

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 \$309 million to more than 7,407 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...

Hawaii

Project Highlight: *Finding Success with Local Fertilizers*

Because they rely on imported food, Hawaii and the other Pacific Islands face food insecurity issues. Pacific Island farmers also rely on expensive imported fertilizers with prices that continue to increase substantially. The issue is so important that participants in a 2008 Western SARE listening session in Hawaii ranked replacing imported fertilizers with local resources as the highest research, education and development priority. Local organic sources of nutrients have promise—including compost, tankage (rendered animal products), biochar and seaweeds—but more research is needed on their use.

Three SARE-funded projects on locally produced organic fertilizers are taking a step in that direction. One project evaluated quality, maturity, nitrogen-release pattern and crop growth for 10 composts through a series of lab, greenhouse and on-farm trials. It led to an increased demand for locally produced tankage and a reported increase in taro and sweet potato yields and quality when using invasive algae as a fertilizer.

The second project followed up on the promise of tankage but using it as a solution for fertigation. There was some benefit from using this recipe compared to imported liquid organic fertilizer. The third project is continuing the momentum by evaluating biochar combined with compost.

For more information on these projects, see sare.org/projects, and search for project numbers [SW11-055](#), [SW14-026](#) and [SW16-021](#).

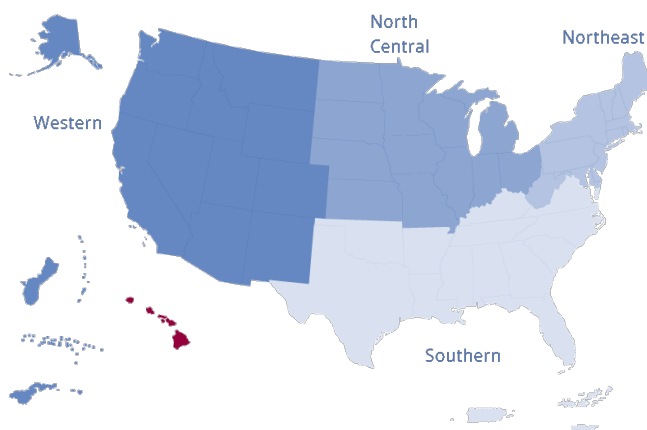
SARE in Hawaii

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

\$6,534,472
in total funding

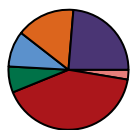
114 grant projects
(since 1988)

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



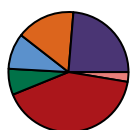
SARE Grants in Hawaii

Total awards: 114 grants



3 Enhanced State Grants
47 Farmer/Rancher
8 Graduate Student
11 On Farm Research/Partnership
18 Professional Development Program
27 Research and Education

Total funding: \$6,534,472



\$74,610 Enhanced State Grants
\$684,461 Farmer/Rancher
\$193,938 Graduate Student
\$537,088 On Farm Research/Partnership
\$1,312,047 Professional Development Program
\$3,732,328 Research and Education

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/hawaii

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/hawaii to learn more.

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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.



AGRICULTURE PROJECTS FUNDED IN HAWAII

by USDA's
Sustainable Agriculture Research and Education (SARE) Program

Hawaii has been awarded \$6,459,862 grants to support 110 projects, including but not limited to, 26 research and/or education projects, 18 professional development projects and 47 producer-led projects. Hawaii has also received additional SARE support through multi-state projects.

RESEARCH AND EDUCATION GRANTS

Project #	Project Title	SARE Support	Project Leaders
SW20-911	Instant biofumigation using natural products from papaya seed waste for sustainable management of soil-borne plant pathogens	\$349,995	Wei Wen Su University of Hawaii at Manoa, College of Tropical Ag & Human Resources (CTAHR) Dr.Stuart Nakamoto Nakamoto U. of Hawaii Manoa, Human Nutrition, Food, and Animal Sciences Dr.Koon-Hui Wang University of Hawaii Dr.Tao Yan Dept. of Civil & Environ. Engineering, University of Hawaii at M
SW17-050	Assessing and Sharing Breadfruit Management Practices	\$220,811	Dr.Noa Lincoln University of Hawaii at Manoa
SW16-021	Improving Nitrogen Synchronization of Local Fertilizers, Soil Fertility, and Crop Quality with Biochar Application	\$259,816	Dr.Nguyen Hue University of Hawaii at Manoa
SW16-023	Development of Individual Free-Choice Mineral Supplementation Program for Sustainable Grazing Management of Hawaii's Rangelands	\$332,601	Dr.Mark Thorne University of Hawaii at Manoa
SW14-026	High nutrient solution fertilizers derived from local organic inputs for field and greenhouse application in the tropics	\$170,466	Dr.Amjad Ahmad University of Hawaii at Manoa
SW12-040	Low-input integrated management of tomato viruses in Hawaii	\$297,296	Dr.Mark Wright University of Hawaii
SW12-114	Secondary Effects of Behavior-based Pasture Management	\$37,125	Matthew Stevenson University of Hawaii
SW11-052	Developing sustainable pest management strategies against major pests of papaya in Hawaii	\$148,174	Dr.Leyla Kaufman University of Hawaii at Manoa
SW11-055	Reducing Pacific Island Growers' Reliance on Off-island Fertilizer Sources Through Improved Awareness and Efficient Use of Local	\$284,070	Dr.Theodore Radovich University of Hawaii, Manoa
SW09-102	Voluntary Long-Term Protection of Agricultural Land in Hawaii	\$82,814	Dr.Christopher Lepczyk University of Hawaii at Manoa

SW09-502	Sustaining Molokai Native Hawaiian Family Farms	\$47,420	Alton Arakaki UH-College of Tropical Agriculture and Human Resources, Cooperative Extension Service Glenn Teves UH CTAHR Cooperative Extension Service
SW08-037	Sunn hemp and its allelopathic compounds for vegetable production in Hawaii and beyond	\$156,105	Dr.Inga Zasada USDA-ARS Horticultural Crops Research Lab Dr.Koon-Hui Wang University of Hawaii Dr.Cerruti R. R. Hooks University of Maryland Dr.Ming Li Wang USDA-ARS, PGRCU Jari Sugano University of Hawaii, TPSS Dr.Mark Wright University of Hawaii
SW07-073	Enhancing Phytonutrient Content, Yield and Quality of Vegetables with Compost Tea in the Tropics	\$162,500	Dr.Theodore Radovich University of Hawaii, Manoa
SW07-501	Innovative SARE Coordinator Program: Virtual Field Days to Improve Farmer-Researcher-Extension Linkages	\$25,000	Jonathan Deeniki University of Hawaii at Manoa
SW07-604	Improving and extending the superhero status of the sunn hemp to other growers in need of help	\$10,000	Dr.Cerruti R. R. Hooks University of Maryland Dr.Koon-Hui Wang University of Hawaii
SW04-064	Management of Banana Bunchy Top in Hawaii	\$90,458	Dr.Cerruti R. R. Hooks University of Maryland
SW03-003	Cropping Systems to Control Tropical Soil-Borne Pests in Dryland-Grown Taro	\$257,827	Dr.Susan Miyasaka University of Hawaii
SW03-010	Neem and Papaya Fruit Extracts and Ferric Phosphate for Control of Golden Apple Snail in Wetland Taro: Efficacy Testing	\$31,831	Lance Santo Hawaii Agriculture Research Center Mel Jackson Hawaii Agriculture Research Center
SW03-055	Development of a Sustainable Polyculture and Marketing System for Exotic Tropical Fruits	\$156,800	Richard Bowen Department of Nat Res and Envir Mngt
SW01-066	Nature Farming at Wheeler Elementary	\$13,460	Joe Lee Wheeler Elementary School
SW99-005	Survival of Taro: Agronomic and Pathological Research For Sustainable Production	\$146,700	Janice Uchida Dept. of Plant Pathology, University of Hawaii
SW99-022	Adaptation of a Natural Farming System to Vegetable Farm Production in Hawaii.	\$85,134	Clyde Fukuyama HARC
SW97-001	Management of Soil-borne Plant Parasitic Nematodes for Sustainable Production of Field Grown Tomatoes and Cucumbers by Cover Cropping	\$21,900	John McHugh Waikele Farms
SW96-003	Evaluation of a Perennial Vegetable, Asparagus, as a New Commercial Crop for Hawaiian Farmers	\$49,595	Susan Schenck Hawaiian Agriculture Research Center
LWE92-002	Integrated Hog Farming and Market Gardening for Small Farmers in Tropical Areas of the Western Region	\$36,000	Kent Fleming University of Hawaii at Manoa

LW89-011	A Comparative Study of Low Input and High Input Taro Production in American Pacific with Special Reference to Pest Control	\$258,430	Agnes Vargo American Samoa Community College
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PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

Project #	Project Title	SARE Support	Project Leaders
WPDP19-21	Building Competencies in Hawaii's Agricultural Professionals and Stakeholders in Under Represented Agricultural Communities Through Collaborative Partnerships. State of Hawaii.	\$75,000	Joshua Silva University of Hawaii at Manoa, College of Tropical Agriculture a Jari Sugano University of Hawaii, TPSS Michelle Gorham West Oahu Soil and Water Conservation District Dr.Koon-Hui Wang University of Hawaii
WPDP19-24	Co-Managing Food Safety and Land Stewardship on Hawaii Farms	\$74,715	Dave Elliott Oahu RC&D Frankie Koethe Oahu Resource Conservation and Development Council Jean Brokish Oahu Resource Conservation and Development Council
EW18-023	Capacity building for Cooperative Extension in Micronesia to reduce Pacific Island food system vulnerability to climate variability	\$74,858	Clay Trauernicht University of Hawaii
EW17-004	Breadfruit Agroforestry for Pacific Island Revitalization	\$73,689	Craig Elevitch Permanent Agriculture Resources
EW16-008	Agroforestry Design for Sustainable Production Systems in the U.S.-Affiliated Pacific Islands	\$73,970	Craig Elevitch Permanent Agriculture Resources
EW13-010	Pollinator Use and Management: Training in Sustainable Practices for Ag Professionals	\$65,386	Dr.Ethel Villalobos University of Hawaii
EW11-014	Hawai'i Community-Based Food Security	\$58,520	Craig Elevitch Hawaii Homegrown Food Network
EW08-013	Promoting Adaptive Management With 'Tropic Sun' sunn hemp (Crotolaria juncea) in Hawaii for Ecological Strategies in Weed Control, Nematode Suppression and Nutrient Management	\$53,768	Dr.james leary University of Hawaii at Manoa Dr.Brent Sipes University of Hawaii
EW07-004	New Crops for Pacific Island Agroforestry	\$80,000	Craig Elevitch Permanent Agriculture Resources Craig Elevitch Hawaii Homegrown Food Network
EW05-009	Pacific Island Agroforestry Workshops and Field Visits	\$59,777	Craig Elevitch Permanent Agriculture Resources
EW03-002	New Farmers: Choosing the Road Less Traveled	\$90,000	Samir El-Swaify University of Hawaii MANOA
EW02-001	Species Profiles for Pacific Island Agroforestry	\$94,971	Craig Elevitch Permanent Agriculture Resources

EW00-026	Sustainable Pest Control for the Tropics	\$78,090	Richard Bowen Department of Nat Res and Envir Mngt
EW98-004	Agroforestry Handbooks for Pacific Islands	\$57,885	Craig Elevitch Permanent Agriculture Resources
EW98-012	Covering New Ground: Tropical Cover Crops for Improving Soil Quality	\$84,500	Richard Bowen Department of Nat Res and Envir Mngt
EW97-003	Tools for Sustainability: Sustainable Agriculture Video Training Tapes for the Pacific Islands Region	\$64,295	John Craven Common Heritage
EW96-014	Continuation - "Training Agents" in On-Farm Implementation of Sustainable Management Systems for Tropical Agriculture in Hawaii and the Pacific Region	\$63,623	Po-Yung Lai University of Hawaii
EW94-014	Training "Agents" in On-Farm Implementation of Sustainable Management Systems for Tropical Agriculture in Hawaii and the Pacific Region	\$89,000	Po-Yung Lai University of Hawaii

FARMER/RANCHER GRANTS

Project #	Project Title	SARE Support	Project Leaders
FW20-366	Integration of Multifunctional Dairy Water Buffalo (<i>Bubalus bubalis</i>) into a Whole Farm System in Hawaii: economic, ecological and social benefits.	\$19,178	Donald Heacock Kauai Organic Agroecosystems (KOA)
FW20-368	Mamaki - Fertilization and branch bending trials for continuous leaf flush and soil fertility	\$20,000	Dr.Ming Wei Koh Mamaki Ola
FW20-370	Establishing "Bush Tucker" in Hawaii	\$22,870	Ken Love Hawaii Tropical Fruit Growers
FW19-350	Comparing Bird Deterrent Strategies to Increase Sustainability and Production of Fruit Crops in Hawaii	\$18,620	Paul De Filippi Mauka Vista Farms LLC
FW19-339	Demonstrating Viability of Cooperative Swine Aggregator Using Inoculated Deep Litter System	\$25,000	Atto Assi Ohana Coffee Farm & Assi Piggery
FW19-344	Different Poultry Housing Options for Chickens to Determine Fastest Growth Rate	\$13,700	Nicole Correa Double D Farm and Ranch L.L.C.
FW19-349	Performance of novel clonal cacao accessions in Hawaii under sustainable farming conditions	\$20,000	Dr.Pierre Broun Ninole Cacao LLC
FW18-052	A Living Mulch Income Enhancer	\$19,092	Kevin Chan Kevin Chan
FW18-034	Can Intensive Rotational Grazing in combination with Indigenous Microorganism Application improve soil condition (i.e., soil carbon, minerals, and microbial life)?	\$19,953	Kyle Fisher Graze and Sprout Farm
FW17-034	The Mango Loa Project	\$19,878	Umi Martin Umi Martin

FW16-003	Establishing Profitable Durian Crops in Hawaii	\$28,192	Ken Love Hawaii Tropical Fruit Growers
FW16-023	Malama Kou Kino	\$20,000	Melanie Holt Real Farm
FW15-035	Producing Triploid Oysters	\$24,992	David Nisbet Goosepoint Oyster Co.
FW12-034	Grapes for tropical Hawaii	\$17,370	Ken Love Hawaii Tropical Fruit Growers
FW10-011	Organic Varroa Management & Beekeeper Education in Hawaii	\$15,000	Richard Spiegel Volcano Island Honey Co.
FW10-040	Relocating swarms for pollination: How feral bees can be integrated into sustainable farming strategies	\$29,975	Jennifer Bach Honeybee Education Program
FW10-056	Use of Cover Crops with Medicinal Herbs in North Hawaii	\$20,117	Dr.Katherine Pomeroy Kohala Medicinal Herb Farm
FW09-027	Evaluating New Windbreaks and Cover Crops for Tropical Fruit Crops	\$12,206	Jane Teves Puakala Farms Jane Teves Puakala Farms
FW09-308	Quantifying Secondary Compounds in Common Pasture Vegetation for Behavior Based Grazing Management in Hawaii	\$41,760	Dr.Mark Thorne University of Hawaii at Manoa
FW09-311	Diversifying Hawai'i Aquaculture with Clam and Oyster Culture	\$50,000	Dr.Maria Haws Pacific Aquaculture and Coastal Resources Center Maria Haws Pacific Aquaculture & Coastal Resources Center
FW09-002	No Chill Stone Fruit for Hawaii	\$9,528	Ken Love Hawaii Tropical Fruit Growers
FW09-004	Integrating Existing Crop and Livestock Enterprises on a Native Hawaiian Homestead Farm	\$12,580	Conrad Aquino Alton Arakaki UH-College of Tropical Agriculture and Human Resources, Cooperative Extension Service
FW09-012	Project Fresh: Mountain View Community Gardens	\$30,000	Neena Roumell Eden Earthworks
FW09-025	Maximizing the Utilization of Bamboo in the Hawaiian Islands	\$14,460	Rich von Wellsheim Whispering Winds Bamboo
FW08-049	Healthy Foundation, Healthy Bees, Making Organic Wax Foundation for Beekeepers	\$13,999	Richard Spiegel Volcano Island Honey Co.
FW07-034	Choosing the Best Figs for Hawaii	\$25,000	Ken Love Hawaii Tropical Fruit Growers
FW05-314	A Superhero without a Cape: Using the Cover Crop Sunn Hemp to Feed the Soil, Suppress Nematodes and Smother Weeds	\$7,716	Hooks Cerruti University of Hawaii

FW04-011	Conversion of Fish Processing Waste to Fish/Animal Feed, Chum and Fertilizer	\$6,695	Takumi Shirakawa Shirakawa Farm
FW03-018	Recovery of Tropical Pasture Systems	\$6,875	Dwayne Cypriano
FW03-025	DDT Removal Using Biodynamic Agricultural Methods	\$6,932	Marie Mauger Spirit of the Earth Farm
FW03-205	Field Management/Mulch Project	\$5,232	Fernand Severi
FW03-206	Grow Your Own Sustainable Barn	\$7,396	Robert Layer
FW02-008	Increasing Marketable Production of Exotic Tropical Fruit with Protective Covering	\$12,850	Ken Love Hawaii Tropical Fruit Growers
FW02-040	Increasing Sustainable Agricultural Production in High Polynesian Islands	\$7,500	Ivona Ballard Whutnutsamoa
FW01-021	Increasing the value of products from small family farms by enriching the culinary experience of the local consumers	\$4,000	Glenn Shinsato Univ of HI
FW00-335	An On-Farm Educational Approach to Directly Marketing "the Other White Meat"	\$9,900	Daphne McKeehan
FW00-077	Rejuvenation of a 60 Year Old Lychee Orchard by Pruning and Fertilizer Applications to Maximize Production	\$4,000	Elisabeth Ladoux
FW99-059	Flower Induction of Rambutan	\$2,100	Liloa Willard
FW99-066	Lone Palm Sprouts Water Recapture and Recycle System	\$5,000	Davide Rotstein
FW99-056	Hot Water Immersion Unit for Disinfestation of Hawaii-Grown Lychee and Longan	\$5,000	Michael Strong
FW98-004	The Conversion of Agricultural Waste into Plant and Fish Food	\$3,400	Robert Gann
FW98-062	Free Range Pork Production	\$5,390	Samuel Okami
FW98-063	Total Utilization of Swine Waste for Crop and Hog Productivity	\$4,985	Rondald McKeehan
FW98-075	High Quality Perennial Forage Peanut (Arachis pintal) Pastures for Sustainable Cattle Production in Hawaii	\$5,000	Zach Gibson

FW97-004	Sustainable Alternatives To Herbicide for Weed Control: Using Cover Crops To Combat Panicum repens and Panicum maximum In Lowland, Eastern Hawaii	\$3,500	Paul Acciavatti Wailea Spring Farm
FW97-017	Growing Ring-Spot Virus-Free Papayas Using Anti-transpirants and Other Sustainable Techniques	\$4,000	Jon Biloon
FW96-049	Sustainable Greenhouse Tomato Production: Evaluating Alternatives to Pesticide Use for Controlling Tomato Pinworm Larvae in Hawaii	\$3,520	Shari Tresky Mariah Farm

GRADUATE STUDENT GRANTS

Project #	Project Title	SARE Support	Project Leaders
GW20-211	A key to sustainable Hawaiian agricultural production resides with the endemic sandalwood species	\$24,997	Dr.Travis Idol University of Hawaii Emily Thyroff University of Hawai'i Mānoa Emily Thyroff University of Hawai'i
GW20-212	Evaluate sorghum and sorghum-sudangrass hybrids as soil builders and microbial enhancer crops in the tropic.	\$25,000	Dr.Koon-Hui Wang University of Hawaii Dr.Amjad Ahmad University of Hawaii at Manoa Roshan Paudel University of Hawaii Joshua Silva University of Hawaii at Manoa, College of Tropical Agriculture a Philip Waisen University of Hawaii Roshan Paudel University of Hawaii
GW19-201	A Hawai'i Soil Health Index to Guide Farmer Adoption of Sustainable Management Practices	\$23,036	Jamie (Jayme) Barton, M.A. Hawaii Agriculture Research Center Dr.Susan Crow University of Hawaii Manoa Jonathan Deeniki University of Hawaii at Manoa Elaine Vizka University of Hawaii at Manoa
GW18-026	Cover Crop "5-in-1 Approach" for Nematode Management Using Mustard and Oil Radish	\$24,998	Dr.Koon-Hui Wang University of Hawaii Philip Waisen University of Hawaii
GW18-104	Conservation Biological Control of Coffee Berry Borer by Applying Nitrogen Fixing Tree Mulch to Enhance Indigenous Entomopathogenic Nematodes	\$24,948	Dr.Brent Sipes University of Hawaii Dr.Brent Sipes University of Hawaii
GW18-014	Conditioning Sheep to Avoid Koa Foilage: An opportunity for productive silvopasteres in Hawaii.	\$24,920	Rebecca Ryals University of Hawaii - Manoa Nicholas Krueger University of Hawaii - Manoa
GW18-187	Quantifying the Environmental Impact of Doubling Hawaii's Local Food Supply	\$21,119	Dr.Kimberly Carlson University of Hawaii Tanya Torres University of Hawaii
GW14-007	Evaluating the Potential of Oyster Mushroom Compost Waste for Plant-Parasitic Nematode Management	\$24,920	Dr.Koon-Hui Wang University of Hawaii Shelby Ching University of Hawaii at Manoa

ON FARM RESEARCH/PARTNERSHIP GRANTS

Project #	Project Title	SARE Support	Project Leaders
OW20-354	Healthy Soils Hawai'i: Building Better Soil on Agricultural Lands through Soil Health Planning	\$49,557	Dave Elliott Oahu RC&D Hannah Hubanks Oahu RC&D
OW19-344	Breadfruit Disease Identification and Varietal Resistance in Hawai'i	\$49,971	Dr.Noa Lincoln University of Hawaii at Manoa Eli Isele University of Hawaii Dana Shapiro Hawaii Ulu Producers Cooperative Janice Uchida Dept. of Plant Pathology, University of Hawaii
OW18-017	Pest reduction on agricultural lands due to Hawaiian short-eared owls	\$49,755	Dr.Melissa Price University of Hawaii
OW17-037	Successful Cacao Establishment through Improved Soil Management	\$49,789	Dave Elliott Oahu RC&D
OW16-022	Cover Crop Cocktails: Evaluating Costs and Benefits of Mixed-Species Plantings	\$41,606	Dave Elliott Oahu RC&D
OW15-019	Sustainable Pest Management Approaches for High Tunnel Screenhouse Production in the Tropics	\$49,989	Dr.Koon-Hui Wang University of Hawaii
OW13-034	Enhancing the sustainability of grass-fed beef production in Hawaii via carcass and meat quality improvement	\$49,948	Dr.Yong soo Kim University of Hawaii
OW12-041	Effectiveness of Beauveria bassiana on coffee berry borer in different agroclimatic zones	\$49,403	Dr.Elsie Burbano Greco University of Hawaii at Manoa
OW11-308	Control of coffee berry borer and increase of coffee yields using Surround WP (kaolin)	\$47,648	Dr.Shawn Steiman Coffea Consulting
OW11-309	Training Livestock to Eat Weeds in the Tropical Pacific and Evaluating the Effects on Meat Quality for Stronger Ranch Profits	\$49,610	Matthew Stevenson University of Hawaii
OW11-310	Master Farmer Workshop Series	\$49,812	Dave Elliott Oahu RC&D

**Total funding from the USDA SARE program to
Hawaii
\$6,459,862**



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).