



**Natural Resources Conservation  
Service – Caribbean Area**

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# Success Story



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## COMBATING CLIMATE CHANGE IN THE CARIBBEAN AREA

The Caribbean Area NRCS is helping to combat Climate Change by adopting and implementing several initiatives to improve farm energy efficiency and increase carbon sequestration. Converting land to forest, grassland or other perennial vegetation helps remove carbon from the atmosphere. Likewise, reducing on-farm energy use reduces greenhouse gas emissions to the atmosphere. Additionally, NRCS is an active member of the USDA Caribbean Climate Sub Hub.

On December 2, 2014, the USDA Caribbean Climate Sub Hub, with support from the Farm Foundation, held a Roundtable meeting to discuss the challenges that climate change brings to agriculture and forestry in the Caribbean. Morning presentations focused on water resource management, soil health, extreme weather, and the day to day challenges facing local farmers. In the afternoon, participants broke into groups to discuss how climate information is flowing to and from agricultural and forestry producers.

### On Farm Energy Initiative

In 2011, NRCS and the Puerto Rico Milk Industry Development Fund began an initiative to help dairy farmers move to more energy efficient operations. In FY 2013, the To-Rico Poultry Farmers Association joined this initiative, bringing over 30 new conservation contracts.

The EQIP Energy Initiative funds individual on-farm energy audits to save farmers both money and energy. The energy audits are individually tailored to cover each farm's primary energy uses: milk cooling, irrigation pumping, heating and cooling of livestock production facilities, manure collection and transfer, grain drying, etc. NRCS and our partners are providing financial services and outreach to private land users through a certified Technical Service Provider (TSP) to prepare agricultural energy management plans.



To date, NRCS has approved 158 energy audit contracts totaling \$247,402 for eligible Puerto Rican producers, and over 80 applications are pending for FY 2015. TSPs have completed 127 on-farm energy audits identifying areas where producers can improve energy efficiency, and used those results to develop cost-effective Agricultural Energy Management Plans (AgEMPs). NRCS and partners have provided financial assistance to implement AgEMPs through 63 contracts totaling \$405,567.

### Rapid Carbon Assessment

From 2013-2014, the Caribbean Area NRCS Soils Division completed a Rapid Carbon Assessment inventory of soil carbon stocks, collecting soil samples from 30 sites throughout Puerto Rico (25 sites) and the U.S.

Virgin Islands (5). Through a collaborative agreement, the soil samples are being analyzed by the University of Wisconsin-Madison's Department of Geography, Biogeochemistry and Biogeography Lab to evaluate how environmental and historical factors affect the amount and turnover of organic carbon in tropical soils, and investigate mechanisms influencing soil carbon response to land use.

The Caribbean Area NRCS is also supporting the NRCS Soil Climate Analysis Network (SCAN) program, with 8 SCAN Stations in Puerto Rico and 2 SCAN Stations in the US Virgin Islands. These SCAN stations integrate information from existing soil-climate data networks and promote the establishment of new data collection points through partnerships with federal, state, local, and tribal entities. NRCS also promotes soil health via our website and social media, and has delivered workshops on "Soil Health - Potential Benefits to Climate Change" topics to numerous agencies, university classes and K-12 students.

### Water Management / Conservation

NRCS partnered with Caribe SWCD, the PR Land Authority (PRLA) and the PR Department of Agriculture to implement the South Aquifer area-wide conservation project. Erosion and sedimentation has harmed local communities and nearby coral reefs. The area also has a severe water crisis from drawdown of the aquifer by irrigation wells, causing salt water intrusion of the coastal aquifer, making it unsuitable for growing crops.



Since 1998, NRCS and the PRLA have invested \$13.4 million to restore and conserve water resources in the area, improving 8,710 acres of agricultural land. Project partners are rehabilitating an existing irrigation channel that runs along the north side of the area and provides an excellent source of high quality water. NRCS designed a series of irrigation reservoirs to connect to this existing channel and provide water for irrigation. The project will help NRCS and partners mitigate climate change, drought and extreme weather conditions on agricultural land. It will also greatly benefit local communities by reducing irrigation dependence on wells, allowing aquifer recharge, conserving energy & money, controlling surface water runoff, and trapping sediments in runoff to reduce damages to infrastructure, coastal waters, and coral reef and marine ecosystems.

### Conservation Innovation / Plant Materials Program Grants:

The NRCS Caribbean Area also addresses Climate Change through several measures to adopt and apply perennial vegetation to regulate soil temperature, sequester carbon and reduce solar radiation from soils. The following FY 2014 Conservation Innovation and Plant Materials grants have the potential to address climate change:

- *Mechanized cover crop management for improving soil health on steep and mountainous plantain farming areas in Puerto Rico; Grantee: \$63,443.00, NRCS: \$62,449.00*
- *Appropriate on-farm compost management of agricultural manures and organic residues; Grantee: \$30,194.00, NRCS: \$27,271.00*
- *Biological tillage with non-conventional cover crops for improving soil health; Grantee: \$44,173.00, NRCS: \$30,584.94*
- *Field validation of cover crops and conservation plants for the Caribbean Area; NRCS: \$26,730.00*
- *Tropical cover crops and multipurpose nitrogen fixing trees to reduce soil erosion, increase soil quality and provide ecosystem services in Caribbean agro-ecosystems; NRCS: \$14,976.81*