque Talukder, Assistant Director, Animal Production, Department of Livestock Services. The livestock center staff members provide training in AI as well as semen for breeding of cattle. After spending several days in Faridpur and visiting several farmers, Dr. Godfrey returned to Dhaka to write his final report for Winrock and then returned to St. Croix.

These trips provided Dr. Godfrey with another excellent opportunity to see how livestock agriculture is done in other parts of the world. It also allowed him to further utilize the knowledge and experience he has gained in tropical agriculture during his tenure at UVI. By conducting these workshops and training programs the reputation of UVI is being enhanced and spread throughout the worldwide agricultural community.

NEW HYDROSEEDERS TRAINED ON ST. CROIX & ST. THOMAS

As part of its continuing effort to promote effective erosion control in the Virgin Islands to reduce nonpoint source pollution, the UVI Cooperative Extension Service (CES), in cooperation with the United States DEpartment of Agriculture (USDA) Natural Resources Conservation Service, conducted Hydroseeding Certification Training Workshops October 22 and 24, 2002, on St. Croix and St. Thomas, respectively. UVI-CES and USDA, with funding from DPNR, are cooperating on a joint project to promote the use and effectiveness of hydroseeding as an erosion control practice in the Territory.

The 38 workshop attendees learned about the innovative erosion control practice of hydroseeding, used to rapidly stabilize disturbed soils with grasses. Hydroseeding equipment uniformly applies a combination of grass seed, water, fertilizer, mulch and tackifier to a bare

area in need of seeding.

A primary advantage of hydroseeding is lower labor costs – one person can operate a hydroseeder to apply seed, mulch and fertilizer simultaneously. This method also applies seed more evenly, results in faster germination, and produces better grass stands.

Workshop attendees also learned about grasses appropriate for use in the Virgin Islands and participated in a hands-on demonstration during which bare soil areas on both the St. Croix and St. Thomas campuses of UVI were seeded.

The hydroseeders were originally purchased as part of a joint project with the Department of Planning and Natural Resources-Coastal Zone Management funded by the NOAA Coastal Services Center to promote the practice in the Territory. Upon completion of the project, DPNR turned over the hydroseeders to UVI-CES to



St. Croix workshop participants receiving hands-on experience using the hydroseeder

further promote the practice and make the equipment available to government agencies as well as the general public upon successful completion of a Hydroseeding Training and Certification Workshop.

In 2002, hydroseeding certificates were awarded to 33 attendees who successfully passed the certification exam. For further information on hydroseeding, please contact Ms. Julie Wright, jwright@uvi.edu, or Mr. Dale Morton, dmorton@uvi.edu, or call UVI-CES at (340) 693-1080.

ANIMAL SCIENCE SHEEP FLOCK INCREASES MULTIPLE BIRTHS

The hair sheep research flock at the Sheep Research Facility of the Agricultural Experiment Station on the St. Croix campus has been experiencing an increase in prolificacy (number of lambs born) over the past several lambings.

The sheep are managed on an accelerated lambing system so that each of the two flocks of breeding ewes will lamb at 8-month intervals. The flocks are staggered so that they are not lambing at the same time.

In the spring of 2002 there were 15 sets of triplets born and in the most recent lambing during November and December of 2002 there were 10 sets of triplets born.

In addition to these triplets there was the first set of quadruplet lambs born on the farm. A 6-year-old Barbados Blackbelly ewe produced the litter of three male lambs and one female lamb. Unfortunately one of the males died after only two days, but the remaining three lambs are doing very well.

The incidence of triplet births in the sheep flock has been very low, with only three to four ewes having triplets in any given lambing.

The hair sheep in the university

flock are selected based on their being born as twins and their ability to produce twin lambs.

The average number of lambs born per ewe over the past 16 years has been 1.8. The recent increase in the number of triplet births may be due to selection pressure for the genetic trait of multiple births.

Hair sheep ewes can raise twin or single lambs with no difficulty. They produce sufficient milk for the lambs to receive adequate nutrition. In the case of triplets the ewe cannot meet the demand of the lambs for milk without some assistance.

At the Sheep Research Facility all ewes that are raising triplet lambs are kept separate from the main flock so that they can be supplemented with some grain (2 lbs per ewe per day) for seven weeks after lambing to help them produce more milk for the lambs. The survival rate of the triplet lambs to weaning has been 100% under these conditions.

An economic analysis will be conducted to determine if the supplemental feeding is cost effective. This will be based on the pounds of lamb that are weaned by the ewes raising triplets and the costs of the feed.



A 6-year-old Barbados Blackbelly ewe with the first set of quadruplet lambs born at the AES Sheep Research Facility in 16 years. There were three male lambs and one female lamb in the litter

STUDENT PROJECTS

Continued from p. 1

in hair sheep rams in the tropics." Awards for the students were presented to the students during the NASA week that was held on St. Thomas and St. Croix in November 2002. The award consisted of a certificate and a check from the United Negro College Fund.

Ms. Isles also attended the Annual Biomedical Research Conference for Minority Students in New Orleans and made an oral presentation of the data. She will be attending the Southern Section Meeting of the American Society of Animal Science in Mobile, Ala., in February 2003 with Dr. Godfrey to present the data there as well. Ms. Isles is continuing to work in Dr. Godfrey's lab and will prepare her data for publication in a scientific journal, as well as participate in other research projects.

SBDC SPONSORS VARIETY OF TRAINING SEMINARS

The SBDC met its mandate in exceeding the required number of training programs over the past fiscal period. The SBDC saw tremendous support for its seminars held throughout the territory, including the continuation of the veterans' entrepreneurial series, a two-part series on effective business planning, customer service, landlord/tenant issues, and budgeting/forecasting for a new business.

SBDC is looking forward to an active fiscal year of new training activities in support of the workforce development initiatives put forth by the University.

To propose a topic for program consideration, please contact the SBDC at (340) 776-3206 or 692-5270.



RESEARCH & PUBLIC SERVICE UPCOMING EVENTS

FEBRUARY – MAY 2003

FEBRUARY

- 20 BEYOND BASIC ESTATE PLANNING/SBDC*
- 25 WOMEN'S NETWORK FOR ENTREPRENEURIAL TRAINING(WNET) ROUNDTABLE/SBDC
- 26 SEMINAR BY DR. BETSY GLADFELTER ON THE DECLINE OF ACROPORA IN THE VI/CMES

MARCH

- 3 TRANSPLANT OF MANGROVE SEEDLINGS AT LAMESHUR
- 4 BUDGETING & MONEY MANAGEMENT/SBDC
- 6 TIME MANAGEMENT/SBDC
- 8 TEACHER'S WORKSHOP ON ENVIRONMENTAL TOPICS/CMES
- 13&27 BUSINESS TAXES FOR 2002/SBDC
- 27 TERRESTRIAL RAPID ECOLOGICAL ASSESSMENT/ECC
- 20 QUICKBOOKS PRO/SBDC
- 25 WNET ROUNDTABLE/SBDC

APRIL

- 4&11 YOUTH OUTREACH/CMES
- 8 DEVELOPING A RESUME THAT WILL WORK FOR YOU
- 9 INTERVIEW TECHNIQUES
- 24 CUSTOMER SERVICE

MAY

- 5&12 WRITING A BUSINESS PLAN/SBDC
- 5&9 WNET ROUNDTABLE/SBDC
- LEADERSHIP ESSENTIALS
- 8 BUSINESS AFTER HOURS & SBA/SBDC SMALL BUSINESS OF THE YEAR AWARDS/SBDC

**for more information on these events, contact the sponsoring department.*



UVI RESEARCH & PUBLIC SERVICE
#2 JOHN BREWERS BAY
ST. THOMAS, VI 00802