

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 \$389 million to more than 8,542 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...

Tennessee

Project Highlight: *Cover Crops Help Manage Appletree Borer*

The flatheaded appletree borer (FAB) is a significant economic pest in orchards, nurseries and urban landscapes, and in Tennessee's production nurseries, red maples are one of the most problematic trees for FAB attacks. Determined to find a solution to this problem, Tennessee State University researcher Karla Adesso and her project team used a SARE grant to evaluate the efficacy of applying a winter cover crop to field-grown nursery red maple trees to act as a barrier to FAB oviposition, an aid to preventing leaching of imidacloprid (a commonly used insecticide) from the root zone of the trees, and as a natural weed suppression technique.

After trying a few mixes, the team determined that a ryegrass/crimson clover mix was extremely effective at camouflaging the tree trunks from the pest, making it less likely to lay eggs. The cover crops reduced pest attacks by 95 percent. In addition to acting as a barrier, the cover crop mix also reduced the temperatures of the tree trunks, making the trees a less preferable egg-laying site.

Based on their highly promising results, the team proposes a systems approach to in-field nursery tree production by incorporating a winter cover crop combined with optimized pesticide use to simultaneously maximize FAB control and plant growth while minimizing crop damage, weed competition and insecticide runoff.

For more information on this project, see sare.org/projects, and search for project number [OS14-084](#).

SARE in Tennessee

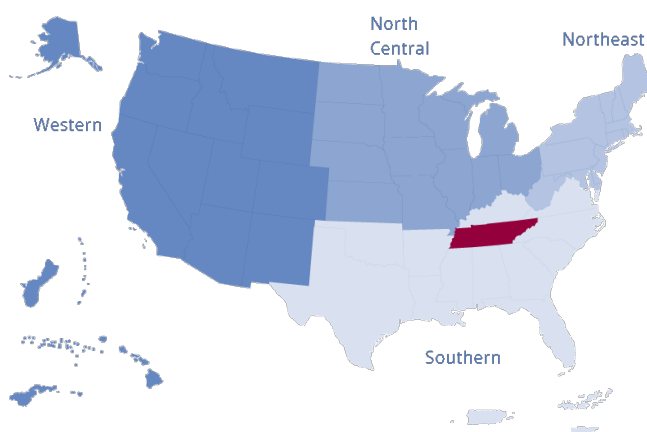
southern.sare.org/sare-in-your-state/tennessee

\$3,662,683
in total funding

81 grant projects

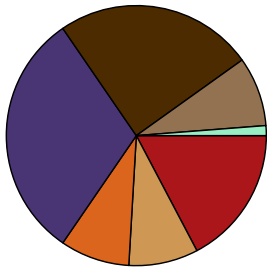
(since 1988)

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



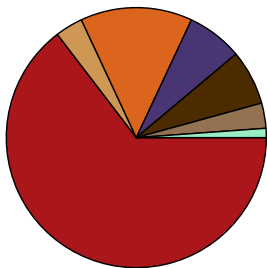
SARE Grants in Tennessee

Total awards: 81 grants



14 Research and Education
 7 Sustainable Community Innovation
 7 Professional Development Program
 25 Farmer/Rancher
 20 Graduate Student
 7 On Farm
 Research/Partnership
 1 Education Only

Total funding: \$3,662,683



\$2,366,395 Research and Education
 \$126,198 Sustainable Community Innovation
 \$509,816 Professional Development Program
 \$253,377 Farmer/Rancher
 \$250,125 Graduate Student
 \$114,772 On Farm
 Research/Partnership
 \$42,000 Education Only

Find a complete list of projects on page 3.

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-pages/tennessee to learn more.

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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:

southern.sare.org/sare-in-your-state/tennessee



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 TENNESSEE

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

Tennessee has been awarded \$3,662,683 grants to support 80 projects, including but not limited to, 13 research and/or education projects, 7 professional development projects and 25 producer-led projects. Tennessee has also received additional SARE support through multi-state projects.

RESEARCH AND EDUCATION GRANTS

Project #	Project Title	SARE Support	Project Leaders
LS23-376	Alley cropping agroforestry as a climate change resiliency strategy for vegetable production in the southeastern US	\$367,000	Dr.David Butler University of Tennessee, Knoxville Dr.Avat Shekoofa Dept. of Plant Sciences, University of Tennessee Dr.Carlos Trejo-Pech Dept. of Agric. & Resource Economics, University of Tennessee Dr.Margarita Velandia Dept. of Agric. & Resource Economics, University of Tennessee Dr.Annette Wszelaki Dept. of Plant Sciences, University of Tennessee
LS23-388	An Approach to Building a Sustainable Small Flock Poultry Operation Through Improvement in Nutrition, Food safety, and Marketing	\$377,000	Dr.Pramir Maharjan Tennessee State University
LS20-335	Cover Crops and Cropping System Sustainability in a Changing Global Climate	\$299,995	Dr.Samuel Haruna Middle Tennessee State University Dr.Song Cui Middle Tennessee State University Dr.Audrey Gamble Auburn University Dr.Seockmo Ku Middle Tennessee State University Dr.Chaney Mosley Middle Tennessee State University Dr.Edwin Ritchey University of Kentucky
LS18-287	Cover Crops in Woody Ornamental Production: Impact on Plant Growth, Arthropod Pests, Soil-Borne Pathogens and Weeds	\$284,869	Dr.Karla Adesso Tennessee State University
LS13-254	Improving Fitness in Meat Goat Herds through Better Genetic Management	\$230,000	Dr.Richard Browning, Jr. Tennessee State University
LS12-253	Breeding Organic Corn varieties to resist GMO contamination	\$48,183	Dr.Dennis West University of Tennessee
LS05-172	Forage systems for the sustainable production of uniform goat carcasses	\$200,000	Richard Joost University of Tennessee at Martin
LS03-152	Improving Organic Crop Production with Enhanced Biofumigation and Composting Systems	\$273,440	Carl Sams The University of Tennessee

LS03-147	Bioactive Natural Products: A feasible method of organic disease management in float bed production systems	\$19,883	Kimberly Gwinn University of Tennessee
LS95-068	Using Farm Family Studies to Teach Sustainable Agriculture	\$146,630	Tim Cross University of Tennessee, Ag Economics
LS94-064	Development of Sustainable Area-Wide Weed Management Practices for Improved Land Utilization (AS93-08)	\$3,760	Jerome F. Grant University of Tennessee, Entomology & Plant Pathology
LS93-052	Utilization of Dairy Manure in Low-input, Conservation Tillage Animal Feed Production Systems	\$90,635	Michael D. Mullen University of Tennessee, Plant and Soil Science
LS90-022	Influence of Integrated Pest Management (IPM) On Low-input Sustainable Agriculture (LISA) in the Southern Region	\$25,000	Charles H. Hadden University of Tennessee

PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

Project #	Project Title	SARE Support	Project Leaders
SPDP23-022	Sustaining Small Flock Poultry Producers Utilizing a Train-the-trainer Model on Identified Poultry Needs	\$79,998	Thomas Broyles Tennessee State University Dr.Pramir Maharjan Tennessee State University
ES18-141	Soil SMaRTS (Specific Management and Resources Training for Sustainability) for Soil Health in Tennessee	\$77,413	Dr.Jason deKoff Tennessee State University
ES14-121	Sustainable ACEs (Agriculture,Curricula,Energy) for Tennessee	\$77,757	Dr.Jason deKoff Tennessee State University
ES03-069	Training Educators to Protect Honey Bee Pollinators with Sustainable Pest Management	\$126,648	Dr.John Skinner Univ. Tennessee
ES02-061	A Statewide Journey of Sustainable Success: Hands-On Training	\$48,000	Rob Holland UT Extension
ES97-029	Implementing Tennessee's Strategic Plan for Sustainable Agriculture: Utilizing On-Farm Case Studies for Teaching Advanced Management and Marketing to Extension Staff	\$10,000	Dr.Clark Garland University of Tennessee
LST94-004	Sustainable Dairy Systems Manual and Training	\$90,000	Dr.Clark Garland University of Tennessee

FARMER/RANCHER GRANTS

Project #	Project Title	SARE Support	Project Leaders
FS22-342	Improving the Cost-Efficacy of Silvopasture Establishment in the Southeast	\$12,771	Wyn Miller Lick Skillet Farm
FS21-331	Successional Mushroom Production: Farming Multiple Species of Mushrooms on One Substrate to Lower Input Cost, and Increase Revenue and Products Sold	\$10,780	David Wells, III Hensis
FS19-315	A Study of the Effects of Black Woven Polypropylene on Soil Biota	\$9,670	Tera Kurtz

FS18-310	Increasing Farm Fertility and Profits with Mushroom Mulches	\$9,774	David Wells, III Henosis
FS17-294	Adaptive Winter Squash	\$1,822	Megan Allen Care of the Earth Community Farm
FS17-295	Incorporating Conservation Solutions into Alternative Crop Transplant Systems	\$9,999	Sarah Bellos Farmer
FS17-297	Bacillus thuringiensis var. israelensis as a Larvacidal on a Rotational Grazing System for Ruminants to Combat Haemonchus contortus	\$10,000	Jo Ann Harris Farmer
FS12-263	Selective breeding of honey bees for multiple traits with a priority on nosema disease resistance	\$10,000	Michael Wilson Rosecomb Apiaries
FS10-241	Sustainable Cultivation of Plant-derived Indigo for Diversification and On-farm Value-added Dye Pigment Production	\$9,871	Sarah Bellos Farmer
FS07-214	Sustainable Low-Cost Heating for Season Extension Structures	\$14,928	Steve Hodges Clinch Appalachian Farm Enterprises
FS07-221	Natural Comb Management of Honey Bees for Varroa Control	\$15,000	Michael Wilson
FS06-200	Establishing Natural Controls of Competitive Fungi in the Production of Shiitake Mushrooms	\$8,832	James DAY
FS06-203	A Demand-Driven Approach to Specialty Crop Market Development	\$12,324	Dianne Levy Appalachian Spring Cooperative
FS05-188	Aquaculturally Derived Products as Fertilizers for High-value Organic Crop Production	\$9,953	Marc Cardosa
FS05-189	Salsa Pepper Project	\$9,660	Sara Gardner
FS04-181	Selection of Hygienic Honey Bee Queens Resistant to Tracheal Mites	\$9,987	Edwin Holcombe
FS02-155	Cooperating for Success: Building a Value-added Marketing Cooperative for Advantage in the Marketplace	\$15,000	Paul Miller Appalachian Spring Cooperative
FS02-157	Northern Tennessee Farmer's Association Cooperative Farmers Market Project	\$13,755	Michael Osborne Northern Tennessee Farmer's Assn. Cooperative
FS01-131	Fungicidal Effects of Compost Tea on Organic Strawberry Production	\$9,814	John Dysinger Bountiful Blessings Organic Farm
FS99-103	Evaluating the Cost of Production of Row Crops Using Precision Farming Technologies	\$7,816	J. Tucker
FS99-087	The Effect of Municipal Compost on Christmas Trees	\$6,985	Curtis Buchanan

FS96-043	Sustainable Cultivation of Medicinal Herbs as a Cash Crop Alternative to Tobacco	\$5,004	Paul D. Miller Tamsen Farm
FS96-045	Grazing Alternatives to Tall Fescue for Stocker Cattle	\$9,982	Chris Pitts
FS96-042	Low Input Sustainable Agriculture Short Course	\$9,650	Alexander McGregor
FS94-012	Swine Lagoon Management System	\$10,000	Kenneth Moore

GRADUATE STUDENT GRANTS

Project #	Project Title	SARE Support	Project Leaders
GS23-282	Role of Local Trichoderma spp. Isolates in Reducing Tomato Fusarium Wilt and Increasing Phosphorus Uptake	\$16,500	Dr.David Butler University of Tennessee, Knoxville Caitlin Dalton University of Tennessee
GS23-288	Ambrosia Beetles and Phytophthora cinnamomi Management Using Plant Defense Elicitors Under Flood Stress Condition	\$16,500	Dr.Fulya Baysal-Gurel Tennessee State University Madhav Parajuli Tennessee State University
GS23-289	Enhancing Sustainability and Productivity of Organic Wheat-Soybean Double-Crop Systems in the Southeastern USA	\$16,200	Dr.Sindhu Jagadamma University of Tennessee Ravi Teja Neelipally University of Tennessee
GS23-296	Identifying Genetic Sources of High Nutritive Value in a Panel of American Southern Pea (Vigna unguiculata L. Walp.) Germplasm	\$16,368	Dr.Matthew Blair Tennessee State University Max Miller, II Tennessee State University
GS22-266	Optimizing Anaerobic/Biological Soil Disinfestation Amendment Composition Through Soil Fermentation Experiments	\$16,500	Dr.David Butler University of Tennessee, Knoxville James Littrell University of Tennessee
GS22-271	Novel Energy Efficient UVC Autonomous Robotics Platform for Sustainable Strawberry Fungal Management	\$16,496	hongbo zhang Middle Tennessee State University Festus Aigbogun Middle Tennessee State University
GS20-228	Sustainable Management of Phytophthora Cinnamomi and Ambrosia Beetles Under Stress Conditions	\$16,335	Dr.Fulya Baysal-Gurel Tennessee State University Krishna Neupane Tennessee State University
GS17-175	Investigating the Impact of Plant Spacing on Yields of Sweet Potato Produced in Organic Systems	\$16,443	Dilip Nandwani Tennessee State University Sochinwechi Nwosisi Tennessee State University
GS17-168	Evaluating Soil Microbial Communities and Cropping Systems for Biomass Feedstock Production on Degraded Lands	\$14,838	E. Kudjo Dzantor Tennessee State University Ekundayo Adeleke Tennessee State University
GS16-157	Integration of Silvopasture and Nut Production in the Southeast	\$7,906	Dr.Hill Craddock University of Tennessee at Chattanooga Conrad Blunck Tennessee State University
GS16-155	Sustainable Management of Soil-borne Diseases in Nursery Production	\$11,000	Dr.Fulya Baysal-Gurel Tennessee State University Prabha Liyanapathirana Tennessee State University

GS14-128	Assessment of beneficial microorganisms: Trichoderma, Actinomycetes, and Bacillus in anaerobic soil disinfestation (ASD)	\$10,993	Dr.David Butler University of Tennessee, Knoxville Utsala Shrestha University of Tennessee, Plant Sciences
GS13-124	Examining the Influence of Farmers' Market Managers Perceived Roles on Business Opportunities for Small- and Moderate-size Farms and Access to Healthful Foods for Low-income Households	\$6,479	Dr.Deborah Slawson East Tennessee State University Rachel Ward East Tennessee State University
GS10-095	Efficacy of entomopathogenic fungi in an integrated pest management plan for cucumber beetles in melons and pumpkins	\$8,154	Annette Wszelaki University of Tennessee Mary Rogers University of Tennessee
GS09-086	Testing the efficacy of three new alternative treatments for Nosema disease of honey bees in Tennessee	\$9,963	Dr.John Skinner Univ. Tennessee Paul Rhoades University of Tennessee
GS08-077	Providing habitat for native pollinators and determination of native pollinator contribution to pollination of cucurbits and blueberries at farm sites	\$10,000	Dr.John Skinner Univ. Tennessee Michael Wilson Rosecomb Apiaries
GS04-038	Determining Cost-Effectiveness of Best Management Practices in Sustainable Watershed Management: A Decision-Making Tool for Restoring Bullrun Creek	\$9,910	Joanne Logan University of Tennessee Candice Jones University of Tennessee
GS02-016	Collaborative Learning among Farmers as an Approach to Alternative Agricultural Education	\$9,540	John Peters University of Tennessee Robin Fazio Sonrisa Farm
GS01-011	Suppression of Soilborne Phytopathogenic Fungi of Tomatoes via Integrated Production Systems that Utilize Biofumigation, Composted Amendments, Solarization, and Chemical Fumigants.	\$10,000	Carl Sams The University of Tennessee Martin Lyons University of Tennessee
GS00-002	Control of Soilborne Plant Pathogens of tomatoes with incorporation of Indian Mustard (Brassica juncea)	\$10,000	Carl Sams The University of Tennessee Stephanie G Harvey Georgia Southwestern State University

ON FARM RESEARCH/PARTNERSHIP GRANTS

Project #	Project Title	SARE Support	Project Leaders
OS22-160	Development of Novel Directed Optical Energy Weed Management Robotics Platform for Sustainable Soybean Farming	\$20,000	hongbo zhang Middle Tennessee State University
OS21-149	Predicting Corn N Response Using Alkaline Mineralizable-Nitrogen and Haney Soil Health Tool-Nitrogen in TN	\$20,000	Dr.Nutifafa Adotey University of Tennessee
OS18-112	Biofumigants for Sustainable Soilborne Disease Management in Nursery Production	\$15,000	Dr.Fulya Baysal-Gurel Tennessee State University
OS17-101	Amblyseius swirskii Athias-Henriot for Control of Arthropod Pests in Woody Ornamental Propagation	\$14,872	Dr.Karla Adesso Tennessee State University

OS14-084	Incorporating a Cover Crop into Field Grown Nursery Production to Manage Flatheaded Appletree Borer with the Simultaneous Benefit of Improved and Sustainable Weed Management	\$14,997	Dr.Karla Addresso Tennessee State University
OS11-057	Organic forage production systems for organic dairies in the Southern region	\$14,993	Dr.David Butler University of Tennessee, Knoxville
OS02-002	Specialty Flowering Bulbs as a Sustainable Alternative Crop for Tobacco Farmers in Middle Tennessee	\$14,910	Steve Garton

SUSTAINABLE COMMUNITY INNOVATION GRANTS

Project #	Project Title	SARE Support	Project Leaders
CS10-077	Live Green and Prosper Community Education and Outreach Initiative	\$10,000	Erica Duarte Upper Cumberland Broadcast Council - WCTE
CS10-075	Building Sustainable Families through a Celebration of Low-Impact and Organic Community-Supported Agriculture	\$10,000	Ruth Correll UT Extension, Wilson County
CS07-056A	"Gathering" of Homestead Economic and Entrepreneurs of Food Based, Organic Foods and Other Related Businesses	\$10,000	Martha Pile UT Extension of Montgomery County
CS07-056	"Gathering" of Homestead Economic and Entrepreneurs of Food Based, Organic Foods and Other Related Businesses	\$10,000	Martha Pile UT Extension of Montgomery County
CS06-049	Appalachian Sustainable Agriculture and Energy Project	\$40,000	John Jackson Appalachian Native Plants Inc
CS06-048	Schools + Potatoes Upper E. Tennessee Development System (SPUDS)	\$39,762	Steve Hodges Clinch Appalachian Farm Enterprises
CS02-004	Homegrown, From Our Farms to Your Table: Growing a Farmers' Cooperative in East Tennessee	\$6,436	Steve Hodges Clinch Appalachian Farm Enterprises

EDUCATION ONLY GRANTS

Project #	Project Title	SARE Support	Project Leaders
EDS23-049	Beyond Agri-Curious: Training New Farmers in the Business of Farming	\$42,000	Mekayle Houghton Cumberland River Compact C.J. Sentell Nashville Food Project

**Total funding from the USDA SARE program to
Tennessee
\$3,662,683**



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).