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 7,800 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, granteeproduced information products and other educational materials.

SARE: Advancing the Frontier of Sustainable Agriculture in...

North Dakota

Project Highlight: Long-Term Stability Through Integrated Production

In recent years, extreme volatility in crop and beef cattle prices, influenced by highly variable weather patterns including drought, has made the business side of commodity farming and ranching difficult to manage. In North Dakota, researchers are suggesting that a sea of calm in this volatility might reside in the soil.

With a five-year SARE grant, North Dakota State University researchers sought to determine if an integrated crop and beef cattle production system, which uses grazing and crop rotation to build soil health, could provide more long-term stability than a conventional system.

Their primary objective was to compare yields and returns of continuous wheat production and wheat grown in a five-year rotation that included cover crops, forage crops and cattle grazing. At first the yield of continuous wheat was higher, but that gradually changed as the soil in the rotational system grew more productive. By the fifth year, the yield of wheat in rotation was 40 percent higher. “How that occurred is clearly a demonstration of the soil’s power to grow nutrients,” said Douglas Landblom, the project coordinator.

Over five years the net return per acre was $10 higher for wheat in rotation, and the production cost was lower. The profit margin per steer was $307 higher when cattle grazed this system and spent 76 fewer days in the feedlot than a control group.

For more information on this project, see sare.org/projects, and search for project number LNC11-335.

SARE in North Dakota

northcentral.sare.org/state-programs/north-dakota

$5,793,073 in total funding

129 grant projects

(since 1988)

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

www.sare.org
**SARE Grants in North Dakota**

Total awards: 129 grants
- 35 Research and Education
- 12 Professional Development Program
- 55 Farmer/Rancher
- 11 Graduate Student
- 4 On Farm Research/Partnership
- 6 Youth Educator
- 6 Youth

Total funding: $5,793,073
- $4,162,309 Research and Education
- $800,847 Professional Development Program
- $578,933 Farmer/Rancher
- $125,924 Graduate Student
- $108,810 On Farm Research/Partnership
- $13,861 Youth Educator
- $2,390 Youth

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/north-dakota](northcentral.sare.org/state-programs/north-dakota)

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**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/north-dakota](northcentral.sare.org/state-pages/north-dakota) to learn more.

Karl Hoppe  
NDSU - CREC  
(701) 652-2951  
karl.hoppe@ndsu.edu

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**For detailed information on SARE projects, go to**  
[www.SARE.org](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.
North Dakota has been awarded $5,793,073 grants to support 127 projects, including but not limited to, 33 research and/or education projects, 12 professional development projects and 55 producer-led projects. North Dakota 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>
</table>
| LNC21-455  | Is grass-fed beef from cattle grazing a diverse mixture of plants healthier for consumers? | $248,773     | Dr.Scott Kronberg, PhD  
USDA-ARS, Northern Great Plains Research Laboratory |
| LNC19-420  | Examining the role of shelterbelts (tree plantings) on early-season honey production and hive growth of honeybees in the North Central Region (NCR). | $199,922     | Benjamin Geaumont  
North Dakota State University |
| LNC19-424  | Perennial flax: a new crop for sustainable agriculture in the Northern Plains | $199,998     | Dr.Burton Johnson  
North Dakota State University |
| LNC19-426  | Grazing Management Practices to Enhance Soil Health in the Northern Great Plains | $198,168     | Miranda Meehan  
North Dakota State University |
North Dakota State University |
| LNC16-381  | Effect of Long-Term Integrated Crop and Livestock Systems on Forage Finishing, Soil Fertility, Nitrogen Mineralization, Carbon Sequestration, and Profitability | $199,998     | Douglas Landblom  
North Dakota State University-Dickinson Research Extension Center |
| LNC15-373  | It All Adds Up: Data Collection to Increase Profitability of Small-scale Vegetable Growers on the Northern Great Plains | $196,145     | Holly Mawby  
Dakota College at Bottineau ECH |
| LNC12-340  | Evaluating the Sustainability of Beef Cattle Breeding Systems | $199,995     | Dr.Carl Dahlen  
North Dakota State University |
| LNC12-347  | Increasing Varietal Suitability and Availability of Cowpea and Forage Radish Cover Crop Seed for Northern Climates | $199,776     | Frank Kutka  
NPSAS  
Karri Stroh  
Northern Plains Sustainable Agriculture Society |
| LNC11-332  | Effect of Optimal Water Management for Sustainable and Profitable Crop Production and Improvement of Water Quality in Red River Valley | $199,706     | Dr.Xinhua Jia  
North Dakota State University |
| LNC11-335  | Increasing Sustainability of Livestock Production of the Northern Great Plains | $199,736     | Douglas Landblom  
North Dakota State University-Dickinson Research Extension Center |
LNC09-308 Ranchers Mentoring Network - Ranchers Sharing Ideas with Ranchers $175,000 Mary Stevens Dakota Prairies RC&D

LNC09-310 Cover Crop Selection and Use in Organic No-Till Farming $155,730 Dr.Patrick Carr Montana State University

LNC09-312 Southwest North Dakota Soil Health Demonstration $175,000 Toby Stroh Dakota West RC &D Ty Eisenbraun Central Stark and Western Soil Conservation

LNC06-265 Organic Education: Increasing Opportunities for Farmers and Processors $114,811 Brit Jacobson FARRMS

LNC04-250 Promoting sustainable range-livestock enterprises through partnerships which develop producer mentoring networks for best management practices $93,006 Paul Nyren North Dakota State University Central Grasslands

LNC02-201 Bringing Small-Grain Variety Development and Selection onto Organic Farms $72,953 Dr.Patrick Carr Montana State University

LNC02-211 Aiding in the Coexistence of Sustainable and Biotech Agriculture by Minimizing Contamination $99,978 Bradley Brummond North Dakota State University

LNC01-182 Enhancing Grain Production of Great Plains Cropping Systems with a Legume-Pasture Phase $42,676 Dr.Patrick Carr Montana State University

LNC01-196 Agroecology Analysis of Farming Systems: A Summer Course $18,303 Dr.Mary Wiedenhoeft Iowa State Univ

LNC00-162 Soil Quality Changes In Different Residue Management Systems Compared To Grassland After 22 Years $20,000 Edward Deibert North Dakota State University

LNC99-153 Using Alternative Forages on Traditional Small Grain Crop Land in Rotational Grazing Systems for the Northern Great Plains $36,670 Woodrow Poland North Dakota State University, Dickinson Research Extension Ctr

LNC98-126 Marketing Sustainable and/or Organic Products in Small Metro Areas $41,355 David Watt Dept of Agricultural Economics, North Dakota State University

LNC97-113 Maximizing Forage and Minimizing Grain Intake in Bison Fed for Meat $78,360 Vern Anderson Carrington Research/Extension Center, North Dakota State University

LNC92-010.3 Substituting Legumes for Fallow in U.S. Great Plains Wheat Production $113,000 John Gardner North Dakota State University

LNC91-032 Trap Cropping to Minimize Insecticide Application and Farm Input Costs in Sunflower Production $35,455 Gary Brewer North Dakota State University

LNC90-010.2 Substituting Legumes for Fallow in U.S. Great Plains Wheat Production $185,000 John Gardner North Dakota State University

LNC90-030 Ruminant Production Systems Inter-Related with Non-Traditional Crop Management $108,800 Vern Anderson Carrington Research/Extension Center, North Dakota State University
LNC89-010.1  Substituting Legumes for Fallow in U.S. Great Plains Wheat Production  $82,000  John Gardner  North Dakota State University

LNC89-013.1  Evaluation of Integrated Low-Input Crop-Livestock Production Systems  $82,700  John Gardner  North Dakota State University

LNC89-023  LISA IMPACTS: Social, Economic, and Demographic Impacts of Low-Input/Sustainable Agriculture Practices on Farms and Rural Communities in the Northwest Area  $65,300  David Watt  Dept of Agricultural Economics, North Dakota State University

LNC88-010  Substituting Legumes for Fallow in U.S. Great Plains Wheat Productions  $74,000  John Gardner  North Dakota State University


PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| ENC20-196  | Training for Effective Delivery of Science-Based Soil Health Information – It’s about More than Just Content, It’s About Messaging Skills | $89,817      | Abbey Wick  
NDSU                                                  |
| ENC18-165  | Cover Crops and Forage Grazing Training Program in North Dakota               | $74,855      | Dr.Marisol Berti  
North Dakota State University                           |
| ENC15-142  | Enhancing Soil Health with Cover Crops in North Dakota: Training Program      | $71,012      | Dr.Marisol Berti  
North Dakota State University                           |
| ENC12-131  | Expanding Opportunities for Sustainable Small Farm Specialty Crop Producers: Training Educators in Feasibility Analysis, Marketing, and Community Building | $74,980      | Dr.Glenn Muske  
North Dakota State University                           |
| ENC08-105  | Soil Health/Soil Biology Training for the Northern Plains                     | $73,923      | Tom Hanson  
ND Association of Soil Conservation Districts            |
| ENC01-055  | Bison Education in the Northern Plains                                       | $50,740      | Thomas Hanson  
North Dakota State University                           |
| ENC99-042  | Reservation Education of Leafy Spurge Control with Multi-Species Grazing of Sheep and Cattle | $76,476      | Thomas Hanson  
North Dakota State University                           |
| ENC98-030  | Marketplace ‘99                                                                | $12,600      | Thomas Hanson  
North Dakota State University                           |
| ENC98-031  | Revitalizing Community Development in the Dakotas                             | $64,700      | Thomas Hanson  
North Dakota State University                           |
| ENC97-002.2| Sustainable Agriculture Distance Learning                                      | $57,700      | Thomas Hanson  
North Dakota State University                           |
| ENC96-002.1| Sustainable Agriculture Training Project for North Dakota and South Dakota     | $32,044      | Darnell Lundstrom  
North Dakota State University Extension Service          |
<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>FNC21-1270</td>
<td>Strip-Till Corn in Established Rotational Organic Alfalfa</td>
<td>$8,051</td>
<td>Steve Enger</td>
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<td>Enger Farms</td>
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<tr>
<td>FNC20-1218</td>
<td>Multi-Species Bale Grazing to Build Soil Health</td>
<td>$18,000</td>
<td>Erin Gaugler</td>
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<td></td>
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<td></td>
<td>Gaugler Farm and Ranch</td>
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<tr>
<td>FNC20-1234</td>
<td>Development of an integrated ventilation, thermal mass, and lighting system for the first Deep Winter Greenhouse (DWG) in North Dakota</td>
<td>$8,980</td>
<td>Derek Lowstuter</td>
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<td>Folly Hill Farm</td>
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<tr>
<td>FNC20-1236</td>
<td>Honey bee breeding program designed for the commercial beekeeping industry to provide sustainable breeding stock using artificial insemination.</td>
<td>$9,000</td>
<td>Megan Mahoney</td>
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<td>MaHoney Bees and Queens LLC</td>
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<tr>
<td>FNC20-1248</td>
<td>Organic No-till in Perennial Cover</td>
<td>$8,826</td>
<td>James Ryan, Mr owner</td>
</tr>
<tr>
<td>FNC19-1164</td>
<td>Improving plant diversity in non-diverse grasslands on a small family farm in southwest North Dakota</td>
<td>$8,879</td>
<td>Benjamin Geaumont</td>
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<td>Geaumont Farms</td>
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<tr>
<td>FNC18-1123</td>
<td>Bale Grazing to Build Soil Health</td>
<td>$15,000</td>
<td>Erin Gaugler</td>
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<td>Gaugler Farm and Ranch</td>
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<tr>
<td>FNC17-1085</td>
<td>Controlling Imported Cabbage Worm and Cabbage Looper Damage in Brassicaceae Crops in an Organic Production System</td>
<td>$7,500</td>
<td>Ross Lockhart</td>
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<td>Heart and Soil Farm</td>
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<td>FNC17-1098</td>
<td>Improving Soil Health by Rotationally Grazing Cattle on Full Season Cover Crop Cocktails on a No-till Farm in the Red River Valley of North Dakota</td>
<td>$15,000</td>
<td>Clint Severance</td>
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<td>From The Ground Up Farm</td>
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<td>FNC15-1011</td>
<td>Quinoa Production in Central North Dakota</td>
<td>$13,516</td>
<td>Glendon Philbrick</td>
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<td>Hiddendale Farm</td>
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<td>FNC14-961</td>
<td>Growing Peaches, Pears, Cherries and Strawberries in an Unheated High Tunnel</td>
<td>$7,499</td>
<td>Alyce Ann Lunde</td>
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<td>Lakeside Garden</td>
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<tr>
<td>FNC13-908</td>
<td>Utilizing cover crops to increase productivity, health &amp; vigor on tame grass pasture</td>
<td>$6,905</td>
<td>Donnie Feiring</td>
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<td>Feiring's Cattle Co.</td>
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<tr>
<td>FNC13-913</td>
<td>Kesselring-Kindred ND Native Wild Grape Vineyard: Establishing Wild Grapes in a Vineyard Setting</td>
<td>$7,500</td>
<td>Jason Kesselring</td>
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<td>Kesselring Vineyards</td>
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<tr>
<td>FNC13-924</td>
<td>New Buckwheat Varieties for Greater Sustainability</td>
<td>$18,881</td>
<td>Anne Ongstad</td>
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<td>Whitman Ranch</td>
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<tr>
<td>FNC13-929</td>
<td>New Method to Eliminate Ovine Progressive Pneumonia in Sheep Flocks in North Dakota</td>
<td>$18,250</td>
<td>Rick Schmidt</td>
</tr>
<tr>
<td></td>
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<td>NDSU Extension Service</td>
</tr>
</tbody>
</table>
FNC10-796  Developing a mob grazing system to improve the sustainability and profitability of a cattle operation in North Dakota.  $5,991  Krista Reiser  Reiser Ranch  Jeremia Reiser  Reiser Ranch

FNC10-828  Optimizing sorghum-sudan/forage soybean cover crop populations and screening sorghum varieties for organic cover crop performance, forage, and seed production in the Northern Great Plains region  $17,912  Richard Gross  David Podoll  raymond berry

FNC10-832  Bringing Hayland and CRP into Production Using Cover Crops and No-Till using Forage Soybeans and Other Legumes, What Works Best?  $6,000  Jeremy Wilson  Wilson Farm

FNC10-837  Multi-Species Cover Crops Control Weeds and Improve Fertility in Organic No-Till Fields  $18,000  Linda Grotberg  Prairie Farm Pilot Project

FNC09-750  Reducing the Impact of Soybean Aphid on Organic Soybeans through Multiple Management Tactics.  $18,000  Mark Askegaard

FNC09-754  Screening Open-Pollinated Vegetable Varieties Bred and Released In North Dakota for Suitability to Organic Production Systems and Local Markets  $17,988  Theresa Podoll  Prairie Road Organic Farm  Steve Zwinger  North Dakota State University Carrington Research Extension Center  Marvin Baker  North Star Farms

FNC08-702  Building Organic Soil Health with Green Manure and Cover Crops  $1,807  Pat Frank

FNC08-709  Building the Local Food Link in Valley City  $17,829  Sharon Clancy

FNC08-717  Small and Mid-sized Farm Sustainability Through Crop Diversity and Photosynthesis  $18,000  Kelly Severson

FNC08-738  Organic No-Till- The Ultimate Cropping System For Soil Health and Farm Sustainability  $18,000  Linda Grotberg  Prairie Farm Pilot Project

FNC07-667  Is It Possible? Can We Have Organic Sustainable Agriculture with Minimal Tillage while Soil Building and Producing High Quality Forage for Grass-Fed Beef  $5,920  Anne Ongstad  Whitman Ranch

FNC06-596  Oyate Tawoju (People’s Garden)  $18,000  Delano Dogskin

FNC06-607  Kids Get the Skinny on Whole Grains  $18,000  Adrian Biewer

FNC06-625  Prairie Farm Pilot Project - Transitioning from Conventional to Organic Farming  $18,000  Richard Grothberg

FNC05-587  Central North Dakota Pastured Poultry Institute  $17,910  Linda Grothberg  Prairie Farm Pilot Project

<table>
<thead>
<tr>
<th>Project Code</th>
<th>Project Title</th>
<th>Budget</th>
<th>Principal Investigator(s)</th>
</tr>
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<tbody>
<tr>
<td>FNC05-592</td>
<td>Alternative Nutrient Recycling System</td>
<td>$6,000</td>
<td>Kevin Throener</td>
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<tr>
<td>FNC04-507</td>
<td>Colgate Identity Preserved Growers Association</td>
<td>$18,000</td>
<td>William Satrom</td>
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<tr>
<td>FNC04-519</td>
<td>Developing &amp; Maintaining Sustainable Agroforestry &amp; Natural Resource Systems on the Middle Sheyenne Watershed in East-Central North Dakota</td>
<td>$17,120</td>
<td>Elmer Bakke</td>
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<td>FNC03-442</td>
<td>Evaluation of an Annual Cover Crops for No-till Management</td>
<td>$5,868</td>
<td>Clark Lemley</td>
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<td>FNC03-452</td>
<td>Portable Poultry Eviscerating Unit</td>
<td>$15,590</td>
<td>Dennis Schill</td>
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<tr>
<td>FNC03-461</td>
<td>Beaver Creek Pumpkin Patch/Corn Maze</td>
<td>$1,089</td>
<td>Andrew Vetter</td>
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<td>Beaver Creek Pumpkins</td>
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<tr>
<td>FNC02-400</td>
<td>Bigg Dogg Cuisine Expansion</td>
<td>$5,814</td>
<td>Linda Ova</td>
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<tr>
<td>FNC01-334</td>
<td>Growing Commercial Cabbage in Heavy Loam Soils in Northern North Dakota</td>
<td>$14,495</td>
<td>Mike Johnston</td>
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<tr>
<td>FNC01-345</td>
<td>Sales Plan Development for Expansion of a Family On-Farm Flour Milling Company</td>
<td>$5,000</td>
<td>Dennis Kubischta</td>
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<td>Summers Harvest Flour Mill</td>
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<tr>
<td>FNC01-360</td>
<td>Conducting Research on the Eradication of Canadian Thistle in Small Grains Using Sustainable Farming Methods</td>
<td>$3,236</td>
<td>Harold Johnson</td>
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<tr>
<td>FNC00-323</td>
<td>Patrie’s Raspberries on the Prairie Website Development and Internet Sales</td>
<td>$4,738</td>
<td>Patti Patrie</td>
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<tr>
<td>FNC99-257</td>
<td>Adding Value to Medium to Low Grade Wool</td>
<td>$10,160</td>
<td>Janet Jacobson</td>
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<td>FNC99-259</td>
<td>Summers Harvest Flour Mill</td>
<td>$5,000</td>
<td>Dennis Kubischta</td>
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<td>Summers Harvest Flour Mill</td>
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<tr>
<td>FNC99-273</td>
<td>Saving our Ranch with Grass</td>
<td>$4,923</td>
<td>Brian Maddock</td>
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<tr>
<td>FNC98-229</td>
<td>Don’t Take Grass for Granted</td>
<td>$1,997</td>
<td>Jack Orts</td>
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<tr>
<td>FNC97-164</td>
<td>Promotion of Crop Diversification and Research of Speciality Crop Markets for Western North Dakota</td>
<td>$9,680</td>
<td>Curt Trulson</td>
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<td>West Dakota Feed &amp; Seed Steering Committee</td>
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<tr>
<td>FNC97-176</td>
<td>Grazing Yearlings on Annual Forage Pastures</td>
<td>$4,986</td>
<td>Paul Klamm</td>
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<tr>
<td>FNC96-143</td>
<td>Networking and Education of Sustainable Bison Producers in the Northern Plains</td>
<td>$9,966</td>
<td>David Lautt</td>
</tr>
</tbody>
</table>
FNC95-090  Interseeding Field Peas and Yellow Mustard for Enhanced Moisture Retention and Harvesting Ease in a No-till System  $4,980  Vern Mayer

FNC95-120  Incorporating Holistic Resource Management  $4,423  Larry Woodbury

FNC95-128  Identifying Management Practices that Enhance the Probability of Producing Quality Durum Wheat  $5,000  Lawson Jones

FNC94-073  Bio-Control of Leafy Spurge  $4,930  Dennis Dietz

FNC94-087  Hairy Vetch in Minimum-Till Organic Rotation  $4,399  James Ryan

FNC92-016  Strip Tilling Sunflowers into Small Grain Residue  $4,400  Lawson Jones

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### GRADUATE STUDENT GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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</thead>
</table>
| GNC21-332 | The impact of agricultural practices on microbial spatiotemporal dynamics and contributions to soil health | $14,883 | Samiran Banerjee  
North Dakota State University  
Sakshi Paudel  
North Dakota State University |
| GNC20-305 | Economic Impacts of Bats in Dakota Agroecosystems: Do Insect-Eating Bats Reduce Pesticide Needs and Contribute to Plant Pollination? | $14,850 | Erin Gillam  
North Dakota State University  
Mandy Guinn, M.Sc.  
United Tribes Technical College  
Hanna Karevold  
North Dakota State University |
| GNC19-288 | Development of Breeding Lines and Molecular Tools for Selection of Grapevines with Altered Canopy Dynamics via Dissected Foliar Morphology | $14,951 | Harlene Hatterman-Valenti  
North Dakota State University  
Dr.Xuehui Li  
North Dakota State University  
Andrej Svyantek  
NDSU |
| GNC16-219 | Assessing Multi-Species Cover Crop Responses to Variable Soil Moisture and Soil Types | $11,928 | Dr.Greta Gramig  
North Dakota State University  
Kenneth Beamer  
North Dakota State University |
| GNC15-202 | Effects of Pre-breeding Administration of Injectable Trace Mineral Supplements on Subsequent Reproductive Performance in Beef Herds | $10,000 | Dr.Carl Dahlen  
North Dakota State University  
Mellissa Crosswhite  
Oklahoma State University |
| GNC10-123 | Weed Supression with Winter Annual Cover Crops in Potato | $9,950 | Grant Mehring  
NDSU Dept of Plant Sciences |
| GNC10-135 | Integration of Biological Control and Native Cover Crops for Canada Thistle Control | $10,000 | Dr.Greta Gramig  
North Dakota State University  
Erin Burns  
North Dakota State University |
| GNC09-106 | Determining efficacy of Waste Lime in Managing Fusarium Root Rot of Field Peas | $9,964 | Dr.Rubella Goswami  
North Dakota State University  
Dr.Mohamed Khan  
North Dakota State University  
Dr.Kishore Chittem  
NDSU |
## GNC09-113
Maintenance of Natural Sustainable Riparian Communities Located Within the Middle Sheyenne Watershed

- **Project Leaders:** Edward DeKeyser, North Dakota State University; Miranda Meehan, North Dakota State University

- **SARE Support:** $9,528

## GNC08-092
Reducing cost to livestock producers: Very large scale aerial (VLSA) imagery compared to traditional range field monitoring methods

- **Project Leaders:** Christopher Schauer, North Dakota State University; Amanda Gearhart, North Dakota State University

- **SARE Support:** $9,870

## GNC06-062
Effect of maternal diet on ovarian development in potential replacement ewe lambs

- **Project Leaders:** Joel Caton, North Dakota State University; Anna Grazul-Bilska, North Dakota State University; Kimberly Vonnahme, North Dakota State University; Wendy Arndt, North Dakota State University

- **SARE Support:** $10,000

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### ON FARM RESEARCH/PARTNERSHIP GRANTS

**Project #** | **Project Title** | **SARE Support** | **Project Leaders**
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ONC17-036 | Adoption of Cover Crops to Build Soil Health in the Northern Plains (Continuation) | $29,488 | Abbey Wick, NDSU

ONC17-037 | Evaluating Early Maturing, Cold-Tolerant White Sorghum Cultivars (Part 2) | $22,303 | Steve Zwinger, North Dakota State University Carrington Research Extension Center

ONC15-007 | Evaluating Early-Maturing, Cold-Tolerant White Sorghum Cultivars | $29,998 | Frank Kutka, NPSAS

ONC15-012 | Adaption of Cover Crops to Build Soil Health in the Northern Plains | $27,021 | Abbey Wick, NDSU

### YOUTH EDUCATOR GRANTS

**Project #** | **Project Title** | **SARE Support** | **Project Leaders**
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YENC19-141 | Sustainable AG Day: Sustainable Agriculture Promotion and Education Day for Middle School Students in Mid-Central North Dakota | $4,000 | Dr. Indrani Sasmal, Dakota College at Bottineau; Dr. Jerry Migler, Dakota College at Bottineau

YENC13-061 | Squash in Sustainable Food Production | $2,000 | Sue Isbell, NDSU Sioux County Extension

YENC12-042 | ND Western 4-H Camp SARE Garden | $1,998 | Michell Effertz, Irene Graves

YENC12-057 | Utilizing Cover Crops for Sheep | $1,982 | Rick Schmidt, NDSU Extension Service

YENC10-029 | Growing Sustainable Agriculture in Southwest North Dakota | $1,881 | Andrea Bowman, Bowman County Extension

YENC08-005 | Sustainable Soils | $2,000 | Marcus Lewton, South Heart School/North Dakota Association of Ag

### YOUTH GRANTS

**Project #** | **Project Title** | **SARE Support** | **Project Leaders**
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YNC10-059 | The effect feeding flax to hens on the nutritional value of eggs | $400 | Ketti Ringwall
YNC09-033 A Garlic CSA Project $392 Neil Podoll
YNC09-042 "Chicken Riddle" Poultry Project $400 Abby Braaten
YNC09-047 Lamb Growth Study $398 Cody Knudson
YNC09-049 Soil Health Project $400 Kalen Hartel
YNC08-019 Soil Health Project $400 Kalen Hartel

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$5,793,073

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).