What is SARE?

Since 1988, the Sustainable Agriculture Research & Education (SARE) program has been the go-to USDA grants and outreach program for farmers, ranchers, researchers and educators who want to develop innovations that improve farm profitability, protect water and land, and revitalize communities. To date, SARE has awarded over $410 million to more than 8,827 initiatives.

SARE is grassroots with far-reaching impact

Four regional councils of expert practitioners set priorities and make grants in every state and island protectorate.

SARE communicates results

SARE shares project results by requiring grantees to conduct outreach and grower engagement; and by maintaining an online library of practical publications, grantee-produced information products and other educational materials.

www.sare.org

SARE: Advancing the Frontier of Sustainable Agriculture in...

Puerto Rico

Project Highlight: Cover Crops Improve Soil in Plantain Crops

Cover crops bring many benefits to farming systems, from protecting the soil against erosion to suppressing weeds to improving yields and profitability through healthier soil. In Puerto Rico, a team of researchers, educators and service providers used a SARE grant to start bringing these benefits to one of the island's main crops, the plantain.

Starting in 2013, the research team conducted on-farm experiments to identify cover crops species that could be intercropped with plantains to improve soil health. They focused on jack beans, sunnhemp and sorghum, planted as cover crops both individually and as mixes. The team collected soil samples to measure soil fertility, microbial activity and other indicators of soil health, and they made some important discoveries that should help Puerto Rico farmers make informed decisions about using cover crops. Jack beans established most successfully and showed the most promise overall, whereas rodents and heavy rains impacted the sorghum, and the sunnhemp performed well but was more susceptible to weather conditions than the jack beans.

Most importantly, the cover crop trials revealed an economic benefit. To achieve yields of high-quality plantains by market standards, no nematicides were needed and fungicide applications were reduced 78 percent—representing a cost savings to the farmer.

For more information on this project, see sare.org/projects, and search for project number FS13-271.

SARE in Puerto Rico

southern.sare.org/state-profiles/puerto-rico/

$597,448 in total funding

16 grant project

(since 1988)

For a complete list of grant projects state by state, go to www.sare.org/state-summaries
SARE in Puerto Rico

Grants awarded 2019–2024

Total awards: 16 grants
3 Farmer/Rancher
3 Professional Development Program
1 On Farm Research/Partnership
1 Graduate Student
8 Education Only

Total funding: $597,448
$45,339 Farmer/Rancher
$182,943 Professional Development Program
$12,549 On Farm Research/Partnership
$16,491 Graduate Student
$340,126 Education Only

Find a complete list of projects on page 3.

Farmer and rancher impacts 2019–2024

SARE grantees have reported the following impacts from their projects:

2,475 farmers participated in a SARE-funded project

181 farmers reported a change in knowledge, awareness, skills or attitude

171 farmers changed a practice

Learn about local impacts at: southern.sare.org/sare-in-your-state/puerto-rico/

Contact Your SARE State Coordinator

SARE sustainable ag coordinators run state-level educational programs for Extension and other ag professionals, and many help grant applicants and recipients with planning and outreach. Visit southern.sare.org/state-profiles/puerto-rico/ to learn more.

Nicolas Cartagena
University of Puerto Rico
(787) 752-0065
nicolas.cartagena@upr.edu

For detailed information on SARE projects, go to www.SARE.org

SARE is funded by the USDA’s National Institute of Food and Agriculture (NIFA).

This report includes summaries of competitive grant programs only. Some competitive grant programs that are no longer offered may be included or excluded from the totals in this report depending on the grant program and SARE region.
Puerto Rico has been awarded $1,569,123 grants to support 36 projects, including but not limited to, 6 research and/or education projects, 5 professional development projects and 11 producer-led projects. Puerto Rico has also received additional SARE support through multi-state projects.

### RESEARCH AND EDUCATION GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| LS14-263  | Multisectoral and Transdisciplinary Coalition to Spearhead the Development of a Cohesive Network of Local Limited-resources Urban Community Farmers for Sustainable Agriculture Using the Capital City of Puerto Rico as Case Study | $250,000     | Dr. Maria Calixta Ortiz  
Universidad Ana G. Méndez                                                                           |
| LS10-231  | Weed management alternatives for organic coffee agroforestry systems of Puerto Rico                                                                                                                      | $150,000     | Mariangie Ramos  
University of Puerto Rico at Utuado                                                                 |
| LS08-212  | Integrating tropical legumes with condensed tannins into ruminant grass-based diets for sustainable production                                                                                               | $100,000     | Dr. Elide Valencia  
University of Puerto Rico, Mayaguez                                                                  |
| LS04-162  | Developing legume shade trees for Sustainable coffee production in Puerto Rico                                                                                                                              | $195,298     | Eduardo Schröder  
University of Puerto Rico                                                                                         |
| LS00-111  | Structures of Sustainability: A Regenerative Model for Community Agriculture Development                                                                                                                   | $19,678      | Vivian Carro-Figueroa  
University of Puerto Rico Agric. Experiment Sta.                                                       |
| LS95-072  | Agronomic & Economic Benefits of Intercropping Bean with Banana                                                                                                                                             | $99,845      | Lii-chyuan Liu  
University of Puerto Rico, College of Agricultural Sciences                                                 |

### PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| SPDP22-14 | Learning to Teach Farmers about Agricultural Interpretation to Foster Sustainability and Food Security                                          | $59,999      | Camille Collazo Ortiz  
Yes  
Dr. Robinson Rodriguez  
University of Puerto Rico, Mayaguez Campus, School of Agricultur |
ES20-152  Soil Nutrient Management in Tropical Soils  $69,335  Dr.Daniel Bair  
University of Puerto Rico, Mayaguez  
Dr.Miguel Muñoz  
University of Puerto Rico, Mayaguez  
Mario Rodriguez  
USDA-NRCS Caribbean Area

University of Puerto Rico at Utuado

ES97-033  Alternative Sustainable Practices for Selected Crops in Puerto Rico  $10,000  Miguel F. Monroig  
University of Puerto Rico

ES97-035  Integrated Strategic Plan for Sustainable Agriculture  $25,740  Hipólito O’Farrill-Nieves  
University of Puerto Rico Agric. Ext. Service

FARMER/RANCHER GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
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<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| FS24-370  | Roots of Resilience: Mulching for Higher Yields in Breadfruit Agroforestry and Island Food Sovereignty | $18,011      | Fernando Maldonado  
Carite 3.0          |
| FS21-334  | Case Study for American Heritage Hogs in Puerto Rico                          | $14,885      | Chris Ghosio    |
| FS20-324  | Building Soil and Plant Health with Compost and Compost Teas in Coffee Plantations | $12,443      | Gabriela Medina  
Finca La Jiba      |
| FS17-298  | Weed Suppression by Compost Mulch in Plantains                                 | $8,436       | Reed Hepperly    
Hepperly Enterprises |
| FS13-271  | Cover Crops for Improving Recalcitrant Soil Organic Matter and Soil Biota Management in Plantain Production Systems in Puerto Rico | $10,000      | Duamed Colon-Carrion  
Agro Tropical, Inc. |
| FS07-213  | Recycling Mushroom Spent Compost                                              | $8,027       | Reed Hepperly    
Hepperly Enterprises |
<p>| FS05-193  | Organic Farming in the Tropics with Legume Groundcover                        | $8,107       | Luis Miguel Rico |
| FS03-172  | Puerto Rico Shade Grown Coffee Project                                        | $9,956       | Luis Miguel Rico |</p>
<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS99-095</td>
<td>Breaking the Herbicide Habit: Integrating Cover Crops with Herbicide Application</td>
<td>$9,960</td>
<td>Rebecca Perez-Rossello</td>
</tr>
<tr>
<td>FS99-098</td>
<td>Demonstrating the Benefits of Agroforestry Practices on Family Farms</td>
<td>$6,704</td>
<td>Andre Sanfiorenzo</td>
</tr>
<tr>
<td>FS95-028</td>
<td>Improving Tropical Soils by Utilizing Organic Wastes</td>
<td>$10,000</td>
<td>Andre Sanfiorenzo</td>
</tr>
</tbody>
</table>

**GRADUATE STUDENT GRANTS**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>GS23-287</td>
<td>The Taino: Can The Indigenous Agricultural Methods of Puerto Rico Feed the Island and Potentially Mitigate Climate Change?</td>
<td>$16,491</td>
<td>Dr.Krishnaswamy Jayachandran Florida International University Joseph Navarro Florida International University</td>
</tr>
<tr>
<td>GS08-070</td>
<td>The fate of the finca: Smallholders in the Hispanic Caribbean</td>
<td>$10,000</td>
<td>Gregory Knapp University of Texas at Austin Katia R. Aviles-Vazquez The University of Texas at Austin</td>
</tr>
</tbody>
</table>

**ON FARM RESEARCH/PARTNERSHIP GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
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</tr>
</thead>
<tbody>
<tr>
<td>OS20-134</td>
<td>Case study for Heritage American Guinea Hogs in Puerto Rico</td>
<td>$12,549</td>
<td>Julie North N/A</td>
</tr>
<tr>
<td>OS07-033</td>
<td>Precious Indigenous Woods For Coffee Shade</td>
<td>$14,967</td>
<td>Jose Aponte El Caribe RC&amp;D</td>
</tr>
<tr>
<td>OS05-027</td>
<td>Coffee Seedlings in Forestry Tubes</td>
<td>$14,957</td>
<td>Steven Welker USDA NRCS - El Atlantico RC&amp;D</td>
</tr>
</tbody>
</table>

**SUSTAINABLE COMMUNITY INNOVATION GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CS05-038</td>
<td>Puerto Rico PIG Project</td>
<td>$10,000</td>
<td>Steven Welker USDA NRCS - El Atlantico RC&amp;D</td>
</tr>
</tbody>
</table>

**EDUCATION ONLY GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
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<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDS24-068</td>
<td>PR-GOSHEPI - PHASE II. Hands-on Training in Best Management Practices for Sustainable Small Ruminant Production</td>
<td>$38,970</td>
<td>Abner Rodriguez University of Puerto Rico Dr.John Fernandez University of Puerto Rico</td>
</tr>
<tr>
<td>Project Code</td>
<td>Project Title</td>
<td>Funding</td>
<td>Principal Investigator(s)</td>
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<tr>
<td>EDS24-058</td>
<td>From the Classroom to the Farm: Exploring Integrated Pest Management &amp; Climate Change for Farmers and Agricultural Educators in Puerto Rico</td>
<td>$25,089</td>
<td>Dr. Sofía Macchiavelli Girón University of Puerto Rico Dr. Nicole Colón Carrión CORTEVA Agriscience</td>
</tr>
<tr>
<td>EDS23-053</td>
<td>Education and Conservation Practices for a Sustainable Agriculture in Puerto Rico</td>
<td>$41,000</td>
<td>Nicolás M. Cartagena University of Puerto Rico Dr. Anibal II Ruiz-Lugo Puerto Rico Agricultural Extension Service, University of Puerto Rico</td>
</tr>
<tr>
<td>EDS23-044</td>
<td>Tai Lamb Meat Marketing and Promotion Educational Program (TAILAM-EP)</td>
<td>$45,999</td>
<td>Neftali Lluch, PE Tai Institute of Sustentable Livestock Research LLC Dr. John Fernandez University of Puerto Rico Abner Rodriguez University of Puerto Rico</td>
</tr>
<tr>
<td>EDS22-41</td>
<td>An Agro-Ecological Incubator and Educational Programs for Beginner Farmers in Western Puerto Rico</td>
<td>$50,000</td>
<td>Rebekah Sanchez Cruz Plentid PR Dr. Bryan Brunner Agricultural Experiment Station Paula Paoli Garrido Plentid PR</td>
</tr>
<tr>
<td>EDS21-29</td>
<td>Puerto Rico Goat and Sheep Educational Program Initiative (PR-GOSHEPI)</td>
<td>$48,036</td>
<td>Abner Rodriguez University of Puerto Rico Dr. John Fernandez University of Puerto Rico</td>
</tr>
<tr>
<td>EDS20-23</td>
<td>Agro-Ecological Education for New Farmers in the Central Western Region of Puerto Rico</td>
<td>$49,992</td>
<td>Paula Paoli Garrido Plentid PR Bryan Brunner Montes University of Puerto Rico, Mayagüez Owen Ingley Plentid PR Samantha Lopez Plentid PR Gina Malley Campos Plentid PR Rebekah Sanchez Cruz Plentid PR</td>
</tr>
<tr>
<td>EDS20-22</td>
<td>Agroecosystem Sustainable Guides</td>
<td>$41,040</td>
<td>Silmarie Crespo ECO-Services Gabriela Medina Finca La Jiba</td>
</tr>
</tbody>
</table>

**Total funding from the USDA SARE program to Puerto Rico**

$1,569,123
For further information on projects, contact 770-412-4787 or ssare@uga.edu. Sustainable Agriculture Research and Education (SARE) is funded by USDA’s National Institute of Food and Agriculture (NIFA).