

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 \$406 million to more than 8,803 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...

Arizona

Project Highlight: *Collaborative Training for Southwest Grassland Restoration under Environmental Uncertainty*

Early settlers' descriptions of southeast Arizona told of uninterrupted grassland stretching from one mountain range to another.

That's changed. Today much of that land has been invaded by mesquite and other woody shrubs and the ecological services provided by the grassland – including water recharge into the underground aquifers – has been diminished.

One reason for the change has been fire – or more specifically the lack of it. Once viewed as natural to the landscape as rain, total fire suppression became standard practice in the early 1900s throughout the West. Without frequent fires to control their growth, the woody shrubs spread across desert southwest grasslands.

But as the importance of preserving the grasslands became more apparent, university researchers, conservationists, ranchers, government agencies and others began looking for ways to preserve these important landscapes, even in the face to today's climate uncertainty.

Western SARE helped the effort by funding an important professional development project to bring all those experts and other interested people together for three day-long workshops looking at the history of the Southwest grasslands and management methods and options for controlling brush and woody species.

One thing that came out of the workshops was a Brush Management Matrix – a decision-support tool for ranchers and land managers to consult when considering brush-management projects. To extend the reach of the project, all of the presentations were recorded and posted on the web, and a series of six videos were produced.

For more information on this project, see sare.org/projects, and search for project number [EW17-006](#).

SARE in Arizona

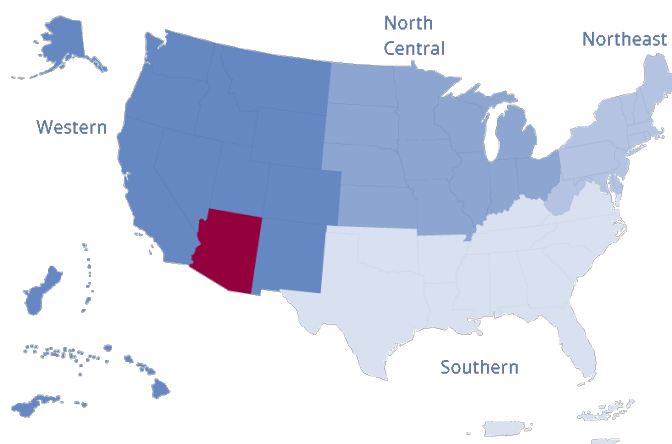
western.sare.org/state-profiles/arizona/

\$1,498,225
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 Arizona

Grants awarded 2019-2024

Total awards: **16 grants**

- 3 Farmer/Rancher
- 2 Research and Education
- 7 Professional Development Program
- 1 On Farm Research/Partnership
- 3 Graduate Student

Total funding: **\$1,498,225**

\$59,652	Farmer/Rancher
\$646,931	Research and Education
\$664,389	Professional Development Program
\$48,682	On Farm Research/Partnership
\$78,571	Graduate Student

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:

1,586 farmers participated in a SARE-funded project

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

28 farmers changed a practice



Photo credit: Shannon Heuberger

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

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-profiles/arizona/ to learn more.

Randy Norton
UA Cooperative Extension
(928) 428-2432
rnorton@ag.arizona.edu

Debankur Sanyal
University of Arizona
(701) 781-9295
dsanyal@arizona.edu



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.

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



AGRICULTURE PROJECTS FUNDED IN ARIZONA

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

Arizona has been awarded \$3,304,596 grants to support 66 projects, including but not limited to, 10 research and/or education projects, 12 professional development projects and 29 producer-led projects. Arizona has also received additional SARE support through multi-state projects.

RESEARCH AND EDUCATION GRANTS

Project #	Project Title	SARE Support	Project Leaders
SW23-947	Harnessing livestock and microbes to improve rangeland productivity and soil health	\$304,450	Dr.Caroline Havrilla Colorado State University Dr.Catherine Gehring Northern Arizona University Dr.Elise Gornish University of Arizona Dr.Seth Munson United States Geological Survey
SW19-904	The utility of plant traits to identify range seeding candidates that can achieve multiple management goals	\$342,481	Elise Gornish University of Arizona Dr.Albert Barberan University of Arizona Dr.Jeffrey Fehmi University of Arizona Dr.Mitch McClaran University of Arizona Dr.Leslie Roche UC Davis George Ruyle University of Arizona
SW05-065	Increased production of inland shrimp farms	\$98,024	Feng-Jyu Tang-Nelson University of Arizona
SW01-026	Development of a Sustainable Polyculture Seaweeds and Fish on Molokai	\$95,200	Stephen Nelson University of Arizona Environmental Research Lab
SW01-056	Conservation Tillage Benefits in a Cotton Centered Crop Rotation System	\$175,277	William McCloskey University of Arizona
SW01-062	Assessing Sustainability of Shrimp Aquaculture and Integration with a Field Crop	\$68,523	Kevin Fitzsimmons Univ of AZ Environmental Research Lab

SW00-053	Improving Pollination in the Southwest: Testing the on farm feasibility of establishing and managing the carpenter bee for multiple crop farming systems	\$32,150	Jim Donovan Native Seeds SEARCH/University of Arizona
SW98-068	Minimum Tillage Systems for Cotton: Reduced Energy, Time, and Particulates	\$182,850	Robert Roth University of Arizona Dr.James Walworth University of Arizona
SW98-036	Indian Range Livestock Production in the West and Southwest: Entering, Enduring and Emerging from Drought Conditions	\$103,000	Robert Kattnig University of Arizona
SW97-025	Sustainable Culture of the Edible Red Seaweed, Gracilaria parvispora, in Traditional Hawaiian Fishponds	\$95,201	Edward P. Glenn Univ. of AZ, Dept. of Soil, Water & Env. Science

PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

Project #	Project Title	SARE Support	Project Leaders
WPDP24-001	PRECISION DRONE TECHNOLOGY TRAINING FOR ARIZONA FRTEP AGENTS	\$97,871	Dr.Edward Franklin University of Arizona
WPDP24-008	Sharing Our Way - SOW Seeds Conference and Guidebook	\$99,954	Dr.Andrea Carter Native Seeds/SEARCH
WPDP23-007	Strengthening the Technology Toolbox for Sustainable Rangeland Management	\$99,769	Ashley Lauren Hall University of Arizona Cooperative Extension Dr.Leslie Roche UC Davis Dr.Mark Thorne University of Hawaii at Manoa
WPDP22-016	Collaborative Training for Virtual Fencing Implementation for Sustainable Rangeland Management under Environmental Uncertainty	\$99,679	Dr.Aaron Lien University of Arizona Joslyn Beard, Ph.D. Arizona Board of Regents, University of Arizona Aaron Lien, Ph.D. Arizona Board of Regents, University of Arizona Andrew McGibbon Santa Rita Ranch LLC
WPDP22-019	From the ground up: Educating Cooperative Extension and NRCS about agricultural technologies to enhance soil health	\$70,723	Elise Gornish University of Arizona

WPDP21-026	Increasing the Online Communication Toolbox for Sustainable Rangeland Management: A Train-the-Trainer Program	\$99,993	Amber Dalke University of Arizona Retta Bruegger Colorado State University Extension
WPDP21-007	Natural Resource Conservation Professional Development Project	\$96,400	Deborrah Smith Arizona Association of Conservation Districts
EW17-006	Collaborative Training for Southwest Grassland Restoration under Environmental Uncertainty	\$71,503	George Ruyle University of Arizona
EW14-002	SOLAR ENERGY TRAINING PROGRAM FOR ARIZONA EXTENSION EDUCATORS	\$65,559	Dr.Edward Franklin University of Arizona
EW07-020	"High Tech, High Touch" Professional Development in Geospatial Applications for Invasive Species Management	\$60,560	Barron Orr University of Arizona
EW02-010	Striking a Balance: Rangeland Evaluation and Monitoring in the 4-Corners Region	\$100,000	Joanna Austin-Manygoats Navajo Nation Department of Agriculture John Blueyes Navajo Nation Department of Agriculture
EW98-007	Navajo Noxious Weed Training Program	\$52,542	Wallace Tsosie Navajo Resource Conservation & Development, Inc.

FARMER/RANCHER GRANTS

Project #	Project Title	SARE Support	Project Leaders
FW20-359	Reduce water consumption in urban agriculture in arid climates	\$20,000	Chaz Shelton Merchant's Garden AgroTech Inc
FW20-367	Developing new, space efficient, growing techniques, with water conservation, native fish preservation, and increased crop yields for small farmers.	\$19,983	Rylan Morton-Starner Forestdale Farm LLC
FW19-342	Wild crop relatives and landrace cover crops for arid-land vineyards	\$19,669	Sarah Fox Sand-Reckoner Vineyard
FNC18-1138	Mitigation of Potential Adverse Effects of Transgenic Crop Production for Long-Term Improvement of Soil Health	\$7,481	Michael Osweiler MICHAEL OSWEILER

FW17-048	Sustainable Alternative Livestock Feed System for Small-Scale Ranchers	\$20,000	Chelise Largent Chelise Largent
FW17-017	Honey Bee Mating Control and Production Cost Analysis In Africanized Regions Using Instrumental Insemination	\$20,000	Jaime de Zubeldia Jaime de Zubeldia
FW16-032	Sustainable Water Management in a Passive Irrigation System	\$19,660	Aaron Anderson Viking Agriculture LLC
FW14-007	Sustainable Method of Protecting Western Redcedar from Deer Browsing	\$15,000	Dr.Andrej Romanovsky Tree Fever Farm: Forestland Conservation and Development
FW13-142	Integrating Traditional Foods with Aquaponics in the Desert Southwest	\$14,972	Aaron Cardona Arevalos Farm
FW12-068	On-Farm Pollinator Habitat	\$25,000	Dr.Gary Nabhan Almuniya de los Zopilotes orchard
FW11-017	Agricultural Soil Amendment Project	\$14,870	Bill Edwards North Leupp Family Farms Stacey Jensen NLFF
FW11-033	Navajo Crop Demonstration Project	\$30,000	Ernesto Zamudio Principal Investigator
FW10-060	Eastern Navajo Cattle Herd Improvement	\$29,992	Anthony Howard Eastern Navajo Cattle Growers
FW09-032	Intensive Cultivation Through Edible Cover Cropping Integrated with Bee Keeping	\$14,900	James Golo
FW07-310	Hopi Rangeland Management Series	\$14,513	Dennis Becenti
FW05-005	Partnership for Monitoring Rangeland and Riparian Health in Red Rock Canyon Watershed, Santa Cruz County, Arizona	\$19,976	Richard Collins Collins C6 Ranch
FW04-113	Ganado Farm Board Agricultural Marketing Study	\$15,000	Teresa Showa Ganado Farm Board
FW03-002	EC Bar Ranch Riparian Grazing Management Project	\$7,500	James Crosswhite EC Bar Ranch

FW03-104	Wool and Weavings Fair Traded from the Source	\$15,000	Carol Halberstadt Black Mesa Weavers for Life and Land
FW02-215	Chinle Valley Navajo Truck Farm Project	\$13,500	Gwendolyn Wagner
FW01-066	Fruitvale Community Garden	\$2,768	Patricia Vigil
FW00-258	Gila River Farms Fresh Produce Market	\$3,750	Mary Thomas
FW00-338	Sustainable Shrimp Farm Tours and Direct Sales Project	\$5,800	Gary Wood
FW00-325	Navajo Corn Pollen, Young Ears of Corn for Knee-Down- Bread, and Neeshjizhi Marketing	\$7,740	Teresa Showa
FW99-061	Carrying on Dine' Cultural/Traditional Flour Corn Farming: Roots of Dine' People	\$5,000	Woodie and Maggie Jodie
FW98-031	Navajo Nation Livestock Disease Survey	\$7,000	Glenda Davis
FW96-010	Moving Succession Forward in a Lahmann Lovegrass Monoculture	\$3,000	Steve Getzwiller Spear G Ranch
FW96-012	Goal-Driven Intensive Management of a Riparian/Sandy Bottom Site	\$4,310	Kali Holtschlag Adams Ranch
FW96-045	Managing Biological Processes for Maximum Diversity and Productivity	\$2,500	Mike Mercer

GRADUATE STUDENT GRANTS

Project #	Project Title	SARE Support	Project Leaders
GW22-243	Testing the potential of seed pellets to improve the soil health in rangelands	\$28,577	Dr.Albert Barberan University of Arizona Ben Yang University of Arizona

GW20-210	Carbon Dioxide Enrichment of Controlled Environment Plant Chambers via Specialty Mushroom Cultivation	\$25,000	Dr.Barry Pryor University of Arizona Justin Chung University of Arizona Dr.Barry Pryor University of Arizona Justin Chung University of Arizona
GW19-196	Shrub Encroachment Early Detection System (SEEDS): a rangeland conservation tool	\$24,994	Steven Archer The University of Arizona Dr.Willem van Leeuwen University of Arizona, Arizona Remote Sensing Center William Rutherford University of Arizona
GW18-131	Empowering producers to effectively integrate chemical and biological controls through research and outreach on selective chemistries and impacts on natural enemies.	\$25,000	Dr.Peter Ellsworth University of Arizona Isadora Carlos Bordini University of Arizona
GW18-024	Ecosystem Services on Shrub-Encroached Rangelands; Balancing Supply and Demand	\$25,000	Steven Archer The University of Arizona Scott Jones University of Arizona
GW15-006	Biocrusts, grass establishment, and restoration of working rangelands	\$24,934	Steven Archer The University of Arizona Cheryl McIntyre University of Arizona
GW12-064	Enhancing the Potential for Sustainability through Participatory Environmental Assessment	\$25,000	Barron Orr University of Arizona Anahi Ocampo Melgar University of Arizona
GW10-034	Influences of Society, Politics and Local Knowledge on Ranch Management	\$25,000	George Ruyle University of Arizona Steven Woods University of Arizona
GW10-030	Characterization of Soil Fungal Communities Associated with Native and Invasive Grass Species in Southern Arizona	\$18,329	Dr.Barry Pryor University of Arizona Carol Rowand University of Arizona Dept. of Plant Sciences
GW10-015	Agriculture, Water, and Institutions: An Investigation of Water Management Policy and its Effects on Water Use by Agriculture in Arizona	\$8,795	John Anderies Arizona State University Haley Paul Arizona State University

GW10-004	Assessing Direct and Indirect Interactions between Insect and Plant Pathogens and Their Impact on Insect Herbivores	\$24,996	Dr.Patricia Stock Entomology-University of Arizona Patricia Navarro Arizona State University
GW07-007	An Environmentally-Friendly Alternative for Control of the Citrus Nematode in Arizona	\$19,746	Dr.Patricia Stock Entomology-University of Arizona Joanna Gress University of Arizona
GW07-004	Contamination of non-Bt cotton fields by transgenic Bt cotton	\$20,000	Yves Carriere University of Arizona Shannon Heuberger University of Arizona

ON FARM RESEARCH/PARTNERSHIP GRANTS

Project #	Project Title	SARE Support	Project Leaders
OW20-359	Growing the bees to grow the farm	\$48,682	Dr.Ethel Villalobos University of Hawaii
OW12-010	Production, Milling and Marketing of Arid-Adapted Heritage Grains in the Desert Borderlands to Increase Food Security	\$49,950	Chris Schmidt Native Seeds/SEARCH

**Total funding from the USDA SARE program to
Arizona
\$3,304,596**



For further information on projects, contact Western SARE at (406) 994-4785 or wsare@montana.edu.

Sustainable Agriculture Research and Education (SARE) is funded by USDA's National Institute of Food and Agriculture (NIFA).