What is SARE?
Since 1988, the Sustainable Agriculture Research & Education (SARE) program has been the go-to USDA grants and outreach program for farmers, ranchers, researchers and educators who want to develop innovations that improve farm profitability, protect water and land, and revitalize communities. To date, SARE has awarded over $333 million to more than 7,794 initiatives.

SARE is grassroots with far-reaching impact
Four regional councils of expert practitioners set priorities and make grants in every state and island protectorate.

SARE communicates results
SARE shares project results by requiring grantees to conduct outreach and grower engagement; and by maintaining an online library of practical publications, grantee-produced information products and other educational materials.

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

$8,095,494 in total funding
257 grant projects
(since 1988)

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

Ohio

Project Highlight: Improving Domestic Prawn Production

The average American eats four pounds of shrimp and prawns per year, making it the country’s most popular seafood. Almost all of the shrimp and prawns sold in the country are imported, mostly from Southeast Asia. There are concerns that these countries do not follow best practices in areas such as antibiotic use or sustainable management of fisheries, so an increase in domestically produced freshwater prawns would be appealing.

However, domestic farmers face challenges producing consistently sized prawns and obtaining good yields, which has compelled Ohio shrimp farmer Don Maloney to explore improved practices. Using three SARE grants, he has set out to identify the cause for varying size and yield.

One problem he recognized was with feeding by hand, which meant large areas of his ponds were not being covered by feed. So, he compared hand feeding with a mechanical device that evenly distributed feed, and found that the mechanical device increased yields. The device cost less than $300 and increased yields by 17 percent. These shrimp were also rated highly in taste tests. In follow-up projects, Maloney discovered other best practices, such as to not deviate from the use of commercial aerators and to place substrate in ponds such as bird netting.

For more information on these projects, see sare.org/projects, and search for project numbers FNC14-962, FNC15-1003 and FNC16-1045.
SARE Grants in Ohio

Total awards: 257 grants

- 48 Research and Education
- 1 Sustainable Community Innovation
- 19 Professional Development Program
- 137 Farmer/Rancher
- 27 Graduate Student
- 15 Youth Educator
- 2 Youth
- 8 On Farm Research/Partnership

Total funding: $8,095,494

- $5,160,483 Research and Education
- $9,652 Sustainable Community Innovation
- $1,123,991 Professional Development Program
- $1,161,250 Farmer/Rancher
- $301,857 Graduate Student
- $38,768 Youth Educator
- $692 Youth
- $298,802 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.

Dana Hilfinger
Central State University
(734) 276-1895
dhilfinger@centralstate.edu

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

Suzanne Mills-Wasniak
The Ohio State University Extension
(937) 952-1614
mills-wasniak.1@osu.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 $8,095,494 grants to support 255 projects, including but not limited to, 46 research and/or education projects, 19 professional development projects and 137 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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<tr>
<td>LNC20-439</td>
<td>Soil health and water quality nexus in sustainable agroecosystems</td>
<td>$249,932</td>
<td>Margaret Kalcic, Ohio State University</td>
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<tr>
<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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<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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<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 disinfestation 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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<tr>
<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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<tr>
<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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<tr>
<td>Project ID</td>
<td>Title</td>
<td>Budget</td>
<td>Principal Investigator(s)</td>
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</table>
| LNC11-331  | An Integrated Approach to Understanding Food Safety Practices and Attitudes Among Local Food Systems Actors | $128,102 | Doug Doohan  
Ohio State University  
Dr Jason Parker  
The Ohio State University |
| LNC08-292  | Marketing Apple Diversity                                             | $121,200 | Dr Diane Miller  
Ohio State University-OARDC/Ohio State University |
| LNC08-306  | Non-traditional Forages in a Managed Grazing System for Control of Gastrointestinal Parasites in Sheep | $137,150 | Dr William Shulaw  
College of Veterinary Medicine, Ohio State University |
| LNC07-288  | Growing Organics: Integrating Science, Farmer Indigenous Knowledge, and Experience in Expanding Organic Production in Ohio | $140,416 | Mike Anderson  
Ohio Ecological Food and Farm Association  
Carol Goland  
Ohio Ecological Food and Farm Association |
| LNC06-272  | Evaluating Corn Varieties in Pure and Mixed Stands for Organic Crop Production across Three States in the Corn Belt | $138,252 | Dr Peter Thomison  
Ohio State University |
| LNC05-252  | Wisdom in the Land                                                    | $92,560  | Sharon Sachs  
Innovative Farmers of Ohio |
| LNC05-256  | Organic Production and Marketing of Forest Medicinals: Building and Supporting a Learning Community Among Growers | $106,000 | Dennis Hosack  
Rural Action- Appalachian Forest Resource Center |
| LNC04-240  | Weed Management in Organic Conservation Tillage/No Tillage           | $146,314 | John Cardina  
Ohio State University |
| LNC04-243  | 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. | $104,500 | Dennis Hall  
The Ohio State University |
| LNC03-233  | Financial Implications of Non-toxic Endophyte-infected Fescue Pasture: Establishment Costs and Livestock Returns | $149,555 | David Barker  
Ohio State University |
| LNC03-236  | Variety Evaluation, Selection and Management for Organics Vegetable Systems | $98,861  | Matthew Kleinhenz  
The Ohio State University-OARDC |
| LNC02-207  | Whole Systems Approach to Building a Sustainable Regional Food Economy | $99,596 | Brad Masi  
Ecological Design Innovation Center |
| LNC02-208  | Improving Livestock and Grain Farms’ Environmental Quality through Watershed Headwaters Learning Communities | $24,500 | Richard Moore  
Ohio State University |
| LNC02-221  | Ecology and Cultivation of Non-Timber Forest Products in Appalachia | $100,000 | Brian McCarthy  
Ohio University |
| LNC01-183  | Integrating cover crop mulches in commercial pumpkin production in the Midwest. | $9,716 | Christian A. Wyenandt  
The Ohio State University |
| LNC01-189  | Building Diverse Markets and Strong Businesses with Limited-Means Farmers | $50,636 | Colin Donohue  
Rural Action |
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Title</th>
<th>Amount</th>
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</thead>
</table>
| LNC01-199   | Improving Livestock and Grain Farms’ Contribution to Environmental Quality through Headwaters Learning Communities | $24,500 | Richard Moore
|             |                                                                      |         | Ohio State University                                                                   |
| LNC00-175   | Linking soil quality, plant health, and animal nutrition on dairy farms through energy and nitrogen balance | $110,000| Charlotte Bedet
|             |                                                                      |         | Innovative Farmers of Ohio                                                              |
| LNC98-129   | Strengthening Farms on the Edge: Developing Rural/Urban Partnerships | $29,450 | Rebecca Cline-Seese                                                                       |
| LNC98-141   | Biological Control of Bacterial Diseases of Vegetable Crops          | $98,000 | Dr. Sally Miller
|             |                                                                      |         | The Ohio State University, Dept of Plant Pathology                                      |
| LNC97-118   | Use of Cover Crop Practices to Control Weeds in Integrated Lower-Chemical Input Systems of Vegetable Production | $87,823 | Jeff Dickinson
|             |                                                                      |         | Stratford Ecological Society                                                            |
| LNC96-099   | Biological Control of Foliar Diseases and Fruit Rots of Tomato       | $103,580| Dr. Sally Miller
|             |                                                                      |         | The Ohio State University, Dept of Plant Pathology                                      |
| LNC95-091   | Integrating Quality of Life, Economic, and Environmental Issues: Agroecosystem Analysis of Amish Farming | $40,800 | Deborah Stinner
|             |                                                                      |         | Dept. of Entomology, OARDC, Ohio State University                                     |
| LNC94-047.1 | Further Development of Innovative and Practical Education in Sustainable Agriculture in Ohio | $98,094 | Clive Edwards
|             |                                                                      |         | Ohio State University, Sustainable Agriculture Program                               |
| LNC94-068   | Evaluating Soil Organic Matter and Soil Biology for Improving Short- and Long-Term Management of Soil Nitrogen Supplying Capacity | $93,500 | Ed Zaborski
|             |                                                                      |         | Ohio State University                                                                  |
| LNC94-069   | The Role of Soil Management in Crop Nutritional Quality and Susceptibility to Pests | $95,232 | Larry Phelan
|             |                                                                      |         | Ohio State University                                                                  |
| LNC94-070   | Economic and Ecological Analyses of Farms and their Component Practices to Promote Crop Rotation and Cover Crop Systems | $117,670| Benjamin Stinner
|             |                                                                      |         | Ohio State University, Ohio Agricultural Research and Development Center (OARDC)    |
| LNC92-047   | Innovative Approaches to Practical Education in Sustainable Agriculture | $112,390| Clive Edwards
|             |                                                                      |         | Ohio State University, Sustainable Agriculture Program                               |
| LNC91-033   | LISA as Applied to Vegetable Production Systems                      | $77,279 | Mark Bennett
|             |                                                                      |         | Ohio State University                                                                  |
| LNC91-037   | Comparative Economic and Ecological Analyses of Lower Chemical Input Fruit Farms and Other Fruit Farming Systems | $110,610| Jeff Dickinson
|             |                                                                      |         | Stratford Ecological Society                                                           |
| LNC90-026   | Economic, Ecological, and Environmental Analyses of Farms under Long-Term Lower Chemical Input Management | $92,344 | Benjamin Stinner
|             |                                                                      |         | Ohio State University, Ohio Agricultural Research and Development Center (OARDC)   |
| LNC89-015.1 | An Integrated Research/Extension Program in Low-Input Crop Production in Ohio | $40,000 | Donald Eckert
|             |                                                                      |         | Ohio State University                                                                  |
| LNC88-003   | Low-Input Ridge Tillage System for the Corn Belt                     | $24,300 | Randall Reeder
<p>|             |                                                                      |         | Ohio State University                                                                  |</p>
<table>
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<tr>
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<tbody>
<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&lt;br&gt;The Ohio State University - Mansfield Regional Campus</td>
</tr>
<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&lt;br&gt;The Ohio State University Extension&lt;br&gt;Eric Barrett&lt;br&gt;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&lt;br&gt;Ohio State University</td>
</tr>
<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&lt;br&gt;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&lt;br&gt;Rural Action</td>
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<tr>
<td>ENC10-115</td>
<td>Retail Ready &amp; Wholesale Ready</td>
<td>$67,337</td>
<td>Julie Fox&lt;br&gt;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&lt;br&gt;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&lt;br&gt;Veterinary Extension</td>
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<tr>
<td>ENC06-093</td>
<td>Grazer Training for Michigan Agricultural Educators from NRCS, Michigan State University Extension and Conservation Districts</td>
<td>$26,883</td>
<td>Betsy Dierberger&lt;br&gt;NRCS, Michigan&lt;br&gt;Lawrence Dyer&lt;br&gt;Olney Friends School</td>
</tr>
<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&lt;br&gt;Rural Action</td>
</tr>
<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&lt;br&gt;Innovative Farmers of Ohio</td>
</tr>
<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&lt;br&gt;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&lt;br&gt;Ohio Ecological Food Farm Assn</td>
</tr>
</tbody>
</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>
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<th>Project Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>FNC21-1304</td>
<td>Extending the Harvest Through Partnerships to Scale-up Value-added Local Food</td>
<td>$9,000</td>
<td>Jeanine Seabrook  Glass Rooster Cannery</td>
</tr>
<tr>
<td>FNC21-1303</td>
<td>Enhancing Midwest Hop Productivity Using Photoperiodism</td>
<td>$9,000</td>
<td>Erik Scott  Scott Farms</td>
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<tr>
<td>FNC21-1302</td>
<td>Investigating the Appropriate/Inappropriate Landing Theory in pumpkin production</td>
<td>$2,995</td>
<td>Branden Schmurr  Healthy Hills Farm</td>
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<tr>
<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  Petal Flower Farm</td>
</tr>
<tr>
<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  Roots, Fruits and Shoots, LLC</td>
</tr>
<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  Grownup Vertical Farming</td>
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<tr>
<td>FNC20-1243</td>
<td>Mushroom cultivation as a way to get out of poverty</td>
<td>$9,000</td>
<td>Tom Phillips  StarkFresh</td>
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<tr>
<td>FNC20-1239</td>
<td>Improving Accelerated Lambing System through Data Management</td>
<td>$8,489</td>
<td>Christine Morrow  Rocky Knob Farms of Ohio</td>
</tr>
<tr>
<td>FNC20-1211</td>
<td>Growing Seedlings and Skills for Agroforestry: Integration of woody seedling and annual vegetable production</td>
<td>$8,988</td>
<td>Jessica Burns  Kelly's Working Well Farm</td>
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<tr>
<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>
<td>$26,990</td>
<td>Traci Bell  Ripple Rock Fish Farms LLC</td>
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<tr>
<td>Project ID</td>
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<tr>
<td>FNC19-1183</td>
<td>Permaculture Pond Restoration</td>
<td>$7,240</td>
<td>Sasha Miller</td>
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<tr>
<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>
<td>Lori Nethero</td>
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<tr>
<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 Bees</td>
<td>$9,000</td>
<td>Nadia Ruffin</td>
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<tr>
<td>FNC18-1135</td>
<td>Figs as a Niche Crop in Northern Ohio</td>
<td>$7,494</td>
<td>Timothy Malinich</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>
<td>JERAH PETTIBONE</td>
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<tr>
<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>
<td>$14,986</td>
<td>Jeanne Saum</td>
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<tr>
<td>FNC18-1146</td>
<td>Mad About Saffron: Growing A Valuable Global Seasoning In The Midwest</td>
<td>$14,927</td>
<td>Rachel Tayse</td>
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<tr>
<td>FNC18-1148</td>
<td>Optimal Hop Harvest Timing</td>
<td>$12,005</td>
<td>David Volkman</td>
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<tr>
<td>FNC17-1077</td>
<td>Efficacy of Horse and Donkey Manure Compost as an Economical Alternative to Commercial Biofungicides for Control of Phytophthora spp. Root Rot in Lavender Plants</td>
<td>$6,888</td>
<td>Dr. Susan Giovengo, DVM PhD</td>
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<td>FNC17-1103</td>
<td>Mobile Hop Dryer</td>
<td>$7,500</td>
<td>David Volkman</td>
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<tr>
<td>FNC16-1024</td>
<td>Growing Mealworms as a Fish Feed for Sustainable Aquaponics</td>
<td>$3,467</td>
<td>Barry Adler</td>
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<tr>
<td>FNC16-1025</td>
<td>Economic Implications of Using Tomato Suckers to Produce Late Season Tomato Plants instead of Starting Late Season Plants from Seed</td>
<td>$5,318</td>
<td>Sandy Ashmore</td>
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<tr>
<td>FNC16-1040</td>
<td>Converting Residual Livestock and Deer Bones into a Locally-Produced Char/Fertilizer Soil Enhancer and Measuring Benefits for Small Farms in Southeast Ohio</td>
<td>$22,500</td>
<td>Richard Jeffers</td>
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<tr>
<td>FNC16-1044</td>
<td>Field Testing The Mulberry for Commercial Production in the Midwest</td>
<td>$7,481</td>
<td>Weston Lombard</td>
</tr>
</tbody>
</table>
Viability of Using a Low Energy Air Pump to Aerate Freshwater Prawn Ponds $7,477 Don Maloney Don's Prawns & More

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

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

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

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

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

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

Let Pigs Eat Waste: Spice Acres to Reduce Landfill Waste and Lower Food Costs by Using Non-Meat Waste from Local Restaurants $7,492 Shawn Belt Spice Acres Andrea Heim Spice Acres

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

A Model for Mitigating Giant Ragweed on Certified Organic Operations: Ag Engineering and Farm Tours $7,500 Michelle Gregg Code One Compliance

Feeding Freshwater Prawns through Mechanical Means to Increase Yields and Size $7,477 Don Maloney Don's Prawns & More

Development of a Cooperative Food Distribution Model for Small Farms $22,500 Alicia Bongue Muddy Fork Farm LLC

Training farmers to perform artificial insemination in sheep $19,980 Don Brown Farmer

Alley cropping in a hillside terrace system $2,834 Weston Lombard Solid Ground Farm

Determining what Multi species (8 or More) cover crop mixes perform well in a corn and soybean crop rotation $22,500 Matt Vantilburg VTF Inc.

Niche Nut Processing Project: Collaborating To Establish Nut Crop Production, Processing And Marketing In The North Central Region $22,493 Kurt Belser Project Leader

Utilizing Homegrown Nitrogen from Legume Cover Crops for Corn Production $22,500 Jim Hoorman Ohio State University David Brandt
<table>
<thead>
<tr>
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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>
<td>$7,500</td>
<td>Curt Cline</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>
<td>Jo Huff</td>
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<td>FNC12-869</td>
<td>A Continuing Study of Timing of Tillage/Aeration of Biologically Active Soils Concerning Soil Microbiological Activity, Nutrient Release to the Crop, Soil Vitality Levels and Crop Yield Response</td>
<td>$14,950</td>
<td>Tim Kimpel (deceased)</td>
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<td>FNC12-871</td>
<td>Sustainable Sweet Corn Production</td>
<td>$5,574</td>
<td>Marissa Kruthaup</td>
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<td>FNC12-882</td>
<td>Variable Width Vegetative Buffers</td>
<td>$7,482</td>
<td>Tony Murry, Jr.</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>
<td>$7,500</td>
<td>Stephen Pearce</td>
<td>Ohio River Vista Vineyard, Winery &amp; Research Station</td>
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<td>FNC10-794</td>
<td>Breeding Strategies for Improving Resistance to Gastrointestinal Nematodes in Wool Breeds of Sheep</td>
<td>$17,640</td>
<td>Kathy Bielek</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>
<td>$5,995</td>
<td>Melinda O'Briant</td>
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<td>Katie Charlton-Perkins</td>
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<td>FNC10-818</td>
<td>Livestock heavy use pad made from sawmill byproducts.</td>
<td>$5,780</td>
<td>Brian Welch</td>
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<td>Increasing lavender production and oil producers through the use of hoop housing and soil amendments</td>
<td>$6,000</td>
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<td>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>
<td>$5,900</td>
<td>Amanda Hamrick</td>
<td>Back to Basics Log Cabin</td>
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<td>Randy Hamrick</td>
<td>Back to Basics Log Cabin</td>
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<td>FNC10-825</td>
<td>Adding Value to Vegetables Through Live Fermentation.</td>
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<td>FNC09-756</td>
<td>Study and develop tillage practices and timing of tillage for incorporation of cover crop plant material that will enhance nutrient availability and yield for the next crop</td>
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<td>FNC09-761</td>
<td>Partnerships in Food Waste Reduction through Vermiculture</td>
<td>$5,740</td>
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<td>FNC09-772</td>
<td>Elderberry Trials for Northern Ohio Growers; Demonstrations and Evaluations to Encourage Diversification</td>
<td>$1,953</td>
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<td>Demonstrating Higher Yields and Market Opportunities of Mixed Annual and Perennial Intensive Planting in Appalachian Ohio</td>
<td>$5,910</td>
<td>Michelle Ajamian</td>
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<td>FNC09-775</td>
<td>Transitioning to Sustainable Agriculture Using Continuous No-Till and Cover Crops</td>
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<td>Ohio Sheep Milk and Cheese Initiative</td>
<td>$16,885</td>
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<td>Testing the Feasibility of Maple Syrup Production on Southern Ohio Family Farms</td>
<td>$5,970</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>
<td>Promoting the availability, growing, and processing of healthy, locally produced food using low cost, low tech equipment</td>
<td>$5,340</td>
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<td>Linking Local Food and Forests: Making the Connection with Bio-Char</td>
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<td>FNC08-700</td>
<td>A sustainable approach for replacing winter honey bee colony losses using locally produced nucleus bee hives overwintered in polystyrene boxes</td>
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<td>FNC08-708</td>
<td>Using Oilseed as Biological Plow to Reduce Soil Compaction and Recycle Nutrients</td>
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<td>FNC08-730</td>
<td>A Cooperative Small Farm Effort to meet Local Demand for Staple Seed Crops in the Appalachian Ohio Region</td>
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<td>FNC07-652</td>
<td>Early Lamb Weaning in a Pasture System to Reduce Summer Parasites and Chemical Dewormer Use</td>
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<td>FNC07-663</td>
<td>Growing Highly Nutritious Staple Food Crops Using Intensive and Sustainable Agriculture Systems</td>
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<td>FNC07-670</td>
<td>Field study of technique for combining low-cost, herbicide-free control of woody invasives, in particular Ailanthus altissima, with production of edible mushrooms</td>
<td>$5,218</td>
<td>Janell Baran</td>
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<td>FNC07-673</td>
<td>Agroforestry: Transforming Unproductive Woodlots Into Productive Livestock Operations</td>
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<td>FNC07-675</td>
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<td>FNC07-684</td>
<td>Sustainable Concrete Post Construction for Fencing and Trellising of Organic Crops</td>
<td>$4,300</td>
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<td>FNC07-689</td>
<td>Building on Parasite Resistance Selection in Sheep</td>
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<td>FNC07-695</td>
<td>Evaluation of Production Efficiencies and Market Season Extension Options for RainFresh Harvests Year-Round Production of Herbs and Specialty Vegetables</td>
<td>$5,750</td>
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<td>FNC06-602</td>
<td>Marketing Bison as a Healthier Red Meat Alternative</td>
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<td>FNC06-608</td>
<td>Organic Control of Fungus in Vineyards, Eliminating Chemical Sprays</td>
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<td>FNC06-613</td>
<td>The Next Step for yourfarms.com- A Local Marketing Cooperative Promoting Local Foods and Local Farms</td>
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<td>Harvesting Honey For Direct Marketing</td>
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<td>Freshwater Shrimp: Improved Nursery Technology Project</td>
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<td>Season Extension of Hay-Mulched Potatoes Using High Tunnels</td>
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<td>FNC05-547</td>
<td>Reducing Dependence on Non-Renewable Energy by Using Biodiesel Instead of Petrol-Diesel</td>
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<td>Micheal Roberts</td>
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<td>Measuring and Comparing the Impacts of Various Weed Control Methods on Field Restoration</td>
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<td>Eric Johnson</td>
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<td>FNC05-558</td>
<td>Two-Queen System within a Colony of Honeybees to Increase Honey Production, Protect Hive Health and Increase Revenues</td>
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<td>Grazing Forages High in Condensed Tannins and its Effect on Fecal Egg Counts in Meat Goats</td>
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<td>FNC05-571</td>
<td>Black Walnut Hulls: Turning Trash into Treasure</td>
<td>$5,847</td>
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<td>Evaluating Winter Cover Crops for the Environment and for Profit</td>
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<td>Selecting Sheep for Parasite Resistance</td>
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<td>FNC05-586</td>
<td>Development of Notropis spilopterus (spotfin shiner) Aquaculture Propagation Methods and Techniques</td>
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<td>Steven C. Snyder</td>
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<td>FNC04-510</td>
<td>RainFresh Harvests Year-Round Food Production System for Central Ohio</td>
<td>$5,850</td>
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<td>FNC04-512</td>
<td>Use of Acid Reclaimed Mine Land for Commercial Blueberry Production</td>
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<td>Development of a Sustainable Hazel Nut Production Industry for Noble County, Ohio</td>
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<td>C. Linda Slater</td>
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<td>Sustainable Internal Parasite Control for Sheep in a Forage Based System</td>
<td>$5,580</td>
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<td>FNC04-528</td>
<td>Organic Food Trail</td>
<td>$5,624</td>
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<td>FNC03-456</td>
<td>Culinary and Ornamental Herbs-Adding to a Grain and Livestock Family Farming Operation</td>
<td>$5,500</td>
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<td>FNC03-466</td>
<td>Sustainable Adapted Year-Round Production of Chemical-Free Strawberries</td>
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<td>FNC03-468</td>
<td>Development and Testing of a Mycorrhizal Inoculum for Ericaceous Ornamental and Small Fruit Crops</td>
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<td>Developing a Large-Scale Rotational Grazing System to Improve the Sustainability of and Profitability of a Cow-Calf Operation in Appalachia</td>
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<td>Southern Ohio Shrimp Project</td>
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<td>FNC02-394</td>
<td>Agroforestry Practices of Ginseng and Goldenseal in Natural Stand of Hardwood Forest Trees</td>
<td>$5,788</td>
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<td>Planning for Profitable and Sustainable Fiber Markets in Northeast Ohio</td>
<td>$2,709</td>
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<td>Northeastern Ohio Local Warehouse Distribution and Marketing Initiative</td>
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<td>Sustainable Blueberry Production Using Geotextile Fabric and Gravel Mulch for Weed/Water Management</td>
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<td>Country Living Field Day: A Method to Educate Farmers About Sustainable Agriculture Alternatives</td>
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<td>Testing Food Grade Soybeans for Japanese Market</td>
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<td>Culinary Herbs for Direct Marketing</td>
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<td>Micro Bakery</td>
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<td>Using Animals to Manage Pawpaw Patches</td>
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<td>Extending the Fall and Winter Grazing Period Using Turnips, Grazing Corn, and Rye</td>
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<td>Jim Hoorman</td>
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<td>Building a High Value Market for the Whole Lamb</td>
<td>$8,310</td>
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<td>Vermicompost of Agricultural Wastes into an Efficient Plant Growth Media in Order to Create a Sustainable Production System</td>
<td>$2,310</td>
<td>Andrzej Kazek</td>
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<td>Winter Speaker Series for the Homerville Wholesale Produce Auction Growers</td>
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<td>Maximizing Profits by Grazing a Winter Cover Crop and Monitoring Nutrient Availability for the Subsequent Corn Crop</td>
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<td>Increasing Production in Native Stands of Pawpaws</td>
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<td>Best Cultivation Practices for At-Risk Medicinal Herbs</td>
<td>$11,138</td>
<td>Charlie Hamber</td>
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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>
<td>$2,398</td>
<td>Alicia Bongue</td>
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<td>Low Input, Energy Efficient Greenhouse Construction Workshop Suitable for Northeastern Ohio</td>
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<td>Developing a Farm Marketing Association to Support Sustainable Agricultural Enterprises</td>
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<td>Cereal Rye Cover Crop for Control of Onion Grasses (Allium spp.)</td>
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<td>Evaluating Sustainable Ag Products in Relationship to Cation Exchange Capacity and Base Saturation</td>
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<td>Alternate Vegetable Crop Irrigation System for Remote Areas</td>
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<td>Linking Sustainable Agriculture Production with Low-income Consumer and Minorities</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>
<td>Ted Bartlett Silver Creek Farm</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>
<td>Rich Bennett</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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<td>FNC92-026</td>
<td>Evolution of Rotary Spader as Primary Tillage Tool in Various Soils</td>
<td>$2,430</td>
<td>Christopher Werronen</td>
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<td>GNC21-335</td>
<td>Exploring the synergistic potential of fungicides and parasites as stressors of bumble bee health and pollination services in greenhouse tomatoes</td>
<td>$14,993</td>
<td>Dr. Frances Sivakoff Ohio State University Emily Runnion The Ohio State University</td>
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<tr>
<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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<tr>
<td>GNC20-299</td>
<td>&quot;How are you really doing?&quot;: Social Sustainability of Beginning Farmers</td>
<td>$14,797</td>
<td>Michelle Kaiser Ohio State University College of Social Work Fiona Doherty Ohio State University College of Social Work</td>
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<tr>
<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 Ohio State University Tvisha Martin Ohio State University</td>
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<tr>
<td>Grant No.</td>
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<td>Amount</td>
<td>Principal Investigator(s)</td>
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</table>
| GNC20-309       | Effect of recurring flooding on greenhouse gas emissions, soil C and N contents and forage quality in grazing and hay fields. | $13,488 | Marilia Chiavegato  
Ohio State University  
Marina Miquilini  
Ohio State University |
| GNC19-278       | Evaluation of Biological Control Agents as a Sustainable Disease Management Strategy for Fire Blight Control in Apples in Ohio | $14,813 | Melanie Ivey  
The Ohio State University  
Alejandra Jimenez Madrid  
The Ohio State University |
| GNC18-259       | Prevention of Avian Pathogenic Escherichia coli (APEC) Infections in Poultry Using Novel Probiotics | $11,817 | Dr.Gireesh Rajashekar  
The Ohio State University  
Dipak Kathayat  
The Ohio State University |
| GNC18-260       | Combined Effects of Inundative Biocontrol and Anaerobic Soil Disinfestation (ASD) Using Non-Host Cover Crops as Carbon Sources for Clubroot Management in Cruciferous Crops | $11,995 | Dr Sally Miller  
The Ohio State University, Dept of Plant Pathology  
Ram Khadka  
The Ohio State University |
| GNC18-272       | I Do Not Think It Means What You Think It Means: Explorations of Mental Models of Soil Health | $11,810 | Dr. Steven Culman  
The Ohio State University  
Dr. Jordon Wade  
University of Missouri |
| GNC17-246       | Lady beetle in the city: Does diet overlap explain patterns of Native Lady Beetle Abundance in urban farms and greenspaces? | $11,924 | Mary Gardiner  
The Ohio State University  
Denisha Parker  
The Ohio State University |
| GNC17-248       | Entomopathogenic Nematode Control of the Asiatic Garden Beetle, Maladera castanea, in Corn | $11,995 | Dr Kelley Tilmont  
The Ohio State University  
Adrian Pekarcik  
The Ohio State University |
| GNC16-230       | Augmentative Biological Control of Spider Mites on Hops | $11,432 | Celeste Wetly  
The Ohio State University  
Susan Ndiaye  
The Ohio State University |
| 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  
The 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  
The 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  
The Ohio State University |
ON FARM RESEARCH/PARTNERSHIP GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
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<th>SARE Support</th>
<th>Project Leaders</th>
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<tbody>
<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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<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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<td>The Ohio State University</td>
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<tr>
<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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<tr>
<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>Ohio State University-Ashtabula ARS</td>
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### SUSTAINABLE COMMUNITY INNOVATION GRANTS

<table>
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<th>Project #</th>
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<th>Project Leaders</th>
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<tbody>
<tr>
<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 Central State University</td>
</tr>
<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 Ohio State University-Ashtabula ARS</td>
</tr>
<tr>
<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 The Ohio State University</td>
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<tr>
<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 Ohio State University Dr.VINAYAK SHEDEKAR THE OHIO STATE UNIVERSITY</td>
</tr>
</tbody>
</table>

### YOUTH EDUCATOR GRANTS

<table>
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<tr>
<th>Project #</th>
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<th>Project Leaders</th>
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<tbody>
<tr>
<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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<tr>
<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>
</tr>
<tr>
<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>
</tr>
<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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<tr>
<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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<tr>
<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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<tr>
<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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<tr>
<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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<tr>
<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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</table>
YENC14-072  Community Giving Garden  $1,978  April Hoy  
Stratford Ecological Center

YENC13-062  Advocating for Sustainable Agriculture in Grades K-12  $2,000  Stephanie Jolliff  
Ridgemont FFA

YENC13-067  Sustainable Agriculture: Instruction, Application, and Community Outreach Utilizing Recirculating Aquaponics Systems  $2,000  Dr. Kevin Savage  
Cincinnati Hills Christian Academy

YENC10-027  Direct Marketing Raspberries for a Healthy Community  $1,977  Rodney Throckmorton  
Lighthouse Youth Center

YENC09-018  Youth Driven Community Service Garden  $1,975  April Hoy  
Stratford Ecological Center

<table>
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<tbody>
<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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</table>

Total funding from the USDA SARE program to Ohio  
$8,095,494

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).