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 $359 million to more than 8,143 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.

Project Highlight: Measuring Advertising ROI
How do local food producers and entrepreneurs draw attention to their products when there’s so much competition for people’s attention? Advertising can help. With support from a SARE Farmer Rancher grant, Ohio’s Buckeye Valley Beef Cooperative set out to gain insight on the return on investment (ROI) of four advertising channels of interest: billboard displays, radio ads, Facebook ads, and Google AdWords.

Their cooperative members divided responsibilities for their project as they gathered baseline data, studied how to use the various marketing channels, consulted with advertising companies, and set up their marketing schemes. They allowed three months per method and then looked at the sales impact of each strategy.

Advertising ROI
Overall, the team determined that of the four methods, Facebook ads was most effective, followed by radio ads, Google Ads, and billboards.

- Success with Facebook: Their Facebook campaign was a resounding success. Nethero said it was the easiest, simplest, and quickest of the four advertising methods to implement. “We were told by marketing experts through the year that they were moving into different directions away from social media,” said Nethero. “So we weren’t expecting much out of it and yet, it was incredibly successful. A 10,900% ROI speaks volumes. We spent $600 and made $66,000 in sales.”
- Time investment: Researching advertising ROI was a lot of work. The 8-person project team each devoted significant time and energy to figuring out which strategy made the most sense.
- WOMM wins: Word of mouth marketing (WOMM) was more effective than any of the new advertising strategies they tested.

For more information on these projects, see sare.org/projects, and search for project numbers FNC19-1186.

SARE in Ohio
northcentral.sare.org/state-programs/ohio

$8,341,468 in total funding
269 grant projects (since 1988)

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

Total awards: 269 grants

- 48 Research and Education
- 1 Sustainable Community Innovation
- 19 Professional Development Program
- 143 Farmer/Rancher
- 28 Graduate Student
- 17 Youth Educator
- 2 Youth
- 11 On Farm Research/Partnership

Total funding: $8,341,468

- $5,160,483 Research and Education
- $9,652 Sustainable Community Innovation
- $1,123,991 Professional Development Program
- $1,260,795 Farmer/Rancher
- $316,769 Graduate Student
- $50,764 Youth Educator
- $692 Youth
- $418,323 On Farm Research/Partnership

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: northcentral.sare.org/state-programs/ohio

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 northcentral.sare.org/state-pages/ohio to learn more.

- Mike Hogan
  Ohio State University Extension
  (614) 866-6900
  hogan.1@osu.edu

- Sarah Noggle
  Ohio State University Extension
  (419) 399-8225
  noggle.17@osu.edu

- Michelle Wallace
  Central State University
  (567) 377-1962
  mwallace@centralstate.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.
Ohio has been awarded $8,341,468 grants to support 267 projects, including but not limited to, 46 research and/or education projects, 19 professional development projects and 143 producer-led projects. Ohio 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>LNC21-447</td>
<td>Identifying and Incorporating Fair Labor and Fair Pricing on Sustainable Farms in the North Central Region</td>
<td>$249,547</td>
<td>Carol Goland, Ohio Ecological Food and Farm Association</td>
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<tr>
<td>LNC21-452</td>
<td>DEVELOPING AND PROMOTING WOODLAND PAWPAW PRODUCTION PRACTICES TO IMPROVE FRUIT YIELD AND QUALITY</td>
<td>$249,846</td>
<td>Dr. G. Matt Davies, The Ohio State University</td>
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<td>LNC21-459</td>
<td>A Sustainable Approach to Control Varroa Mites - Improving the Quality of Queens using Local Resources</td>
<td>$249,998</td>
<td>Dr. Hongmei Li-Byarlay, Central State University</td>
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<td>LNC20-439</td>
<td>Soil health and water quality nexus in sustainable agroecosystems</td>
<td>$249,932</td>
<td>Dr. VINAYAK SHEDEKAR, THE OHIO STATE UNIVERSITY</td>
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<tr>
<td>LNC19-417</td>
<td>Towards Resilient and Sustainable Grape Production in the North Central Region with Renewable Mulching Systems</td>
<td>$199,971</td>
<td>Dr. Imed Dami, Ohio State University</td>
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<td>LNC19-428</td>
<td>Sustainable production and marketing using the cooperative model for a student-managed school farm cooperative</td>
<td>$161,632</td>
<td>Hannah Scott, The Ohio State University College of Food, Agricultural, and Environmental Sciences Center for Cooperatives</td>
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<tr>
<td>LNC18-401</td>
<td>Assessing Soil Fertility and Soil Health in Midwest Hop Production</td>
<td>$98,561</td>
<td>Dr. Steven Culman, Ohio State University</td>
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<tr>
<td>LNC17-393</td>
<td>Optimizing anaerobic soil disinfection to manage emerging soilborne diseases in tomato protected culture systems in the North Central Region</td>
<td>$149,349</td>
<td>Dr. Sally Miller, The Ohio State University, Dept of Plant Pathology</td>
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<tr>
<td>LNC16-380</td>
<td>Resources that Help Sustainable-Organic Vegetable Growers Select, Use, and Evaluate Microbe-containing Crop Stimulants (MCCSs) More Effectively</td>
<td>$198,842</td>
<td>Matthew Kleinhenz, The Ohio State University-OARDC</td>
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<td>LNC16-384</td>
<td>Creating an Educational and Economic Value Chain for Specialty Dairy Products in Appalachian Ohio</td>
<td>$165,500</td>
<td>Tom Redfern, Rural Action</td>
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<td>LNC13-351</td>
<td>Neonatal Calf Diarrhea: Reducing Impacts and Antibiotic Use with Natural Therapies</td>
<td>$142,375</td>
<td>Dr. Greg Habing, The Ohio State University</td>
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<td>Principal Investigator(s)</td>
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<td>LNC08-292</td>
<td>Marketing Apple Diversity</td>
<td>$121,200</td>
<td>Dr. Diane Miller (OARDC/Ohio State University)</td>
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<td>LNC08-306</td>
<td>Non-traditional Forages in a Managed Grazing System for Control of Gastrointestinal Parasites in Sheep</td>
<td>$137,150</td>
<td>Dr. William Shulaw (College of Veterinary Medicine, Ohio State University)</td>
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<tr>
<td>LNC07-288</td>
<td>Growing Organics: Integrating Science, Farmer Indigenous Knowledge, and Experience in Expanding Organic Production in Ohio</td>
<td>$140,416</td>
<td>Mike Anderson (Ohio Ecological Food and Farm Association) Carol Goland (Ohio Ecological Food and Farm Association)</td>
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<td>LNC06-272</td>
<td>Evaluating Corn Varieties in Pure and Mixed Stands for Organic Crop Production across Three States in the Corn Belt</td>
<td>$138,252</td>
<td>Dr. Peter Thomison (Ohio State University)</td>
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<td>LNC05-252</td>
<td>Wisdom in the Land</td>
<td>$92,560</td>
<td>Sharon Sachs (Innovative Farmers of Ohio)</td>
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<tr>
<td>LNC05-256</td>
<td>Organic Production and Marketing of Forest Medicinals: Building and Supporting a Learning Community Among Growers</td>
<td>$106,000</td>
<td>Dennis Hosack (Rural Action- Appalachian Forest Resource Center)</td>
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<tr>
<td>LNC04-240</td>
<td>Weed Management in Organic Conservation Tillage/No Tillage</td>
<td>$146,314</td>
<td>John Cardina (Ohio State University)</td>
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<tr>
<td>LNC04-243</td>
<td>Collaboration with the arts to communicate the messages of sustainable agriculture to a wider audience: Developing a model project with the Springfield Symphony Orchestra in Clark County, Ohio.</td>
<td>$104,500</td>
<td>Dennis Hall (The Ohio State University)</td>
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<tr>
<td>LNC03-233</td>
<td>Financial Implications of Non-toxic Endophyte-infected Fescue Pasture: Establishment Costs and Livestock Returns</td>
<td>$149,555</td>
<td>David Barker (Ohio State University)</td>
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<tr>
<td>LNC03-236</td>
<td>Variety Evaluation, Selection and Management for Organics Vegetable Systems</td>
<td>$98,861</td>
<td>Matthew Kleinhenz (The Ohio State University-OARDC)</td>
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<td>LNC02-207</td>
<td>Whole Systems Approach to Building a Sustainable Regional Food Economy</td>
<td>$99,596</td>
<td>Brad Masi (Ecological Design Innovation Center)</td>
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<tr>
<td>LNC02-208</td>
<td>Improving Livestock and Grain Farms' Environmental Quality through Watershed Headwaters Learning Communities</td>
<td>$24,500</td>
<td>Richard Moore (Ohio State University)</td>
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<tr>
<td>LNC02-221</td>
<td>Ecology and Cultivation of Non-Timber Forest Products in Appalachia</td>
<td>$100,000</td>
<td>Brian McCarthy (Ohio University)</td>
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<tr>
<td>LNC01-189</td>
<td>Integrating cover crop mulches in commercial pumpkin production in the Midwest.</td>
<td>$9,716</td>
<td>Christian A. Wyenandt (The Ohio State University)</td>
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<tr>
<td>LNC01-183</td>
<td>Building Diverse Markets and Strong Businesses with Limited-Means Farmers</td>
<td>$50,636</td>
<td>Colin Donohue (Rural Action)</td>
</tr>
</tbody>
</table>

**An Integrated Approach to Understanding Food Safety Practices and Attitudes Among Local Food Systems Actors**

Doug Doohan, Dr. Jason Parker, The Ohio State University

**Marketing Apple Diversity**

Dr. Diane Miller, OARDC/Ohio State University

**Non-traditional Forages in a Managed Grazing System for Control of Gastrointestinal Parasites in Sheep**

Dr. William Shulaw, College of Veterinary Medicine, Ohio State University

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Mike Anderson, Ohio Ecological Food and Farm Association; Carol Goland, Ohio Ecological Food and Farm Association

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Colin Donohue, Rural Action
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Project Title</th>
<th>Funding</th>
<th>PI</th>
<th>University/Institution</th>
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</thead>
<tbody>
<tr>
<td>LNC01-199</td>
<td>Improving Livestock and Grain Farms’ Contribution to Environmental Quality through Headwaters Learning Communities</td>
<td>$24,500</td>
<td>Richard Moore</td>
<td>Ohio State University</td>
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<tr>
<td>LNC00-175</td>
<td>Linking soil quality, plant health, and animal nutrition on dairy farms through energy and nitrogen balance</td>
<td>$110,000</td>
<td>Charlotte Bedet</td>
<td>Innovative Farmers of Ohio</td>
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<tr>
<td>LNC98-129</td>
<td>Strengthening Farms on the Edge: Developing Rural/Urban Partnerships</td>
<td>$29,450</td>
<td>Rebecca Cline-Seese</td>
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<tr>
<td>LNC98-141</td>
<td>Biological Control of Bacterial Diseases of Vegetable Crops</td>
<td>$98,000</td>
<td>Dr. Sally Miller</td>
<td>The Ohio State University, Dept of Plant Pathology</td>
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<tr>
<td>LNC97-118</td>
<td>Use of Cover Crop Practices to Control Weeds in Integrated Lower-Chemical Input Systems of Vegetable Production</td>
<td>$87,823</td>
<td>Jeff Dickinson</td>
<td>Stratford Ecological Society</td>
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<tr>
<td>LNC96-099</td>
<td>Biological Control of Foliar Diseases and Fruit Rots of Tomato</td>
<td>$103,580</td>
<td>Dr. Sally Miller</td>
<td>The Ohio State University, Dept of Plant Pathology</td>
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<tr>
<td>LNC95-091</td>
<td>Integrating Quality of Life, Economic, and Environmental Issues: Agroecosystem Analysis of Amish Farming</td>
<td>$40,800</td>
<td>Deborah Stinner</td>
<td>Dept. of Entomology, OARDC, Ohio State University</td>
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<tr>
<td>LNC94-047.1</td>
<td>Further Development of Innovative and Practical Education in Sustainable Agriculture in Ohio</td>
<td>$98,094</td>
<td>Clive Edwards</td>
<td>Ohio State University, Sustainable Agriculture Program</td>
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<tr>
<td>LNC94-068</td>
<td>Evaluating Soil Organic Matter and Soil Biology for Improving Short- and Long-Term Management of Soil Nitrogen Supplying Capacity</td>
<td>$93,500</td>
<td>Ed Zaborski</td>
<td>Ohio State University</td>
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<tr>
<td>LNC94-069</td>
<td>The Role of Soil Management in Crop Nutritional Quality and Susceptibility to Pests</td>
<td>$95,232</td>
<td>Larry Phelan</td>
<td>Ohio State University</td>
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<td>LNC94-070</td>
<td>Economic and Ecological Analyses of Farms and their Component Practices to Promote Crop Rotation and Cover Crop Systems</td>
<td>$117,670</td>
<td>Benjamin Stinner</td>
<td>Ohio State University, Ohio Agricultural Research and Development Center (OARDC)</td>
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<tr>
<td>LNC92-047</td>
<td>Innovative Approaches to Practical Education in Sustainable Agriculture</td>
<td>$112,390</td>
<td>Clive Edwards</td>
<td>Ohio State University, Sustainable Agriculture Program</td>
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<td>LNC91-033</td>
<td>LISA as Applied to Vegetable Production Systems</td>
<td>$77,279</td>
<td>Mark Bennett</td>
<td>Ohio State University</td>
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<tr>
<td>LNC91-037</td>
<td>Comparative Economic and Ecological Analyses of Lower Chemical Input Fruit Farms and Other Fruit Farming Systems</td>
<td>$110,610</td>
<td>Jeff Dickinson</td>
<td>Stratford Ecological Society</td>
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<td>LNC90-026</td>
<td>Economic, Ecological, and Environmental Analyses of Farms under Long-Term Lower Chemical Input Management</td>
<td>$92,344</td>
<td>Benjamin Stinner</td>
<td>Ohio State University, Ohio Agricultural Research and Development Center (OARDC)</td>
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<td>LNC89-015.1</td>
<td>An Integrated Research/Extension Program in Low-Input Crop Production in Ohio</td>
<td>$40,000</td>
<td>Donald Eckert</td>
<td>Ohio State University</td>
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<tr>
<td>LNC88-003</td>
<td>Low-Input Ridge Tillage System for the Corn Belt</td>
<td>$24,300</td>
<td>Randall Reeder</td>
<td>Ohio State University</td>
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<tr>
<td>Project #</td>
<td>Project Title</td>
<td>SARE Support</td>
<td>Project Leaders</td>
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<tr>
<td>ENC20-190</td>
<td>Growing the Growers: Leadership Training and the Development of Key Personnel for Engaged Production in the Mansfield Microfarm Project</td>
<td>$89,976</td>
<td>Dr. Kent Curtis, The Ohio State University - Mansfield Regional Campus</td>
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<tr>
<td>ENC19-185</td>
<td>Professional Development for Ohio Farmers Market Managers and OSU Extension Educators on Creating a Culture of Data Collection for Sustainability Planning for Markets and Farmers</td>
<td>$81,316</td>
<td>Christie Welch, The Ohio State University Extension, Eric Barrett, Ohio State University Extension</td>
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<tr>
<td>ENC18-172</td>
<td>Solar Electric Investment Analysis for Small Farms</td>
<td>$74,364</td>
<td>Eric Romich, Ohio State University</td>
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<tr>
<td>ENC13-139</td>
<td>Education for Veterinarians, Extension Educators and Other Agricultural Professionals on Organic Livestock Health</td>
<td>$74,592</td>
<td>Carol Goland, Ohio Ecological Food and Farm Association</td>
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<tr>
<td>ENC12-134</td>
<td>Beyond Season Extension: High Tunnels for Season Creation and Economic, Community, and Environmental Sustainability</td>
<td>$75,000</td>
<td>Tom Redfern, Rural Action</td>
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<tr>
<td>ENC10-115</td>
<td>Retail Ready - Wholesale Ready</td>
<td>$67,337</td>
<td>Julie Fox, The Ohio State University</td>
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<tr>
<td>ENC10-118</td>
<td>Training professionals on sustainable agriculture for enhanced ecosystem service from the ground up</td>
<td>$65,900</td>
<td>Dr. Khandakar Islam, The Ohio State University South Centers</td>
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<tr>
<td>ENC10-120</td>
<td>Integrated Sustainable Dairy Program</td>
<td>$59,266</td>
<td>Dr. Gustavo Schuenemann, Veterinary Extension</td>
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<tr>
<td>ENC06-093</td>
<td>Grazier Training for Michigan Agricultural Educators from NRCS, Michigan State University Extension and Conservation Districts</td>
<td>$26,883</td>
<td>Betsy Dierberger, NRCS, Michigan, Lawrence Dyer, Olney Friends School</td>
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<tr>
<td>ENC05-085</td>
<td>Creating Capacity to Confront Invasive Plants as Barriers to Economic Productivity and Environmental Sustainability</td>
<td>$75,000</td>
<td>Tom Redfern, Rural Action</td>
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<tr>
<td>ENC02-067</td>
<td>Developing Capacity and Nurturing Leadership to Assist Producers in Transitioning to Sustainable Marketing Systems</td>
<td>$62,152</td>
<td>Laura Ann Bergman, Innovative Farmers of Ohio</td>
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<tr>
<td>ENC01-056</td>
<td>Forest Meets Farm: Profitable New Crops for Small Farms in Forested Ohio</td>
<td>$47,743</td>
<td>Scott Bagley, Rural Action, Inc.</td>
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<tr>
<td>ENC99-040</td>
<td>Transitioning to Sustainable and Organic Grain and Livestock Production Systems: On-Farm Training for Extension Agents (CES) and NRCS Personnel</td>
<td>$46,715</td>
<td>Margaret Huelsman, Ohio Ecological Food Farm Assn</td>
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</table>
ENC98-033  Developing Advanced Grazing Educational Materials and Schools on Sustainable and Profitable Grazing Systems for the North Central Region $60,000  Henry Bartholomew Ohio State University Extension

ENC98-035  Workshops on Land Use and Farmland Policy $48,247  Kevin Schmidt American Farmland Trust

ENC97-027  Professional Training in Soil Quality $15,400  Stephen Baertsche Ohio State University Extension

ENC96-013  Utilizing the Concept of Whole-Farm Planning to Educate Agricultural Professionals and Farm Families in Ohio about Sustainable Agriculture $32,000  Mike Hogan OSU Extension

ENC95-003  Grazing Systems for Sustainable and Profitable Agriculture $92,100  Henry Bartholomew Ohio State University Extension

ENC95-003A  Developing Educational Materials and Schools for Sustainable and Profitable Grazing Systems $30,000  Henry Bartholomew Ohio State University Extension

**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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<tbody>
<tr>
<td>FNC22-1346</td>
<td>Small-scale Microgreen farming as a pathway out of poverty</td>
<td>$15,000</td>
<td>Tom Phillips</td>
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<td>StarkFresh</td>
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<td>FNC22-1339</td>
<td>Participatory, Community-Driven Agriculture: A new model for small farms that actively engages customers in the cultivation of food and culture</td>
<td>$14,970</td>
<td>Weston Lombard</td>
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<td>Solid Ground Farm</td>
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<td>FNC22-1319</td>
<td>Effectiveness of using milk and Korean Natural Farming fungicide techniques vs traditional organic fungicides on powdery mildew</td>
<td>$8,099</td>
<td>Donnetta Boykin</td>
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<td>Endigo's Herbals &amp; Organics</td>
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<td>FNC22-1328</td>
<td>South Side Family Farms Black Farmer/Heritage Project</td>
<td>$28,760</td>
<td>Min. Aaron k. Hopkins</td>
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<td>ICANDO community development</td>
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<td>FNC22-1338</td>
<td>Red Mulberry Search and Rescue: Preserving Genetic Diversity for the Future of Sustainable Agroforestry</td>
<td>$19,437</td>
<td>Weston Lombard</td>
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<td>Solid Ground Farm</td>
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<tr>
<td>FNC22-1330</td>
<td>Mitigating and Eliminating the Impact of Aphids and White Moth Butterflies on Cabbages, Okra and Collards Using Sustainable Agricultural Practices</td>
<td>$13,279</td>
<td>Ava Johnson</td>
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<td>SE Gardens and Farm</td>
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<tr>
<td>FNC21-1273</td>
<td>Indoor Rearing of the Eastern Oyster (Crassostrea virginica) within a Recirculation Biofloc Aquaculture System</td>
<td>$18,000</td>
<td>Chandler Glover</td>
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<td>Grownup Vertical Farm</td>
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<td>FNC21-1277</td>
<td>The Costs and Benefits of Winter High Tunnel Supplemental Heat and Row Covering</td>
<td>$8,931</td>
<td>Dana Hilfinger</td>
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<td>Roots, Fruits and Shoots, LLC</td>
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<td>FNC21-1298</td>
<td>No water, no power, no problem! Sustainable small scale cut flower production with limited resources.</td>
<td>$7,086</td>
<td>Morgan Rich</td>
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<td>FNC21-1302</td>
<td>Investigating the Appropriate/Inappropriate Landing Theory in pumpkin production</td>
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<td>Extending the Harvest Through Partnerships to Scale-up Value-added Local Food</td>
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<td>FNC20-1207</td>
<td>Improving oxygen transfer in a Recirculating Aquaculture System, to increase production and promote the sustainability of raising tilapia indoors.</td>
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<td>FNC20-1211</td>
<td>Growing Seedlings and Skills for Agroforestry: Integration of woody seedling and annual vegetable production</td>
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<td>FNC20-1239</td>
<td>Improving Accelerated Lambing System through Data Management</td>
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<td>FNC19-1191</td>
<td>The use of Bacillus thuringiensis spp. as a Biological Control for Small Hive Beetles (Aethina tumida) and Wax Moths (Galleria mellonella and Achroia grisella) inside Beehives</td>
<td>$9,000</td>
<td>Nadia Ruffin</td>
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<td>FNC19-1186</td>
<td>Comparing the Effectiveness of Four Advertising Channels: The Case Study of a Young Rural Beef Cooperative</td>
<td>$25,530</td>
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<td>FNC19-1183</td>
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<td>FNC18-1135</td>
<td>Figs as a Niche Crop in Northern Ohio</td>
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<td>FNC18-1139</td>
<td>Viability of Black Soldier Fly Larvae Production for Rabbit Waste Mitigation and as a Gamebird Protein Supplement</td>
<td>$7,151</td>
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<td>FNC18-1142</td>
<td>Economic Modification of Langstroth to AZ-Style Beehives to Enable Aging or Physically Limited Beekeepers to Begin/Continue Beekeeping and Improve Hive Care, Colony Health, and Production</td>
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<td>FNC18-1146</td>
<td>Mad About Saffron: Growing A Valuable Global Seasoning In The Midwest</td>
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<td>Optimal Hop Harvest Timing</td>
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FNC17-1077  Efficacy of Horse and Donkey Manure Compost as an Economical Alternative to Commercial Biofungicides for Control of Phytophthora spp. Root Rot in Lavender Plants  $6,888  Dr. Susan Gioengo, DVM PhD  Greentan Farm

FNC17-1103  Mobile Hop Dryer  $7,500  David Volkman  Ohio Valley Hops LLC

FNC16-1024  Growing Mealworms as a Fish Feed for Sustainable Aquaponics  $3,467  Barry Adler  RainFresh Harvests

FNC16-1025  Economic Implications of Using Tomato Suckers to Produce Late Season Tomato Plants instead of Starting Late Season Plants from Seed  $5,318  Sandy Ashmore  That Guys Family Farm

FNC16-1040  Converting Residual Livestock and Deer Bones into a Locally-Produced Char/Fertilizer Soil Enhancer and Measuring Benefits for Small Farms in Southeast Ohio  $22,500  Richard Jeffers  Canaan Valley Farm

FNC16-1044  Field Testing The Mulberry for Commercial Production in the Midwest  $7,481  Weston Lombard  Solid Ground Farm

FNC16-1045  Viability of Using a Low Energy Air Pump to Aerate Freshwater Prawn Ponds  $7,477  Don Maloney  Don's Prawns & More

FNC16-1056  Formalizing Partnerships to Scale-up Value-added Local Food in Rural Ohio  $7,500  Jeanine Seabrook  Glass Rooster Cannery

FNC16-1061  Could Wort Serve as a Viable Soil Amendment?  $7,452  Richard Stewart  Carriage House Farm

FNC15-1003  In pond substrate to increase yield and size of freshwater prawns  $7,477  Don Maloney  Don's Prawns & More

FNC15-1008  Multi-farm Assessment of the Optimal Yield Performance in Six Hop Cultivars Grown Throughout Ohio  $22,497  Dr. Steve Patterson  Hop 'n' Pepper Farms, LLC

FNC15-1016  Mushrooms on Coffee Waste: effectiveness of incorporating locally available coffee chaff for improving the effectiveness of small-scale oyster mushroom production  $921  Alan Susarret  Probasco Urban Farm

FNC15-1017  Food Waste For Farms  $21,800  Abbe Turner  Lucky Penny Farm


FNC15-987  North Coast Lamb Co-op: Using Carcass Scanning for Producer Production Criteria  $20,526  Laura DeYoung  The Spicy Lamb Farm

FNC15-995  A Model for Mitigating Giant Ragweed on Certified Organic Operations: Ag Engineering and Farm Tours  $7,500  Michelle Gregg  Code One Compliance
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<td>FNC13-899</td>
<td>Development of a Cooperative Food Distribution Model for Small Farms</td>
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<td>FNC13-901</td>
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<td>FNC13-916</td>
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<td>FNC13-937</td>
<td>Determining what Multi species (8 or More) cover crop mixes perform well in a corn and soybean crop rotation</td>
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<td>FNC12-847</td>
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<td>FNC12-848</td>
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<td>FNC12-851</td>
<td>Grazing Corn Plants as an Alternative Summer Annual Forage for Growing Lambs to Reduce Chemical Dependency and Parasite Resistance to Chemicals</td>
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<td>Curt Cline&lt;br&gt;Cline Family Farms</td>
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<td>FNC12-865</td>
<td>Preservation and Diversification of Heirloom and Antique Apple Varieties in Southern Ohio</td>
<td>$4,395</td>
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<td>FNC12-871</td>
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<td>FNC12-882</td>
<td>Variable Width Vegetative Buffers</td>
<td>$7,482</td>
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<td>FNC12-884</td>
<td>Proof of Concept and Prototype Development of a Novel Grape Washer Apparatus for the Small Family Farm Vineyard and Winery</td>
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<td>FNC10-794</td>
<td>Breeding Strategies for Improving Resistance to Gastrointestinal Nematodes in Wool Breeds of Sheep</td>
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<td>FNC10-797</td>
<td>Mulching with wool: opportunities to increase production and plant viability against pest damage while creating new regional markets for kempy (unsalable) wool.</td>
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<td>Melinda O'Briant&lt;br&gt;Turner Farm&lt;br&gt;Katie Charlton-Perkins&lt;br&gt;Turner Farm</td>
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<td>FNC10-818</td>
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<td>Increasing lavender production and oil producers through the use of hoop housing and soil amendments</td>
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<td>Mike Prell, Peaceful Acres Lavender Farm, LLC</td>
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<td>FNC10-820</td>
<td>Creating a service center on our farm for expanding the sale of locally grown foods and local products</td>
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<td>FNC10-825</td>
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<td>FNC09-772</td>
<td>Elderberry Trials for Northern Ohio Growers; Demonstrations and Evaluations to Encourage Diversification</td>
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<td>FNC09-774</td>
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<td>FNC09-780</td>
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<td>FNC09-783</td>
<td>Testing the Feasibility of Maple Syrup Production on Southern Ohio Family Farms</td>
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<td>FNC09-786</td>
<td>Using Hydroponic Green Forage to Reduce Feed Costs in Natural Pork Production</td>
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<td>FNC09-789</td>
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<td>FNC08-708</td>
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<td>FNC08-730</td>
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<td>Non-traditional Vineyard Canopy Management for Increased Crop Yield and Improved Fruit Quality</td>
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FNC08-744 Community Orchards and Fruit Diversity and Proliferation Project $5,990 Michael St. Amour

FNC07-652 Early Lamb Weaning in a Pasture System to Reduce Summer Parasites and Chemical Dewormer Use $5,990 Curt Cline Cline Family Farms

FNC07-663 Growing Highly Nutritious Staple Food Crops Using Intensive and Sustainable Agriculture Systems $5,730 Brandon Jaeger

FNC07-670 Field study of technique for combining low-cost, herbicide-free control of woody invaders, in particular Ailanthus altissima, with production of edible mushrooms $5,218 Janell Baran

FNC07-673 Agroforestry: Transforming Unproductive Woodlots Into Productive Livestock Operations. $5,709 Ralph and Dawn McNerney Rockin’ M Ranch

FNC07-675 Late Blooming-Disease Resistant Apple Breeding $8,760 John Lynd

FNC07-684 Sustainable Concrete Post Construction for Fencing and Trellising of Organic Crops $4,300 Stephen Pearce Ohio River Vista Vineyard, Winery & Research Station

FNC07-689 Building on Parasite Resistance Selection in Sheep $14,215 Kathy Bielek Misty Oaks Farm

FNC07-695 Evaluation of Production Efficiencies and Market Season Extension Options for RainFresh Harvests Year-Round Production of Herbs and Specialty Vegetables $5,750 Barry Adler RainFresh Harvests

FNC06-602 Marketing Bison as a Healthier Red Meat Alternative $5,985 Lyle Keller

FNC06-608 Organic Control of Fungus in Vineyards, Eliminating Chemical Sprays $6,000 Stephen Pearce Ohio River Vista Vineyard, Winery & Research Station

FNC06-613 The Next Step for yourfarms.com- A Local Marketing Cooperative Promoting Local Foods and Local Farms $18,000 Bill Harra

FNC06-621 Harvesting Honey For Direct Marketing $6,000 Lori McDole

FNC06-638 Freshwater Shrimp: Improved Nursery Technology Project $6,000 Bob Calala Calala’s Water Haven

FNC06-640 Season Extension of Hay-Mulched Potatoes Using High Tunnels $5,990 Scott Salvage

FNC05-547 Reducing Dependence on Non-Renewable Energy by Using Biodiesel Instead of Petrol-Diesel $6,000 Micheal Roberts

FNC05-553 Measuring and Comparing the Impacts of Various Weed Control Methods on Field Restoration $4,611 Eric Johnson
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<td>Cooperation Approach, of Farmer and Chef, to Create a Profitable Niche Market for the Small Farm that Would Increase the Variety and Use of Specialty Potatoes</td>
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<td>Muddy Fork Farm LLC</td>
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<td>FNC00-318</td>
<td>Low Input, Energy Efficient Greenhouse Construction Workshop Suitable for Northeastern Ohio</td>
<td>$4,635</td>
<td>Ted Bartlett Silver Creek Farm</td>
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<td>FNC00-330</td>
<td>Developing a Farm Marketing Association to Support Sustainable Agricultural Enterprises</td>
<td>$3,860</td>
<td>Tom Puch</td>
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<td>FNC99-269</td>
<td>Cereal Rye Cover Crop for Control of Onion Grasses (Allium spp.)</td>
<td>$2,777</td>
<td>Trevor Polley Long Branch Farm</td>
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<td>FNC99-274</td>
<td>Evaluating Sustainable Ag Products in Relationship to Cation Exchange Capacity and Base Saturation</td>
<td>$5,000</td>
<td>Philip Price</td>
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<td>FNC99-276</td>
<td>Producing White Asparagus</td>
<td>$2,290</td>
<td>Rich Tomsu</td>
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<td>FNC98-214</td>
<td>Alternate Vegetable Crop Irrigation System for Remote Areas</td>
<td>$2,110</td>
<td>Kevin Smyth</td>
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<td>FNC98-241</td>
<td>Sustainable Viticulture for Midwestern Fruit Growers</td>
<td>$5,000</td>
<td>Gene Sigel Chalet Debonne Vineyards</td>
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<td>FNC97-197</td>
<td>Linking Sustainable Agriculture Production with Low-income Consumer and Minorities</td>
<td>$9,195</td>
<td>Eric Stewart</td>
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<td>FNC96-136</td>
<td>Multiple-site Evaluation of Cover Crops Established in Wheat Stubble</td>
<td>$9,613</td>
<td>Rich Bennett</td>
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<td>FNC96-141</td>
<td>Alternative Management Strategies for European Red Mite in North Central Ohio Apple Orchards</td>
<td>$9,722</td>
<td>Richard Eshleman</td>
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<td>FNC95-104</td>
<td>Protecting Beneficial Arthropods in Ohio Orchards</td>
<td>$4,995</td>
<td>Bradley Phillips</td>
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<td>FNC95-105</td>
<td>Building Community in CSAs: A Canning Project</td>
<td>$4,963</td>
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<td>FNC95-108</td>
<td>Measuring Benefits of Hairy Vetch Cover Crop for Corn Production and Evaluating a Portable Soil Nitrate Test Kit</td>
<td>$1,815</td>
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<td>FNC95-118</td>
<td>Free-range Poultry: Production and Marketing</td>
<td>$4,690</td>
<td>Linda Lee</td>
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<td>FNC94-062</td>
<td>Utilizing Chopped Waste Paper for Bedding in a Hog Operation</td>
<td>$1,200</td>
<td>Daryl Bridenbaugh</td>
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**GRADUATE STUDENT GRANTS**
<table>
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<tr>
<td>GNC22-351</td>
<td>Biological Soil Health and Water Quality in Sustainable Agroecosystems</td>
<td>$14,912</td>
<td>Dr. Ryan Winston, P.E. The Ohio State University, Dr. Margaret Kalcic University of Wisconsin-Madison, Dr. William Osterholz USDA Agricultural Research Service, Dr. VINAYAK SHEDEKAR THE OHIO STATE UNIVERSITY, Christopher McNabb The Ohio State University</td>
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<td>GNC21-335</td>
<td>Exploring the synergistic potential of fungicides and parasites as stressors</td>
<td>$14,993</td>
<td>Dr. Frances Sivakoff The Ohio State University, Emily Runnion The Ohio State University</td>
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<td>GNC21-333</td>
<td>Black Farmers and Climate Adaptation</td>
<td>$14,968</td>
<td>Douglas Jackson-Smith Ohio State University, Shoshanah Inwood Ohio State University, Maritza Pierre Ohio State University</td>
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<td>GNC20-309</td>
<td>Effect of recurring flooding on greenhouse gas emissions, soil C and N contents and forage quality in grazing and hay fields.</td>
<td>$13,488</td>
<td>Marilia Chiavegato Ohio State University, Marina Miquilini Ohio State University</td>
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<td>GNC20-308</td>
<td>The Use of Nematodes and Enzyme Activities For On-Farm Soil Biological Health Tests</td>
<td>$10,875</td>
<td>Dr. Christine Sprunger Michigan State University, Tvisha Martin The Ohio State University</td>
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<td>GNC20-299</td>
<td>&quot;How are you really doing?&quot;: Social Sustainability of Beginning Farmers</td>
<td>$14,797</td>
<td>Dr. Michelle Kaiser Ohio State College of Social Work, FIONA DOHERTY The Ohio State University College of Social Work</td>
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<td>GNC19-278</td>
<td>Evaluation of Biological Control Agents as a Sustainable Disease Management Strategy for Fire Blight Control in Apples in Ohio</td>
<td>$14,813</td>
<td>Melanie Ivey The Ohio State University, Alejandra Jimenez Madrid The Ohio State University</td>
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<td>GNC18-259</td>
<td>Prevention of Avian Pathogenic Escherichia coli (APEC) Infections in Poultry Using Novel Probiotics</td>
<td>$11,817</td>
<td>Dr. Gireesh Rajashekara The Ohio State University, Dipak Kathayat The Ohio State University</td>
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<td>GNC18-260</td>
<td>Combined Effects of Inundative Biocontrol and Anaerobic Soil Disinfestation (ASD) Using Non-Host Cover Crops as Carbon Sources for Clubroot Management in Cruciferous Crops</td>
<td>$11,995</td>
<td>Dr. Sally Miller The Ohio State University, Dept of Plant Pathology, Ram Khadka The Ohio State University, Department of Plant Pathology</td>
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<td>GNC18-272</td>
<td>I Do Not Think It Means What You Think It Means: Explorations of Mental Models of Soil Health</td>
<td>$11,810</td>
<td>Dr. Steven Culman Ohio State University, Dr. Jordon Wade University of Missouri</td>
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<td>GNC17-246</td>
<td>Lady beetle in the city: Does diet overlap explain patterns of Native Lady Beetle Abundance in urban farms and greenspaces?</td>
<td>$11,924</td>
<td>Mary Gardiner The Ohio State University, Denisha Parker The Ohio State University</td>
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<td>GNC17-248</td>
<td>Entomopathogenic Nematode Control of the Asiatic Garden Beetle, Maladera castanea, in Corn</td>
<td>$11,995</td>
<td>Dr. Kelley Tilmont The Ohio State University, Adrian Pekarcik The Ohio State University</td>
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<tr>
<td>GNC16-230</td>
<td>Augmentative Biological Control of Spider Mites on Hops</td>
<td>$11,432</td>
<td>Celeste Wetyl Ohio State University, Susan Ndiaye The Ohio State University</td>
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</table>
GNC16-233  Next Generation Bees: Determining the Floral Resources that Support Wild Bee Reproduction and Pollination Services in Urban Agriculture  $11,930  Mary Gardiner  The Ohio State University  Katherine Turo  The Ohio State University  Rodney Richardson  York University

GNC13-180  Pesticide Contamination of Bees: Determining the Diversity and Concentration of Compounds found in Hives Located across Ohio Agricultural Landscapes  $9,980  Mary Gardiner  The Ohio State University  Larry Phelan  Ohio State University  Scott Prajzner  The Ohio State University - OARDC

GNC12-161  Efficacy of Naturally Occurring Anthelmintics in Fruit By-Products to Control Intestinal Parasites in Small Ruminants  $9,900  Dr. Maurice Eastridge  The Ohio State University  Shirron LeShure  The Ohio State University

GNC10-143  Measuring the Ecological and Economic Costs & Benefits of Native Perennial Floral Strip Addition on Beneficial Insect Abundance & Arthropod-mediated Ecosystem Services within Ohio  $9,527  Mary Gardiner  The Ohio State University  Ben Phillips  Ohio State University

GNC08-093  Recycling Nutrients with Cover Crops to Decrease Hypoxia/Eutrophication while Promoting Sustainable Crop Production  $10,000  Dr. Khandakar Islam  The Ohio State University South Centers  Jim Hoorman  Ohio State University

GNC07-073  Land Management Strategies for Watershed Restoration: An Integration of Spatial Modeling with Dynamic Programming  $9,004  Brent Sohngen  The Ohio State University  Dr. Sujithkumar Surendran Nair  Post Doctoral Researcher

GNC07-084  The Impact of Beauveria bassiana, Trichogramma, Bt Sprays, and Spinosad on the Lepidopteran (Crambidae) Cereal Stalk Borer- The European Corn Borer (Ostrinia nubilalis)  $10,000  Daniel Pavuk  Bowling Green State University  Rostern Tembo  Bowling Green State University

GNC06-070  Sustaining the Family Farm at the Rural Urban Interface: Farm Succession Processes of Alternative Food and Agricultural Enterprises and Traditional Commodity Farmers.  $9,995  Jeff Sharp  Ohio State University  Shoshanah Inwood  Ohio State University

GNC05-052  Expanding local participation in conservation programs: Examining factors affecting conservation adoption among Old Order Amish in the Sugar Creek Watershed  $9,823  Richard Moore  Ohio State University  Dr. Jason Parker  The Ohio State University

GNC04-025  Factors associated with support for local food systems: The significance of class position  $8,315  Jeff Sharp  Ohio State University  Molly Bean  The Ohio State University, Rural Sociology Program

GNC04-030  Assessing Agricultural Soil Health and Sustainability of Different Management Practices Using Profiles of Bacterial Communities  $9,912  Warren Dick  The Ohio State University-OARDC  Sougata Bardhan  The Ohio State University-OARDC

GNC04-035  Control of adult striped cucumber beetle with a natural enemy parasitoid and an insect parasitic nematode  $8,564  Celeste Wetly  Ohio State University  Stephanie Miller  The Ohio State University

GNC03-015  Comparative Strategies for Accelerated Wetland Restoration on Agricultural Land  $10,000  Martin Quigley  Joshua Smith  Ohio State University
### ON FARM RESEARCH/PARTNERSHIP GRANTS

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<tr>
<td>ONC22-111</td>
<td>Value Adding Culinary Chestnut Seconds Through the Development of a Marketable Fine Flour</td>
<td>$39,662</td>
<td>Tom Redfern</td>
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<td>ONC22-108</td>
<td>Budding Communication: Improving Sustainability and Communication in the Ohio Cut Flower Supply Chain with Availability Calendar and Database</td>
<td>$40,000</td>
<td>Dr. Alcinda Folck</td>
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<td>ONC22-101</td>
<td>Use of a Cover Crop to Reduce Soil Crusting and Improve Soybean Emergence</td>
<td>$39,859</td>
<td>Laura Lindsey</td>
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<tr>
<td>ONC21-087</td>
<td>Soil Moisture and Temperature Monitoring in Different Field Management Conditions</td>
<td>$39,993</td>
<td>Amanda Douridas</td>
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<tr>
<td>ONC21-096</td>
<td>New and Beginning Farmer Regenerative Agriculture Fellowship Program</td>
<td>$40,000</td>
<td>Jessica DAmbrosio</td>
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<td>The Nature Conservancy</td>
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<td>ONC20-079</td>
<td>Expanding Appalachia Ohio’s Artisanal Meat Production</td>
<td>$39,407</td>
<td>Leslie Schaller</td>
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<td>ONC20-075</td>
<td>Low Spray Rosé: Alternative Fruits for Rosé Cider Production</td>
<td>$39,922</td>
<td>Andrew Kirk</td>
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<td>ONC19-062</td>
<td>Improving the Honeybee Queen Qualities and Genetic Diversity by Transferring Selected Queen Cells</td>
<td>$40,000</td>
<td>Dr. Hongmei Li-Byarlay</td>
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<tr>
<td>ONC19-061</td>
<td>Early Leaf Removal Strategies for Bunch Rot Reduction in Pinot Noir Clones</td>
<td>$39,977</td>
<td>Andrew Kirk</td>
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<td>ONC18-041</td>
<td>Supporting Grape IPM Implementation in Ohio Vineyards Using the Network for Environment and Weather Applications (NEWA)</td>
<td>$29,523</td>
<td>Melanie Ivey</td>
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<td>ONC18-047</td>
<td>Making sense of Soil Health Reports - A partnership to develop recommendations for soil health testing, interpretation</td>
<td>$29,980</td>
<td>Margaret Kalcic</td>
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<td>Dr. VINAYAK SHEDEKAR</td>
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### SUSTAINABLE COMMUNITY INNOVATION GRANTS

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<td>CNE07-035</td>
<td>Southern Ohio alternative energy development</td>
<td>$9,652</td>
<td>John Hemmings</td>
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<td>Ohio Valley Regional Development Commission</td>
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### YOUTH EDUCATOR GRANTS

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**Note:**

- **GNC03-016** Comparing Antimicrobial Usage in Commercially-Raised and Organically-Raised Chickens and Turkeys and the Development of Antimicrobial Resistance in Campylobacter jejuni
- **GNC02-008** Meat Goat Production from Traditional and Non-Traditional Forage Species Mixtures

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**ON FARM RESEARCH/PARTNERSHIP GRANTS**

- **GNC03-016** Comparing Antimicrobial Usage in Commercially-Raised and Organically-Raised Chickens and Turkeys and the Development of Antimicrobial Resistance in Campylobacter jejuni
  - **Project Leaders:** Teresa Morishita, Taradon Luangtongkum
  - **Ohio State University**

- **GNC02-008** Meat Goat Production from Traditional and Non-Traditional Forage Species Mixtures
  - **Project Leaders:** David Barker, Ohio State University, Megan Burgess, The Ohio State University
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<td>YENC22-175</td>
<td>Urban Farm for Akron-area Immigrant Youth and Their Families</td>
<td>$6,000</td>
<td>Thomas Crain, Shanti Community Farms, Inc.</td>
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<td>YENC22-185</td>
<td>Farming the Forest: Empowering youth to nourish our community through hands-on agroforestry</td>
<td>$5,996</td>
<td>Suzanne Slavens, Elder Tree</td>
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<tr>
<td>YENC21-164</td>
<td>Sustainable Agriculture Business Development for Youth: A Comprehensive Online Video Tutorial</td>
<td>$3,975</td>
<td>Weston Lombard, Solid Ground Farm</td>
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<td>YENC21-158</td>
<td>Sprout it Out Loud! Urban Farmer Apprenticeship (Sprout)</td>
<td>$4,000</td>
<td>Rebecca Brown, Franklinton Farms, Rachel General, Franklinton Farms, Molly Jo Stanley, Franklinton Farms</td>
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<td>YENC21-159</td>
<td>Where does your food come from? A farm-to-table project.</td>
<td>$3,964</td>
<td>Sue Burleson, Terra Cotta B&amp;B and Burleson Farms</td>
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<td>YENC21-160</td>
<td>Sprouts School Garden Programming: Planting the seeds of sustainable agriculture at an early age</td>
<td>$3,984</td>
<td>Molly Gassaway, Community Food Initiatives</td>
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<td>YENC19-142</td>
<td>Cooperative Student Leadership Experience Pilot</td>
<td>$3,946</td>
<td>Hannah Scott, The Ohio State University College of Food, Agricultural, and Environmental Sciences Center for Cooperatives</td>
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<td>YENC18-121</td>
<td>SIMBA/SIMSA Youth Urban Farming</td>
<td>$2,000</td>
<td>Rev. Dr. Norman Brown, J. Jireh Development Corp.</td>
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<tr>
<td>YENC17-115</td>
<td>Pioneer Pollinators</td>
<td>$969</td>
<td>Jennifer Johnston, Zane Trace HS</td>
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<td>YENC16-107</td>
<td>Foodbanking and Farming with Dayton’s Youth</td>
<td>$2,000</td>
<td>Lee Lauren Truesdale, The Foodbank, Inc.</td>
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<td>YENC15-083</td>
<td>Healthy Growing, Healthy Eating: Youth gardening program</td>
<td>$2,000</td>
<td>Kathrine Morris, Famicos Foundation</td>
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<td>YENC14-070</td>
<td>Scioto River Valley Sustainable Agriculture Youth Day</td>
<td>$2,000</td>
<td>Brad Bergefurd, OSU Extension</td>
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<tr>
<td>YENC14-072</td>
<td>Community Giving Garden</td>
<td>$1,978</td>
<td>April Hoy, Stratford Ecological Center</td>
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<tr>
<td>YENC13-062</td>
<td>Advocating for Sustainable Agriculture in Grades K-12</td>
<td>$2,000</td>
<td>Stephanie Jolliff, Ridgemont FFA</td>
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<tr>
<td>YENC13-067</td>
<td>Sustainable Agriculture: Instruction, Application, and Community Outreach Utilizing Recirculating Aquaponics Systems</td>
<td>$2,000</td>
<td>Dr. Kevin Savage, Cincinnati Hills Christian Academy</td>
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<tr>
<td>YENC10-027</td>
<td>Direct Marketing Raspberries for a Healthy Community</td>
<td>$1,977</td>
<td>Rodney Throckmorton, Lighthouse Youth Center</td>
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<td>YENC09-018</td>
<td>Youth Driven Community Service Garden</td>
<td>$1,975</td>
<td>April Hoy, Stratford Ecological Center</td>
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**YOUTH GRANTS**
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<tr>
<td>YNC10-056</td>
<td>Hatching Heritage Breed Turkeys and Raising Pasture Poultry</td>
<td>$367</td>
<td>JoAnn Grum youth</td>
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<tr>
<td>YNC10-061</td>
<td>Raising Bobwhite Quail</td>
<td>$325</td>
<td>Steve Groff Individual</td>
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Total funding from the USDA SARE program to Ohio

$8,341,468

For further information on projects, contact North Central SARE at (612) 626-3113 or ncrsare@umn.edu.

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