CARIBBEAN AREA
NATURAL RESOURCES
CONSERVATION SERVICE
2015 ANNUAL REPORT

PRODUCTIVE LANDS — HEALTHY ENVIRONMENT

HELPING PEOPLE HELP THE LAND
IN PUERTO RICO & THE U.S. VIRGIN ISLANDS
Quick Facts

- 13,537 acres of conservation planning completed
- 9,550 acres of cropland conservation applied to improve soil quality & soil health
- 19,354 acres of conservation applied to improve water quality
- 625 acres of irrigation improvements
- 13,998 acres of grazing land with conservation applied to protect/improve the resource
- 2,603 acres of conservation applied to protect fish & wildlife habitat
- Over 79% of financial assistance provided to beginning, limited-resource or socially-disadvantaged farmers
- Almost $4.4 Million in financial assistance to Caribbean Area producers & landowners to improve 9,854 acres

*Geophila spp. planted as conservation cover at Bananera Fabre, Sabana Grande, PR.*

Message From Our State Conservationist

New Year’s Greetings Caribbean NRCS Employees and Partners!

FY 2015 was not only a challenging year, but a rewarding one as well. I am proud to present to you some of our most significant accomplishments in which NRCS, along with many partners, addressed conservation needs in many ways. We dealt with climate change like never before, addressing an historic drought in our Caribbean Region, while helping farmers adapt to climate change and become sustainable. I hope that you enjoy this well-developed Annual Report.

Yours in Conservation,

Edwin Almodóvar, Director
Caribbean Area Natural Resources Conservation Service
Environmental Quality Incentives Program (EQIP)

EQIP is a voluntary conservation program to provide farmers with technical and financial assistance to install and implement conservation practices on eligible agricultural lands. Through EQIP, farmers in Puerto Rico and the U.S. Virgin Islands receive assistance for agricultural production and environmental quality as compatible goals.

In FY 2015, NRCS approved 366 contracts providing $4,402,348 in financial assistance to benefit 9,854 acres in the Caribbean Area, including contracts specific to 5 major initiatives: Guánica Bay, Santa Isabel Water Management, On-Farm Energy, High Tunnels, USVI Projects & RCPP. Approximately 79% of these funds were provided to beginning, limited-resource or socially-disadvantaged farmers.

EQIP Coral Reef Initiative

The Guánica-Río Loco Watershed Project is located in the southwest corner of Puerto Rico and covers portions of Guánica, Yauco, Lajas and Cabo Rojo. Since 2009, NRCS has helped producers in the watershed to voluntarily install conservation practices to reduce and trap sediment and nutrient runoff, improve wildlife habitat, and maintain agricultural productivity. The project is a multiagency effort to support the U.S. Coral Reef Task Force and reduce the impacts of land-based sources of pollution on coral reefs.

To date, NRCS has allocated over $3.46 million in EQIP funds and conservation technical assistance to conserve resources on over 4,059 acres of farmland in the Guánica/Río Loco watershed. In the Upper Río Loco watershed, over $92,430 has been obligated to convert 1,284 acres of sun-grown coffee plantations to shade-grown coffee on 56 farms. To date, over 31,930 native trees have been planted and over $71,229 has been paid to farmers for reforestation of 747 acres and other conservation practices. The Las Latas bioengineering project has also been completed, providing 600 linear feet of streambank and shoreline protection. Other practices installed include:

- 4 3-acre irrigation reservoirs;
- 3 water & sediment control basins;
- 3,720 feet of open channels;
- 10,683 feet of irrigation pipeline and 1 pumping station;
- 591 acres of terraces;
- 15,977 feet of fencing;
- 9 livestock watering facilities and 6 waste facilities;
- 127 acres of pasture and hayland planting;
- 128 acres of access control;
- 12 acres of critical area plantings;
- 631 acres of multi-story cropping;
- 44 acres of riparian forest buffer;
- 937 acres of brush management;
- 255 ft² of heavy use area protection;
- 2,025 acres of nutrient management; and
- 1,783 acres of integrated pest management.
**EQIP Santa Isabel Water Management Project**

NRCS is partnering with Caribe SWCD and the PR Department of Agriculture on a water management project in Santa Isabel. The area has a severe water crisis due to aquifer drawdown by irrigation wells. Heavy pumping of wells is removing more water from the coastal aquifer than is recharged by rainfall, leading to salt water intrusion. Salt water intrusion degrades the aquifer's water quality, making it unsuitable for growing crops. To remedy the situation, NRCS and partners are repairing an existing irrigation channel that runs along the north side of the area and provides an excellent source of high quality water. In FY 2015, 2 contracts were obligated for a total of $398,980 to protect over 2,101 acres of cropland.

**EQIP High Tunnel Initiative**

EQIP’s High Tunnel Initiative offers financial and technical assistance to farmers to meet increased demand for specialty and organic products. A High Tunnel is a polyethylene-covered structure called a Hoop House—similar to a greenhouse but with no electrical, heating, and/or mechanical ventilation system—that is used to cover high-value crops to extend the growing season in an environmentally safe manner. In FY 2015, NRCS approved 29 High Tunnel contracts for local producers for a total of $372,949.

**Virgin Islands Water Conservation Initiative**

In March 2014, NRCS signed a Memorandum of Understanding with the Virgin Islands Department of Agriculture and the newly-reactivated Virgin Islands Conservation District to improve water supplies for VI farmers. Project partners will:

- Build two 50,000-gallon irrigation tanks, one in St. Croix and one in Estate Bordeaux, St. Thomas, and a 20,000-gallon irrigation tank in Estate Dorothea, St. Thomas.
- Install irrigation pipelines for the St. Croix Community Gardens and farm plots in Estates Bordeaux and Dorothea, St. Thomas.
- Establish drip irrigation systems for crop producers on farm plots in St. Croix, St. Thomas and St. John.

In FY 2015, NRCS approved 1 special contract in St. John for $49,230.

**EQIP On-Farm Energy Initiative**

NRCS is helping dairy, poultry and coffee producers to transition to more energy efficient operations. The On-Farm Energy Initiative funds individual on-farm energy audits and energy-efficient practices to save farmers money and energy. Auditors conduct on-farm energy audits for eligible participants to identify how farm operations can become more energy-efficient, and use audit results to develop cost-effective Agricultural Energy Management Plans. In FY15, NRCS approved 34 Energy Audit contracts for $77,327 and signed 62 On-Farm Energy contracts for $547,345 to implement energy audit recommendations.
National Resources Inventory (NRI)

The NRI provides natural resource managers, policy makers and the public with scientifically valid, timely and relevant data on the natural resources and environment of the Caribbean Area. This data provides the scientific basis for effective public policies, sound agricultural and natural resource legislation, sensible local and national conservation programs and targeted USDA financial & technical assistance to address natural resource concerns.

The 2012 NRI Summary Report is the latest in a series of national resource inventories conducted by USDA-NRCS throughout the U.S. It summarizes the status, condition and trends of land, soil, water and related resources on the nation’s private lands from 1982 to 2012, providing a record of conservation accomplishments and future program needs. Caribbean Area highlights include: continued decline in cropland and pastureland acreage from 2007 to 2012; increased acreage of developed land and forest land; and increased erosion rates from cultivated cropland from 6.84 tons/acre in 2007 to 11.01 tons/acre in 2012. In FY 2015, Caribbean Area NRI staff completed the data collection and certification of all 2013 NRI segments, and evaluated 2013 preliminary table data.

Plant Materials Program (PMP)

In FY 2015 the NRCS-CB Plant Materials Program partnered with the US Fish & Wildlife Service to distribute over 5,000 native trees (Ternstroemia luquillensis, Byronima spicata, Cocoloba pubescens, Guarea guidonia, Prestoea montana) in Puerto Rico to create riparian forest buffers and ecological corridors. The PMP also published new fact-sheets, “Agroforestry” and “Vetiver Grass,” in both English and Spanish. The fact-sheets are available online at: [www.pr.nrsc.usda.gov](http://www.pr.nrsc.usda.gov).

The PMP awarded 2 new projects in 2015:
- UPR Conservation Plants for Soil Health Improvement in the Caribbean, and
- UVI Demonstration & Promotion of Conservation Covers for Soil Health in the USVI

The program continued field demonstrations of the native grass, Uniola Virgata (wire grass), as vegetative barriers to control soil erosion, trap sediment, improve habitat and act as a native plant nursery. They established barriers in the Cabo Rojo National Wildlife Refuge and 2 farms in Guánica and Lajas. Staff also continued evaluating conservation covers, tropical cover crops and multipurpose Nitrogen-fixing trees to reduce soil erosion, increase soil quality and provide ecosystem services. PMP staff also provided technical assistance and support to:
- UPR Sea Grant and USDA Forest Service to develop publications on conservation practices;
- UPR Marine Sciences Department to implement demonstration buffers in coastal areas of southern PR;
- UPR to develop educational materials on plant adaptation and selection for climate change;
- National Agroforestry Center to develop and translate documents about agroforestry systems in the Pacific and Caribbean Islands;
- Hosted National Plant Materials Specialist, John Englert’s, visit to field sites in Puerto Rico; and
- Completed the Halophytes as Conservation Buffers CIG Project.

Left: Halophytes as Conservation Buffers CIG Project closing ceremony; Right: Plant Materials Specialist, Edwin Más (left) and Agronomist, Mario Rodríguez (right) visit UVI cover crop demonstration site with farmer, Grantley Samuel (center).
Soil Survey Program

The NRCS Caribbean Area Soils Survey Division is part of the National Cooperative Soil Survey (NCSS) program, a nationwide partnership of federal, regional, state and local agencies and institutions. This partnership works together to cooperatively investigate, inventory, document, classify and interpret soils and to disseminate, publish and promote the use of soils data for the United States and its territories.

During FY 2015, the Mayagüez MLRA Soil Survey Office (SSO) completed the evaluation and update of thirteen Soil Data Joint Recorrelation (SDJR) projects and submitted them to MO Region #3 in Raleigh, NC. The thirteen SDJR projects reconciled 36 map units and updated soil survey information for a total of 289,756 acres across 7 soil survey study areas in Puerto Rico.

Mayagüez MLRA SSO staff participated in the soil description for the National Ecological Observatory Network (NEON) monitoring site established in the Maricao State Forest in Guánica. The NRCS Soils Division has a collaborative agreement to work with NEON to enable understanding and forecasting of the impacts of climate change, land use change and invasive species on continental-scale ecology to support research and education in these areas.

The Caribbean Area Soils Division signed a Cooperative Ecosystem Studies Unit (CESU) agreement with UPR-Río Piedras professor, Dr. Victor Snyder, for the “Validation of Atterberg Limits Listed in Soil Survey Reports for Major Soil Series of Puerto Rico and the U.S. Virgin Islands, and Evaluation of Liquidity Indices in these Soils” project. The project will validate Atterberg limit values listed in Soil Survey Reports for eight major soils of Puerto Rico and the U.S. Virgin Islands and obtain preliminary data on liquidity indices. The project will provide NRCS and other soil survey users with confidence levels for ranges of Atterberg limits published in Soil Survey databases.

Caribbean Area Soils staff conducted on-site investigations on farms to evaluate soils adaptability for the construction of irrigation water reservoirs and water and sediment control basins. These on-site evaluations benefited 3,050 acres in Puerto Rico.

Community outreach is a vital part of the Caribbean Area Soils Program, helping our users understand and properly use soil survey information. In FY 2015, we helped over 5,417 users through direct soil technical assistance and active participation in various activities such as: on-site investigations, agricultural fairs, workshops, trainings, environmental impact statement evaluations, soil tours, soil site description studies, university and school students’ educational events. Soils information was also circulated to over 7,920 members of the public through more than 132 social media posts (Twitter, FaceBook, GovDelivery) and NRCS-CB Soils webpages.
The new Regional Conservation Partnership Program (RCPP) promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements.

In FY 2015, Caribbean Area NRCS partnered with the Conservation District of Eastern Puerto Rico, the Puerto Rico Land Authority, the Puerto Rico Agriculture Department, the University of Puerto Rico Cooperative Extension Service, and the municipality of Yabucoa to begin a 5-year, $600,000 RCPP project to control excess water and improve water quality in the fertile, level lowlands of the Yabucoa Agriculture Reserve (YAR).

The 10,490-acre YAR in eastern Puerto Rico is specially zoned to protect prime agricultural land. A large area of the reserve is located in the Río Guayanés floodplain, where producers suffer damages from severe and prolonged flooding to plantain, banana and other starchy crops. Project partners aim to reduce flooding duration, allow flood waters to return to the Río Guayanés and eliminate pools of stagnant water. The project will manage runoff, flooding and ponding, while controlling the seasonal high water table. Partners will plant critical areas, remove channel obstructions, protect heavy use areas, and install grassed waterways, lined waterways and outlets, water control structures, and water and sediment control basins.

To date, project partners have met to clarify project extent and with 7 potential participating farmers to inform them about the project and program eligibility.

Conservation Innovation Grants (CIG)

CIG is a voluntary program to stimulate innovative conservation projects in conjunction with agricultural production. CIG allows NRCS to work with public and private entities to promote promising technologies to address resource concerns (soil, water, air, plants, animals, energy). In FY 2015, the Caribbean Area NRCS awarded $207,519 to 4 projects in Puerto Rico to develop and demonstrate cutting-edge conservation in the Caribbean Area:

Project 1: Agro Tropical, Inc., was awarded $75,000 for their project, “Development of an Innovative Soil Health Management System for commercial-scale plantain production systems in Puerto Rico.”

Project 2: UPR Estación Experimatal Agrícola was awarded $20,839 for their project, “Demonstrate, quantify and validate the effectiveness of compost as a soil amendment to manage nutrients and pests in important vegetable production systems in Puerto Rico.”

Project 3: Para La Naturaleza (PR Conservation Trust) was awarded $75,000 for their project, “Tree Sourcebook: Best Practices Supporting Conservation Efforts in Puerto Rico.”

Project 4: Milagros Hernandez was awarded $37,130 for her project, “Demonstrate and validate aquaponics as a sustainable alternative agricultural system.”
Engineering Division

The Engineering Division took the lead on the NRCS Caribbean Area Energy Initiative, growing from a small role to become one of the leaders in the Caribbean and nationwide. The Caribbean Area has successfully audited and installed recommended energy efficiency updates on 37 dairies and coffee farms in Puerto Rico during the past 5 years.

If FY15, Engineering partnered with local agencies, energy & coffee specialists, coffee processing facility designers & farmers to reach out to the coffee industry and farmers that can benefit from the energy initiative. We trained at least 175 farmers on energy-saving technologies and equipment for dairies, the responsibilities of a licensed electrician vs a refrigeration technician, new lighting practice standard 670, and provided guidance and technical advice on the energy program to over 50 farmers in 3 different meetings coordinated with Extension Service (SEA) personnel. The Team hosted an Energy Workshop for “Beneficiado” owners at Hacienda Tres Angeles in Adjuntas, PR, on May 14, 2015. The workshop targeted historically underserved coffee producers in one of the poorest areas on the island. Speakers from USDA-FSA, RD & NRCS, as well as private energy consultants, presented detailed information on energy initiative practices specific to coffee processing facilities, focusing on how energy savings can yield economic growth in the area. Over 85 coffee producers, extension agents and PR Department of Agriculture staff participated in this successful activity, submitting over 35 energy CAP applications for coffee beneficiados.

The Engineering Team completed three Special Projects:

- **Coloso Valley Special Project**: Irrigation reservoirs #1 and #2 were completed and certified, resulting in the payment of over $100,000 of EQIP funds.
- **Juana Diaz Special Project**: Irrigation reservoir #2 and sediment and water control basin B were completed and certified, resulting in the payment of over $240,000 of EQIP funds.
- **Río Loco-Guánica Watershed Bioengineering Project**: 600 feet of river bank erosion protection were installed at Las Latas sector, including gabions & gabion mattresses, geotextile, green gabions, live fascine, live stakes, rock bars, and a riffle ramp. Work was completed and certified in September 2015.

The Engineering Team revised and updated all Conservation Practice Standards related to Energy (374, 670 and 672), developed Job Sheets for practices 374 and 670 in English and Spanish, and revised the certification statements to be included in the job sheet for Practice 670. New components were requested and justified in the cost list as part of the 374 energy practices, and approved at the national level. All requests for the 2016 Payment Schedule were successfully approved, including new and revised scenarios for energy practice components (coffee dryers, VSD’s, fans, scroll compressors, heat recovery units and electric motors).
StrikeForce Launched in Puerto Rico

USDA's StrikeForce for Rural Growth and Opportunity Initiative works to address the unique set of challenges faced by many of America's rural communities. Through StrikeForce, USDA is leveraging resources and collaborating with partners and stakeholders to improve economic opportunity and quality of life in these areas.

In April, Puerto Rico joined 21 states receiving targeted assistance from USDA to address rural poverty. On April 21, 2015, USDA officials from the Agricultural Marketing Service (AMS), Farm Service Agency (FSA), Food and Nutrition Service (FNS), Natural Resources Conservation Service (NRCS), and Rural Development (RD) joined Puerto Rico’s First Lady, Wilma Pastrana-Jiménez, and Agriculture Secretary, Dr. Myrna Comas, at Finca González in Guánica to announce the expansion of USDA StrikeForce to Puerto Rico. Through StrikeForce, USDA will work with community partners to combat chronic rural poverty in Puerto Rico by creating jobs, feeding children, assisting farmers, securing safe homes and conserving natural resources.

Caribbean Area USDA staff hosted Elvis Cordova, USDA Deputy Under Secretary for AMS and Representative to the White House Puerto Rico Task Force; Max Finberg, USDA StrikeForce National Coordinator; Patricia Dombroski, USDA-FNS Mid-Atlantic Regional Administrator; and Sam Rikkers, RD Administrator for Business and Cooperative Service. On April 21st, USDA VIPs also visited NRCS’ Guánica Bay/Río Loco Watershed Coral Reef Initiative project sites and Rural Development project sites in Coamo.

To celebrate Earth Day on April 22nd, USDA and PR dignitaries visited with Puerto Rico’s First Lady, Wilma Pastrana-Jiménez, at La Fortaleza People’s Garden. To support StrikeForce goals, NRCS increased the Caribbean Area’s FY 2015 EQIP funding by $500,000 to fund 45 additional conservation contracts for underserved farmers. This supplemental EQIP allocation funded 30 additional On-Farm Energy Initiative contracts and 15 additional High Tunnel contracts.

The USDA StrikeForce Team of NRCS Assistant Chief, Kirk Hanlin; Jacqueline Davis-Slay, Director of Public & Private Partnerships; Natasha Brown, NRCS StrikeForce Lead; and Luther Jones, NRCS StrikeForce Coordinator, visited Puerto Rico the first week of June to assist USDA agencies with strategic planning. The Team visited various farms and housing developments around the island with local FNS, FSA, NRCS and RD staff.

The StrikeForce Team also kicked off a new partnership between USDA-NRCS, RD & FNS; the UPR Agricultural Extension Service (SEA); and Soil Conservation Districts to install 21 Community Gardens at USDA-RD Multi-Family Housing Communities throughout Puerto Rico. To date, partners have built 14 of the 21 planned community gardens.
Conservation Technical Assistance (CTA)

NRCS provides conservation technical assistance (CTA) to land users to help them make sound natural resource management decisions. Assistance includes resource assessment, practice design, resource monitoring, or follow-up of installed conservation practices. NRCS also holds outreach activities to increase participation of socially-disadvantaged farmers and ranchers in our programs and to provide resource and environmental information to underserved groups and individuals.

Outreach: In FY 2015, NRCS provided CTA and outreach to over 13,500 clients and media outreach to over 250,000 residents through over 1,000 activities and contacts including: training workshops, on-site investigations and evaluations, conservation plans, technical consultations, advisory committees, newspaper and newsletter articles, radio appearances, conference presentations, public meetings, informational mailings and email blasts, outreach publications, posters and exhibits, the NRCS Caribbean Area website and FaceBook page, Twitter, YouTube and personal contacts.

CTA Outreach highlights include:

- Coordinated 2014 Farm Bill outreach campaign across Puerto Rico in collaboration with FSA, RD, PRDA, UPR Extension and EnviroSurvey, to promote new 2014 Farm Bill programs and initiatives. Over 890 people participated in 15 outreach workshops/meetings throughout Puerto Rico, including 53 female farmers.
- Joint Wildfire Prevention Initiative with the US Forest Service and Puerto Rico Firefighters Corps (PRFC), “Frente al Fuego.” Project partners participated in weekly fire prevention presentations in Puerto Rico’s public schools from February to May (our dry season). Over 3,000 students at 15 public schools learned about fire safety and prevention, and the impacts of wildfire on our natural resources.
- Conducted Energy Saving Workshop for Coffee Processing Plants in Adjuntas on May 14, 2015 for 70 participants. There is a huge potential for energy savings from this ag sector to significantly decrease greenhouse gas emissions and save producers money.
- Partnered with local Agriculture departments, FSA and RD to hold public meetings in Caguas, PR, in late July and St. Croix, USVI, in early August to provide information and assistance to farmers suffering from the most severe drought the Caribbean Area has experienced in over 100 years. Over 100 farmers in Caguas and 75 farmers in St. Croix learned about federal and local drought assistance made available through Secretary Vilsack’s drought declarations.
- CB staff assisted with training workshops on high tunnels, organic practices, soil health, cover crops, composting, pest management, gardening and conservation practices for over 245 farmers, agronomists, researchers, State Technical Committee members, SWCD members and residents.
Civil Rights Advisory Committee (CRAC)

NRCS Caribbean Area CRAC members represent field and state office employees from Puerto Rico and the US Virgin Islands, serving in an advisory role to the Director, to provide civil rights counsel and recommendations for all clients and employees.

There are eight Special Emphasis Programs (SEPs) that are part of the Civil Rights Advisory Committee and each has its own SEP Manager (or SEPM): African Americans; American Indians/Alaska Natives; Asian Americans/Pacific Islanders; Persons with Disabilities; Lesbian, Gay, Bisexual and Transgender (LGBT) Individuals; Hispanics; Veterans; and Women. Fiscal year 2015 CRAC member accomplishments include:

- 79% of FY15 Farm Bill Program participants were Beginner, Limited-Resource, or Socially-Disadvantaged Farmers. There was a 10% increase in historically-underserved farmer participation from 2014 to 2015.
- 11% of FY15 Farm Bill Program participants were Women, 1% were Veterans, and 91% were Hispanic. There was a 2% increase in female participation from 2014 to 2015.
- Civil Rights Compliance in Program Delivery training held for 9 USDA employees (7 NRCS, 1 APHIS & 1 FSA) at the NRCS State Office in San Juan, led by National Employee Development Center Training Specialist, Jacquelyn Drake.
- Provided careers in agriculture & natural sciences, employment and internship information to 66 and 50 engineers students at 3 Career Fairs.
- Promoted NRCS programs and initiatives on 3 radio shows reaching over 4,000 listeners.
- Participated in at least 11 Agricultural & Environmental Fairs & Festivals (including UPR-Mayagüez “Cinco Días con Nuestra Tierra,” St. Croix AgriFest, St. Thomas-St. John Agriculture Fair, UMET Green Fair, Mango Melee, Para la Naturaleza, Jayuya Café Festival) with over 1,000 attendees visiting NRCS booths and displays to learn about NRCS programs, conservation issues and practices, and soil health.
- Provided outreach on USDA-NRCS programs and employment opportunities, resume building, USAJobs website, VA E-benefits and American Jobs Act review of benefits for 27 attendees at 2 Veterans Job Fairs.
- Provided NRCS program and funding information to over 1100 participants at Conservation District and Local Working Group meetings, local Agriculture Department and University Extension-sponsored meetings and other outreach activities.
- Delivered presentations on conservation practices, soil health, climate change, wildfire prevention and to over 2,745 elementary to college students during at least 12 youth fairs/camps/activities, including Fort Buchanan Earth Day Fair and Frente al Fuego outreach events.
- Held 3 Employee Wellness activities April—June.
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