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 $333 million to more than 7,794 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, granteeproduced information products and other educational materials.

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

Project Highlight: Training on a Better Way to Fight Banana Weevil

Agriculture has not played a large role in Guam’s economy since the significant changes brought by World War II. For example, bananas sold in the past few years were mostly imported. Today, local farmers on Guam and other Pacific Islands are growing more bananas and the number of banana plantations is on the rise. But as Guam’s banana industry is on the rise, so too is the banana weevil, a pest that can decimate the crop and cause a complete loss of yield if not controlled.

To help producers cope with the pest, the University of Guam’s Gadi Reddy used a 2009 SARE grant to advance local agriculture professionals’ knowledge of semiochemicals in pest management. Semiochemicals are pheromones and other chemicals used to attract insects to physical traps, a potentially low-cost way of managing the banana weevil without resorting to over-use of pesticides.

Reddy increased his colleagues’ knowledge base by creating a variety of training publications on the use of semiochemicals. In conjunction with the publications, he led a four-month class for 10 agricultural professionals on the benefits and methods of trapping the four most prominent weevil pests. Twenty-four ag professionals also attended a shorter workshop. Of those workshop participants, 67 percent reported leaving the event prepared to implement techniques learned.

For more information on this project, see sare.org/projects, and search for project number EW09-012.

SARE in Guam

western.sare.org/sare-in-your-state/guam

$1,902,377 in total funding

44 grant projects

(since 1988)

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

Total awards: **44 grants**
- 8 Professional Development Program
- 22 Farmer/Rancher
- 3 On Farm Research/Partnership
- 10 Research and Education
- 1 Research to Grass Roots

Total funding: **$1,902,377**
- $493,272 Professional Development Program
- $219,820 Farmer/Rancher
- $138,884 On Farm Research/Partnership
- $977,530 Research and Education
- $72,871 Research to Grass Roots

Find a complete list of projects on page 3.

SARE's Impact

53 percent of producers report using a new production technique after reading a SARE publication.

79 percent of producers said they improved soil quality through their SARE project.

64 percent of producers said their SARE project helped them achieve higher sales.

Learn about local impacts at: western.sare.org/sare-in-your-state/guam

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 western.sare.org/state-pages/guam to learn more.

L. Robert (Bob) Barber
University of Guam Cooperative Extension Service
(671) 735-2080
bbarber@uguam.uog.edu

For detailed information on SARE projects, go to www.SARE.org
AGRICULTURE PROJECTS FUNDED IN GUAM
by USDA's Sustainable Agriculture Research and Education (SARE) Program

Guam has been awarded $1,902,377 grants to support 44 projects, including but not limited to, 10 research and/or education projects, 8 professional development projects and 22 producer-led projects. Guam 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>
<tbody>
<tr>
<td>SW19-906</td>
<td>Reducing tree decline of Casuarina equisetifolia in Guam through replacement of bacterial wilt infected trees and research into the bacterial microbiomes of trees and associated termites</td>
<td>$304,273</td>
<td>Dr. Robert Schlub University of Guam</td>
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<tr>
<td>SW09-304</td>
<td>Replacing Feed Imports With Local Feed Resources in the Western Pacific</td>
<td>$47,207</td>
<td>Dr. Manuel Duguies Cooperative Extension Service</td>
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<tr>
<td>SW09-067</td>
<td>Island to Island, Farmer to Chef: Ag Agricultural Marketing Proposal</td>
<td>$133,967</td>
<td>Dr. L. Robert (Bob) Barber, Jr. University of Guam Cooperative Extension Service</td>
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<tr>
<td>SW08-067</td>
<td>Decline of Casuarina equisetifolia: A Loss to Pacific Island Agroforestry</td>
<td>$140,680</td>
<td>Roger Brown, Jr. University of Guam</td>
</tr>
<tr>
<td>SW05-00B</td>
<td>Preservation of Traditional Medicinal Plants on Guam</td>
<td>$18,615</td>
<td>Dr. L. Robert (Bob) Barber, Jr. University of Guam Cooperative Extension Service</td>
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<tr>
<td>SW02-048</td>
<td>Alternative Housing Structure for Livestock and Poultry in Micronesia</td>
<td>$26,857</td>
<td>Dr. Manuel Duguies Cooperative Extension Service</td>
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<tr>
<td>SW01-017</td>
<td>Commercial Production of Tropical Mushrooms Grown Organically</td>
<td>$36,081</td>
<td>George Wall CALS/AES, University of Guam</td>
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<tr>
<td>SW99-048</td>
<td>Evaluation and implementation of nitrogen fixing species in hedgerow intercropping in Marianas</td>
<td>$132,000</td>
<td>Mari Marutani College of Nat. &amp; Appl. Sciences, Univ. of Guam</td>
</tr>
<tr>
<td>SW99-047</td>
<td>Strengthening through Education the Sustainability of Solanaceous Crop Production in the Western Pacific Region</td>
<td>$16,000</td>
<td>Dr. Robert Schlub University of Guam</td>
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<tr>
<td>SW98-041</td>
<td>Evaluation of Processing Food Refuse and By-products for Growing Finishing Swine</td>
<td>$121,850</td>
<td>Farouq Abawi University of Guam</td>
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</tbody>
</table>

RESEARCH TO GRASS ROOTS GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
Expanding Small-scale Sustainable Agroforestry Demonstration Plots in the Western Pacific

RGR20-003

$72,871

Joseph Tuquero
University of Guam
Mark Acosta
University of Guam, Cooperative Extension
Lanibwij Langmos
College of Marshall Islands Cooperative Research and Extension
Jackson Phillip
College of Micronesia

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>
| PDP20-001 | Fungal leaf spots: field, lab, and online tutorial for professionals in Guam and the Northern Marianas Islands | $66,013      | Dr. Robert Schlub
University of Guam
Dr. Marin Brewer
University of Georgia
Dr. Robert Kemmerit
University of Georgia
Dr. Kisha Shelton
University of Georgia
Dr. Leilan Sumabat-Dacones
University of Philippines |

EW14-006

Plant Disease Diagnostic Training for Agricultural Professionals in Guam and the Northern Marianas Islands

$63,900

Dr. Robert Schlub
University of Guam

EW09-012

Increasing Ecological Insect Pest Management on Guam Through Building Agriculture Professionals’ Understanding of Semiocchemicals

$59,990

Gadi V.P. Reddy, Ph.D.
University of Guam
Dr. Michael Ivie
Montana State University-Bozeman

EW08-018

Enhancing Ecological Disease Management on Guam Through Building Agriculture professionals’ Understanding of Soil Nutrients

$49,962

Roger Brown, Jr.
University of Guam
Dr. Robert Schlub
University of Guam

EW05-007

Transfer of Research Based Knowledge in Agriculture in the American Pacific

$74,507

Dr. Manuel Duguies
Cooperative Extension Service

EW05-017

Capacity Building and Training in Commercial Aquaculture for Guam, Commonwealth of the Northern Marianas, and American Samoa

$90,000

Dr. L. Robert (Bob) Barber, Jr.
University of Guam Cooperative Extension Service

EW99-002

People Improving Growth for Swine (PIGS) in Micronesia

$47,540

Dr. Manuel Duguies
Cooperative Extension Service

EW98-011

Portable Extension Office for Program Literature Exchange (PEOPLE)

$41,360

Dr. L. Robert (Bob) Barber, Jr.
University of Guam Cooperative Extension Service

FARMER/RANCHER GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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</thead>
</table>
| FW19-348  | Sheet Mulch Using Cardboard and NFTs                                         | $11,000      | Glenn Takai
Takai Farm                      |

FW17-050

Ducks in a Row: Raising Ducks on Guam for Production and Pest Control

$19,206

Maegan Paloma
Maegan Paloma

FW17-014

My Boars Are In Iowa

$13,597

Eddie Saure
Eddie Saure

FW16-015

From Peewee to Large Eggs

$11,393

Alex Coloma
Agriculture
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Project Title</th>
<th>Budget</th>
<th>Investigator</th>
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<tbody>
<tr>
<td>FW16-030</td>
<td>Rotating Paddock-style Systems in Tropical Environments</td>
<td>$17,196</td>
<td>Hertha Van Beurden</td>
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<tr>
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<td>Paradise Natural Farm</td>
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<tr>
<td>FW15-041</td>
<td>Raising Black Soldier Fly Larvae as Chicken Feed in a Tropical Region</td>
<td>$8,232</td>
<td>Chelsa Muna-Brecht</td>
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<tr>
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<td>P.U.N.G.Co Farms</td>
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<tr>
<td>FW08-313</td>
<td>Kona to Guam Weaving the Farmer Chef Network</td>
<td>$19,625</td>
<td>Phoebe Wall</td>
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<td></td>
<td>University of Guam</td>
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<td></td>
<td>Dr. L. Robert (Bob) Barber, Jr.</td>
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<td>University of Guam Cooperative Extension Service</td>
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<tr>
<td>FW08-048</td>
<td>Living Mulch on Guam</td>
<td>$13,000</td>
<td>Laila Pierson</td>
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<tr>
<td>FW08-046</td>
<td>Growing Papaya Using Aquaculture Effluent in an Automated Drip Irrigation System</td>
<td>$14,800</td>
<td>David Crisostomo</td>
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<tr>
<td>FW06-026</td>
<td>Multi-crops on Plant Beds on Guam</td>
<td>$5,915</td>
<td>Laila Pierson</td>
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<tr>
<td>FW05-312</td>
<td>Maximizing Production Efficiency in a Three-Stage Integrated Agriculture System Using Taro, Tilapia, Aquatic Plants and Fancy Guppies</td>
<td>$9,951</td>
<td>Dr. L. Robert (Bob) Barber, Jr.</td>
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<td>University of Guam Cooperative Extension Service</td>
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<tr>
<td>FW05-003</td>
<td>Wastewater Delivery System for Irrigation and Soil Enrichment on Guam</td>
<td>$4,570</td>
<td>John Benaventa</td>
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<td>Triple B Farms</td>
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<tr>
<td>FW05-013</td>
<td>Recycling Fish Waste to Fertilize Guam Farms</td>
<td>$19,809</td>
<td>Ernie Wusstig</td>
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<tr>
<td>FW04-302</td>
<td>Greenhouse Water Barrier</td>
<td>$10,871</td>
<td>Pete Terlane</td>
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<td>Guam Department of Agriculture</td>
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<tr>
<td>FW04-104</td>
<td>Lei Making and Marketing - A New Approach to Marketing</td>
<td>$6,750</td>
<td>Antoinette Okada</td>
</tr>
<tr>
<td>FW02-017</td>
<td>Decreasing Dependence on Man-Made Fertilizers for Crop Production in Tropical Limestone Soils</td>
<td>$5,200</td>
<td>Ernie Wusstig</td>
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<tr>
<td>FW00-064</td>
<td>Adopting Health Programs and Improving Weaning Facilities in Management of Piglet Diarrhea on Guam</td>
<td>$7,085</td>
<td>Ricardo Cruz, Jr.</td>
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<tr>
<td>FW99-031</td>
<td>Genetic Upgrading and Improving Goat Management Practices on Guam</td>
<td>$6,000</td>
<td>Loella Armstrong</td>
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<tr>
<td>FW99-015</td>
<td>Mushroom Production</td>
<td>$3,950</td>
<td>David Nelson</td>
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<tr>
<td>FW97-054</td>
<td>Use of Sunnhemp in Cucumber Production</td>
<td>$4,300</td>
<td>Felix Quan</td>
</tr>
<tr>
<td>FW96-030</td>
<td>Vegetable Soybean Cultivar Trials</td>
<td>$3,020</td>
<td>Felix Quan</td>
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</table>
**ON FARM RESEARCH/PARTNERSHIP GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>OW15-031</td>
<td>Seven Trees, Seven Practices: Demonstrating Agroforestry in the Western Pacific</td>
<td>$47,899</td>
<td>Dr. L. Robert (Bob) Barber, Jr. University of Guam Cooperative Extension Service</td>
</tr>
<tr>
<td>OW14-026</td>
<td>Screening tomato varieties for suitability on Guam in response to the arrival of Tomato leaf curl Guam virus in the Western Region</td>
<td>$49,500</td>
<td>Dr. Robert Schlub University of Guam</td>
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<tr>
<td>OW10-322</td>
<td>Local Feed Formulation for Goats</td>
<td>$41,485</td>
<td>Dr. Manuel Duguies Cooperative Extension Service</td>
</tr>
</tbody>
</table>

**Total funding from the USDA SARE program to Guam**

$1,902,377

For further information on projects, contact Western SARE at (435) 797-2257 or wsare@usu.edu. Sustainable Agriculture Research and Education (SARE) is funded by USDA’s National Institute of Food and Agriculture (NIFA).