

2021 Preproposal

NCR-SARE Research and Education Grant Program

SARE stands for Sustainable Agriculture Research and Education, a competitive grants program funded by USDA-NIFA. The North Central Region (NCR) includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. NCR-SARE strengthens communities, increases farmer/rancher profitability, and improves the environment by supporting research and education.

Learn more about North Central Region SARE at www.northcentralsare.org.

The **Research and Education (R&E) Grant Program** provides funds to collaborative teams of scientists, farmers/ranchers, institutions, organizations, and educators who are exploring sustainable agriculture through research projects or education¹/demonstration projects. Preproposals from any location are accepted, but the preproposal must convince reviewers that project results will benefit NCR agriculture. Typically, proposals come from university and extension staff, the agricultural nonprofit sector, and from people who work on research farms and experiment stations. There is no requirement that applicants have a specific affiliation, but awarded entities must complete required federal grant protocols when applicable, for example animal care and use protocol verification. Contact the NCR-SARE office for more information.

Amount of Funding Available

We anticipate that roughly **\$3.0 million** will be available to fund approximately twelve grant projects, with individual grants not to exceed \$250,000 total for projects lasting up to three years (36 months). In 2020, NCR-SARE received 153 preproposals, invited 33 to be developed into full proposals, and selected 13 R&E proposals for funding. The average size of funded grants was \$227,000 and grant lengths ranged from 18 to 36 months.

Preproposals will be reviewed by the NCR-SARE Administrative Council during the winter. All preproposal authors will be notified in early February, 2021. Selected project coordinators will be mailed a call for proposals and invited to develop **full proposals due in late March, 2021**. The NCR-SARE Technical Committee will review proposals and funding decisions will be made by the NCR-SARE Administrative Council in late July 2021. We anticipate that **project funds will be available during the fall of 2021**.

We have a strong commitment to diversity. We encourage projects that either involve minority-serving institutions and non-profits (including 1890 colleges, 1994 colleges, and Hispanic-serving institutions) or in other ways include work with historically-underserved² audiences. We also encourage projects that, where feasible, include activities addressing the social dimensions of sustainability.

¹ Education projects can be extension/outreach or other informal education projects, but SARE cannot fund formal degree or certificate programs

² USDA defines historically-underserved audiences to include socially-disadvantaged producers, limited-resource producers, beginning farmers/ranchers, and veterans. They further define socially-disadvantaged farmers and ranchers as belonging to the following groups: American Indians or Alaskan Natives, Asians, Blacks or African Americans, Native Hawaiians or other Pacific Islanders, Hispanics, and women.

Desired Outcomes for 2021 Research and Education Projects

Preproposals must address issues of sustainable agriculture of current and potential importance to the North Central Region. NCR-SARE is interested in projects that lead to resilient agricultural systems. Successful projects should contribute to the following NCR-SARE broad-based outcomes:

- Improving the profitability of farmers/ranchers and associated agricultural businesses,
- Sustaining and improving the environmental quality and natural resource base on which agriculture depends, and
- Enhancing the quality of life for farmers/ranchers, communities, and society as a whole.

Preproposals should clearly explain:

- Relevancy of the project to sustainable agriculture in the North Central Region, including identifying expected outcomes for the project and how they will assist NCR-SARE in working toward the broad-based outcomes listed above.

For the 2021 funding cycle of the Research and Education Grant Program, \$3.0 million is available for funding projects on any topic appropriate to the NCR-SARE program.

Long-term funding option

The North Central Region recognizes that some research/extension systems work is complex and requires a collaborative, interdisciplinary approach that takes many years to complete. To be effective, these projects are likely to exceed the time limits of North Central SARE's normal one-to-three year funding cycle. Projects that are long-term (more than 3 years) should identify themselves as a long-term project by checking the appropriate box in the on-line portion of the preproposal application.

Long-term projects that are funded will receive their funding in three-year increments, and additional cycles will be contingent on NCR-SARE receiving funding. Each additional increment (up to \$250,000 for the 3-year increment) of funding will be dependent on satisfactory performance in the first round based on reports submitted in a timely manner with yearly objectives and milestones reported, site visits and a detailed work plan for the next phase.

There are no priorities for long-term projects, but some examples of types of project topics that could be considered long-term include: soil/water quality enhancement or degradation, agroforestry systems, integrated crop-livestock systems, participatory action research and climate mitigation and/or adaptation.

PREPROPOSAL APPLICATION

Title of Preproposal

Growing an Organic Farm Research Network: A Framework to Better Connect Organic Producers with University-Based Researchers

Project Description

The Ohio Organic Farm Research Network will connect organic farmers and land-grant scientists to co-produce knowledge and increase innovation and resource sharing in organic agriculture. Our farmer-centered on-farm approach will increase the relevance and impact of research and engagement efforts.

Start and End Dates

November 1, 2021 – November 1, 2027

Resubmission? *Did you submit this project as a full proposal in a previous year?*

No.

Will your proposed research/outreach primarily focus on historically-underserved farmers/ranchers?

Yes. Our project will engage many limited resource farmers from traditionally underserved groups. Based on our recent statewide survey, many Ohio organic farms have low household income and gross farm sales (36% had household income <\$40,000; 80% had gross sales between \$10,000-\$250,000 in 2019). More than 60% of the state's organic growers are Amish and Mennonite, groups often left out of traditional research and extension efforts. Over a third have farmed for 10 years or less.

Project Funding Request

An itemized budget is no longer required at the preproposal stage, but please provide an estimate of your total funding request. You will be asked to mark your proposed request as:

- Less than \$50,000
- \$50,000 to \$99,999
- \$100,000 to 149,999
- \$150,000 to \$200,000
- **\$200,000 to \$250,000 (we asked at this level)**

In estimating your request, keep in mind:

- *Capital expenses for things like land purchases, general farm improvements, and construction of buildings, greenhouses, and laboratories are NOT allowed. Equipment is rarely allowed.*
- *SARE limits indirect costs to 10 percent of the total federal funds (11.11% total direct costs) provided under each award.*
- *Your total budget for an R&E grant cannot exceed \$250,000*

Project Focus

*Indicate whether your preproposal is **primarily**: (check only one of the options)*

- ✓ **a research project (all research projects should include some outreach)**
- an education outreach/demonstration project

Long-term Funding Option

Check if this is being submitted as a long-term funding option (see instructions for clarification.)
Yes.

Systems Category

*Select the **ONE** Systems category that best represents the project from the following:*

Animal Production—including aquaculture and apiary; Crop Production; **Education & Training**; Energy; Farm Business Management; Natural Resources/Environment; Pest Management; Production Systems; Soil Management; Sustainable Communities

Commodity Category

*Indicate the **ONE** Commodity category that best represents the project from the following:*

This project is not commodity specific or doesn't apply to commodities; **Agronomic**; Fruits; Nuts; Vegetables; Other plants (herbs, natives, etc.); Animals; Animal Products; Misc. (mushrooms, syrup, other).

State

Indicate the state where the majority of the work will be done.

The majority of the work will be done in Ohio, but activities of our organic farmer research network will have direct relevance and connections to organic projects and programs in neighboring states.

BODY OF THE PREPROPOSAL

Project Summary (250 word limit)

A brief summary of the contents of your preproposal. The Summary should include a brief description of the problem and of the approach/methods proposed. It should include an abbreviated version of your proposed project outcomes, and a statement about how the outcomes are relevant to farmers and ranchers in the North Central Region.

Ohio ranks among the top states for many organic commodities and is currently second in the number of acres transitioning to organic certification. Relationships between Ohio's land grant universities (LGU) and organic producers have been inconsistent and underdeveloped, leaving current organic growers largely underserved by extension programming. Educational gaps have been filled by The Ohio Ecological Food and Farming Association (OEFFA), one of the region's largest and oldest organic certifiers. However, OEFFA lacks expertise in trial research. Ohio organic farmers are experimenting with innovative farm methods but would benefit from technical support and research to address production concerns and evaluate new technology.

Conversations between Ohio's LGU and organic communities identified a common interest in creating an organic farm research network (OFRN) to help the organic industry thrive through collaborative discovery and sharing of research-based knowledge. The Ohio OFRN will be a public/private partnership that will coordinate collaborative on-farm research projects that address relevant research questions utilizing knowledge and resources of farmers and scientists. By sharing in the creation and distribution of this research, farmers and scientists will have develop long-term productive relationship based on mutual understanding and respect.

Organic farmers will gain knowledge to better conduct and evaluate research trials. Researchers will gain a deeper understanding of organic production practices and research concerns. OFRN will also provide opportunities for student participation in applied research. By cooperatively producing and sharing research-based knowledge, the OFRN will accelerate discovery, evaluation, and adoption of innovations to improve organic farms' economic and environmental performance.

Project Objectives/Outcomes (100 word limit)

List the project objectives, and learning and action outcomes expected from your project activities. Learning outcomes are changes in the knowledge, awareness, skills, and attitudes of participants. Action outcomes include changes in the behavior or practices of the intended audience. You may also list system or condition change outcomes, which will eventually result from your project, even though those outcomes are longer-term outcomes and would be unlikely to occur within the one- to three-year period of your project. Specify the audience that will be involved in the project or that will use project results.

For more information about defining outcomes, see <https://umconnect.umn.edu/repre/>

Project objective

- Develop a sustainable collaborative Organic Farm Research Network in Ohio.

Learning outcomes

- Generate and share knowledge about impacts of organic farm management practices.
- Increase awareness and understanding of organic farming techniques, challenges, and benefits among land-grant researchers and educators.
- Increase awareness and understanding of research methods among organic growers.
- Build trust between farmers and researchers.

Action outcomes

- Increase interactions between researchers and organic growers.
- Foster well executed organic on-farm research by sharing tools and knowledge between farmers and researchers.
- Provide organic research experiences for students and faculty.
- Increase capacity to identify and respond to emerging organic production questions.

Relevance (300 word limit)

Explain how your project will solve a problem or address an issue significant to agricultural sustainability in the North Central Region.

Who will benefit? Tell how your approach is different from or superior to other ways to reach your objectives or proposed outcomes, as well as how it is different from or complementary to other projects that SARE has funded on this subject. (You can use the national projects database on the SARE website <http://www.sare.org> to search for information on other SARE-funded projects.) If your project will use genetically engineered varieties or organisms, state how their use will contribute to your project and make agriculture more sustainable.

While organic farming has expanded rapidly in Ohio, relationships between the state's two land grant universities and organic producers remain underdeveloped. Transition to organic production involves a steep learning curve as management tools and goals change, creating a definite need for organic research and education.

Traditional models of research and extension have been widely criticized for failing to account for farmer expertise. Organic research is further confounded by the holistic nature of organic systems, combined with a relative lack of resources and past research to draw from. University research often has little impact on organic farmers.

Organic farmers often experiment with management approaches themselves, but their findings are limited by inadequate research resources and the inability to aggregate observations across multiple farms.

Listening sessions with members of Ohio's organic farming community revealed three broad needs:

1. Enhanced opportunities for two-way knowledge exchange between university staff and organic farmers.
2. Increased attention from researchers to address organic farming production challenges.
3. Better organizational infrastructure to build trust and support long-term engagement between farmers and land grant researchers.

This proposal is a direct response to these needs. Our proposed on-farm research network creates opportunities for two-way knowledge exchange as farmers and university researchers combine their different observational skills and resources to address compelling research questions. By engaging farmers in the design, conduct, and dissemination of research, we expect outputs to have greater impact on organic producers' decision-making.

SARE has supported many on-farm research projects that target specific commodities and/or production problems. Our project is unique in its focus on organic farming systems and building an institutional framework that can address emerging research needs of Ohio's producers now and beyond the period of SARE funding. Our proposed network will also place farmers in a more central decision-making role than many prior projects.

Method/Approach (500 word limit)

Describe how your project will be implemented, including your general approach, activities and methods. In research preproposals, identify the research question, specify experimental units, treatments or other methods and measurements to be taken to the extent needed to give a general idea of the work to be done and findings it will yield. How will the information be shared in the North Central Region? If you are invited to submit a full proposal, you will provide more details. Similarly, education project preproposals may offer general descriptions of educational activities and intended audience; invited full proposals will be expected to identify specific groups, processes, relationships, etc.

We will build the organizational infrastructure and partnerships to create an Ohio Organic Farm Research Network (OOFRN). The project will provide small grants to support specific collaborative research trials involving groups of farmers and researchers addressing priority questions. Our project will cover the cost of data collection and analysis associated with the on-farm research trials. The OOFRN will also coordinate outreach and engagement activities and informational products to increase the reach and impact of on-farm research.

The OOFRN will combine the existing resources, programs, and networks of two major land grant institutions (Ohio State and Central State universities) and the Ohio Ecological Food and Farming Association (OEFFA), a leading organic certifier in Ohio and neighboring states. Together these organizations will support a collaborative public/private partnership with and for the state's organic farmers. These institutions each have a history of organic farming research and education projects, but never before have all three combined efforts to address state research needs.

While specific on-farm projects addressed by OOFRN will answer more concrete research questions (some of which will be detailed in the full proposal), the overall project is motivated by the hypothesis that **a collaborative on-farm research network that integrates contributions from scientists and farmers can dramatically accelerate the discovery and uptake of new knowledge in Ohio's organic farming industry**. Our approach involves several key activities that will help us test this hypothesis:

1. Establish the OOFRN as a formal partnership of OSU, CSU, and OEFFA; hire network facilitator.
2. Establish a farmer - scientist advisory board to guide OFRN decisions and priorities and review project progress annually.
3. Support farmer-scientist teams to design and initiate on-farm collaborative research that addresses priority research questions.
4. Engage participating farmers and scientists to review findings and discuss changes to research protocols after each field season.
5. Develop activities and communication products to share research results with the broader organic farming community, leveraging existing partner resources.

After formally creating the OOFRN partnership and establishing our advisory board in Fall 2021, we will identify priority topics and solicit proposals for collaborative on-farm research for the 2022 field season, with the goal of conducting 8-10 on-farm trials the first year. We will host a collaborative research technical meeting in Winter 2022/23 where all participants can review and discuss initial findings. The board will consider proposals for continuation, replication, or expansion of initial projects and/or new projects for the 2023 growing season. We will host our first annual OOFRN research workshop in conjunction with the annual OEFFA conference in February 2023 to share initial results and engage the broader organic farming community. Summer farm field days, and additional winter technical meetings and research workshops will be held through 2024 in this phase.

Organic farmers in the state represent a broad spectrum of types, including dairy, beef, cash grain, and vegetable farms. Our initial projects will likely focus on topics of broad interest including weed control and soil health. As the network grows, we hope to address additional commodity-specific topics.

Team Members (250 word limit)

List team members who are committed to the project. Include name, affiliation, and area of expertise. You may provide a sentence describing their role in the proposed project, but no CVs are needed at the preproposal stage.

Project Co-leaders

- Dr. Douglas Jackson-Smith, The Ohio State University, School of Environment and Natural Resources – rural sociology, participatory research methods
- Dr. Sakthi Subburayalu, Central State University, Department of Agricultural Sciences - soil science and agronomy
- Renee Hunt, OEFFA program director

Project Administration

- Cathy Herms, The Ohio State University, Department of Horticulture and Crop Science – organic weed management, IPM, student and lab management
- Cassandra Brown, The Ohio State University, Organic Food & Farming Education and Research program manager
- Eric Pawlowski, OEFFA educator
- Julia Barton, OEFFA educator

Initial Farmer Collaborators and Scientific Advisors

- Dr. Doug Doohan, The Ohio State University, Department of Horticulture and Crop Science - organic weed management, decision-making, and risk-management
- Dr. Steve Culman, The Ohio State University, School of Environment and Natural Resources – soil health and fertility
- Eli Dean, Timberlane Organic Farms LLC, Dean Innovative Design, OEFFA Grain Growers Chapter President
- Mike Kline, Organic Valley - pool manager for organic dairy cooperative with strong presence in Ohio.
- Dave Shively, Shively Farm – past president of OEFFA grain grower chapter

Farmer Rancher Involvement (200 word limit)

NCR-SARE strongly encourages having farmers, ranchers, local organizations, or others who will use or benefit from the project involved in its planning, design, and implementation. This participation enhances the relevance and impact of a sustainable agriculture research or education project. Describe how farmers, ranchers, or others will be engaged in your project—for example, in defining the research problem, conducting on-farm research, etc. It is helpful to provide names of specific farmers or ranchers if you can. If you can't name specific individuals at the preproposal stage, explain why the names aren't available and give your plan for identifying specific individuals if you are invited to submit a full proposal.

Farmers will be directly involved as advisory board members and as partners for on-farm research. As on-farm research partners, farmers will be directly involved in identifying research questions, designing treatments, and managing trials. We also expect farmers to help with outreach and engagement by reviewing data, assisting with outreach products, hosting field days, and recruiting others to the program. We have existing collaborative relationships with several Ohio organic farmers and organizations and will expand the circle of farmers (and researchers) as the project proceeds.

Prior to submitting this proposal we have discussed potential collaboration with several Ohio organic farmers involved in grain, forage, and/or dairy operations. Aaron Rook, Jeff Miller, Tim Kline, Shane Hartzler, Eli Dean, Dave Shively, and Eric Richer all expressed interest in expanded on-farm research collaborations. These producers suggested a variety of research topics and specific projects in soil health, crop management, marketing, evaluating new technology, and evaluating organic food quality and biodiversity on organic farms. Some had collaborated with us in the past and enjoyed the experience. A collaboration concern frequently expressed was avoiding additional work during the growing season labor bottlenecks, so we will work to avoid this.

Statement Regarding Resubmitted Ideas (100 word limit)

Indicate whether you have submitted this idea to NCR-SARE before, and if so, when and in which grant program. Also, please indicate how you responded to reviewer comments. Resubmission does not guarantee success, but it can be helpful to show reviewers how you have responded to previous reviewer suggestions.

No, this is the first time.

Long-term Funding Justification and Work Plan (500 word limit)

Provide a strong justification for why long-term funding is necessary for this project. What about this project requires more than 3-4 years to accomplish? Is the set-up of the project complex, or require long-term relationship building? Are there ecosystem processes that take time to develop and show change as in long-term cropping system rotations? Most research projects can make use of additional time or lead to more studies, but that is not our intention with this funding option. Be very clear about why this could not be accomplished with 3-4 years of funding.

Relationships and trust take time to build, especially when a group feels it has been underserved and misunderstood. Co-learning research approaches also require farmers

and scientists to learn and grow into new roles that differ from those found in traditional research and extension programs. While we have experience working in this manner, we expect the first 3-year phase to be an incubation period where we will implement and continuously refine our approach based on feedback from farmers and scientists.

The initial funding period begins in November 2021, and by the time it runs out in fall 2024, we will have been able to complete and debrief only 2 years of field research (2022 and 2023; though 2024 fieldwork will have taken place, we will just be launching data analysis and preparing for winter/spring workshops). By the end of the first 3 year period, we will have demonstrated the value and impact of our co-learning model to the participating farmers and scientists, generated important data to address the initial research questions, and will be in the early stages of engaging and disseminating this information with a broader organic farming audience.

A second 3-year funding period would allow us to build on our early successes and expand our work to include new groups of Ohio producers, refine and increase the extent of our engagement and outreach efforts, and secure additional funding sources. In a second phase of funding, we would triple the number of farmers and double the number of scientists involved in the OOFRN, expand to new commodity types and address new focused research questions, expand the frequency of on-farm field days for peer-to-peer learning, and develop a suite of print and digital products (factsheets, videos, and reports) for distribution in Ohio and nationally.

We would also hope to broaden the geographic footprint of the project in a second phase by networking with and learning from other farmer-led research groups in other states, like OGRAIN in Wisconsin or Practical Farmers of Iowa. Finally, we will leverage the OOFRN to increase the success rate for competitive research proposals submitted to USDA-OREI/ORG and AFRI programs and other state, regional or national competitive grant opportunities.

Provide a proposed work plan for a second three-year cycle of this project.

Include outcomes/objectives that would be accomplished, activities that would be undertaken, outreach or outputs that would be produced.

IMPACT ON SUSTAINABLE AGRICULTURE IN THE NORTH CENTRAL REGION

Even if your project focuses mostly on one aspect of sustainability, consider and explain how it contributes to the other two aspects of sustainability. In other words, how will the work affect the whole system, economically, environmentally and socially? If your project does not address the specific aspect, note that in the space provided.

Explain how your project will improve the profitability of farms and/or associated agricultural businesses. (75 word limit)

Organic production offers economic incentives because of the increased prices received for certified crops and livestock, but it also requires specialized knowledge, equipment, and labor. Limited data exists on economic returns for many organic practices in the Midwest. This project would create knowledge and provide tools for farmers to evaluate ROI for management practices. On-farm trial demonstrations and outreach would allow organic farmers to better identify pros and cons of new practices before adopting them.

Explain how your project will sustain and improve the environmental quality and natural resource base on which agriculture depends. (75 word limit)

Organic producers have been leaders in integrated pest management, diversified cropping rotations, soil health management practices, cultural weed control, practices methods. Data capturing the environmental outcomes on collaborating farms in our network will help identify optimal management strategies for improving the performance of organic systems. Documenting the performance of various organic management practices under working farm conditions can also be a critical step leading to the greater use of these innovative approaches by conventional farms.

Explain how your project will enhance the quality of life for farmers/ranchers, communities, and society as a whole. (75 word limit)

Organic production and marketing offers a viable economic alternative for small and medium sized agricultural operations, which are critical to local food security and to sustaining farm communities across the region. Organic production systems can offer improved quality of life benefits and draw strong interest from new beginning farmers, expanding the diversity and number of individuals involved in agriculture and promoting environmentally responsible practices that appeal to urban consumer markets and non-farming residents.

Preproposal and Proposal Evaluation

Review of NCR-SARE preproposals and proposals is a multi-stage process. Members of the NCR-SARE Administrative Council (AC) and a few members of the Technical Committee review preproposals in subgroups during the winter. The NCR-SARE AC then notifies applicants and invites full proposals in early February, due in April, for review by the Technical Committee and by external reviewers. The Technical Committee provides a list of technically acceptable proposals to the Council for its consideration at its late summer meeting. The AC decides final awards for funding and all proposed project coordinators are notified. Funds for projects recommended for funding are expected to become available in fall of the decision year.

The Administrative Council will consider the following factors in evaluating preproposals:

- **Relevance:** Will the outcome of the project contribute to meeting NCR-SARE sustainability goals (listed below)? Does it attempt to solve a problem or address an issue significant in the region?
 - Improving the profitability of farmers and associated agricultural businesses,
 - Sustaining and improving the environmental quality and natural resource base on which agriculture depends,
 - Enhancing the quality of life for farmers/ranchers, communities, and society as a whole.

If applicable, was use of genetically engineered organisms addressed in terms of relevance to sustainable agriculture?

- **Method/Approach:** Is the proposed approach/method likely to achieve the objectives or lead to the outcomes proposed? Did they address previous work, and how the proposed work differs from, or will build upon previous work?
- **Farmer/Rancher or other end-user involvement:** Are farmers engaged in the project as advisors, collaborators? Did farmers/ranchers identify the need for the research/extension-education?
- **Project Team:** Does the project team include the disciplines and expertise necessary to carry out the project?
- **Project Coordinator's reporting history for previous NCR-SARE grants:** The Administrative Council may choose to reject preproposals from Project Coordinators who have delinquent reports for previous NCR-SARE projects.