



# Environment and Natural Resources Trust Fund

2025 Request for Proposal

## General Information

**Proposal ID:** 2025-316

**Proposal Title:** Assessing and Improving Environmental Impacts of Agri-Food Businesses

## Project Manager Information

**Name:** Luca Zullo

**Organization:** Agricultural Utilization Research Institute

**Office Telephone:** (218) 281-7600

**Email:** lzullo@auri.org

## Project Basic Information

**Project Summary:** Work with small-medium sized value-added agri-food businesses in Minnesota that lack the expertise to assess their environmental footprints and identify interventions to improve their sustainability profile.

**ENRTF Funds Requested:** \$471,000

**Proposed Project Completion:** June 30, 2028

**LCCMR Funding Category:** Air Quality, Climate Change, and Renewable Energy (E)

## Project Location

**What is the best scale for describing where your work will take place?**

Statewide

**What is the best scale to describe the area impacted by your work?**

Statewide

**When will the work impact occur?**

During the Project and In the Future

## Narrative

### **Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.**

Large companies have in-house resources and expertise to assess environmental footprint to make strategic business decisions to reduce their impact and meet consumer preference for more sustainable products. Small-medium sized businesses often lack the resources, expertise and connections to both assess their environmental footprints and then understand what strategic business decisions could be made to implement interventions to market their products to a growing consumer base. With Minnesota being on the forefront of many climate-smart initiatives, providing this resource to value-added food and agriculture businesses, which are an important base to the state economy, can help position them for both improved environmental outcomes and future business success while ensuring that their economic growth is environmentally sustainable. Small-medium sized businesses increasingly need to understand life cycle assessment of their products and services to qualify for grants and incentives as well as to make strategic business decisions to meet their environmental and economic goals. Furthermore, they need help to use life cycle assessment as an early decision-making tool in their processes and not a post-hoc approach to processes and products which cannot be practically optimized. Providing life cycle analysis support helps competitiveness, resilience and the sustainability of smaller value-added agri-food businesses.

### **What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.**

AURI works with hundreds of small and medium sized agri-food businesses across the state today and wants to offer technical assistance around life cycle assessments (LCA) as part of our suite of services. We increasingly see the need for value-added agri-food companies to understand their environmental footprint to qualify for new programs, meet changing consumer preferences, and understand what factors most impact their environmental footprint to implement the necessary changes. We also increasingly see the importance for LCA to be an integral part of new product and service development from their inception. This will allow seamless integration with our technical and commercialization services, which should also include LCA support. AURI would conduct the work in house and leverage a broader network of assistance providers for companies to interact with for services, and AURI would also help interpret results to inform next steps and select potential impactful interventions.

### **What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?**

Small-medium sized agri-food businesses from ag producers to emerging food and bio-industrial companies want to improve their environmental footprints to meet a growing consumer preference for more sustainable products. However, they often lack the information, expertise and resources to integrate life cycle assessments (LCA) into their business operation from the inception and post-hoc which makes intervention and long-term decisions challenging. We expect that working with these businesses would help them better assess areas such as emissions including but not exclusively of greenhouse gases, water quality issues, energy use, and mitigation options in product and process design.

## Activities and Milestones

### Activity 1: Technical Assistance Services to Small-Medium Sized Agri-Food Businesses

**Activity Budget:** \$338,000

**Activity Description:**

AURI and selected contracted service providers will complete life cycle assessments for small and medium-sized agri-food businesses. The AURI project team will work with participating businesses to interpret and apply results and inform strategic business decisions to implement measures that improve their environmental footprints and help them qualify for new programs. Outcomes could include (but not be limited to) more informed management at businesses to make strategic decisions, reduced energy consumption, connections with customer preferences on more sustainable products, and integration of sustainable practices in their products and services.

**Activity Milestones:**

Description	Approximate Completion Date
Identify contracted service providers and begin outreach to potential participant businesses	December 31, 2025
Assist 50 small and medium sized agri-food businesses with complete life cycle assessments.	June 30, 2028
Assist 10 participating businesses with implementation of interventions after they complete LCA	June 30, 2028

### Activity 2: Outreach and Information Sharing

**Activity Budget:** \$133,000

**Activity Description:**

AURI will host one workshop per year to highlight the services and support offered by this project to targeted businesses, provide educational information on the LCA process, and build awareness of how the process can help small enhance their environmental sustainability. Workshops will aim to include at least 20 participating businesses per year. In addition, AURI will also work with project partners to develop and release a final report focused on sharing information about the LCA process, identifying common issues faced by businesses, and sharing useful practices for small-medium businesses that were identified and refined during the project. This report will be made available for wider release, offering a route to share information and knowledge developed during the project with additional Minnesota businesses.

**Activity Milestones:**

Description	Approximate Completion Date
Finalize plan and materials to promote program to potential participants	December 31, 2025
Host annual workshops to engage and educate small-medium businesses.	March 31, 2028
Develop and release report with information on LCA process and best practices for small-medium businesses.	June 30, 2028

## Long-Term Implementation and Funding

**Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?**

Funds will accelerate AURI's suite of technical assistance options into this area to support value-added agri-food businesses. Future, post-project work will be funded through an affordable fee-based system as greater awareness of this service grows among small-medium sized companies and producers. Federal programs are increasingly focused on climate-smart agriculture and could also be an opportunity. Additionally, several private foundations focus on environmental outcomes and these funds may supplement or expand work in this area. However, we believe that a fee-based service will provide the bulk of long-term funding needs as the market matures and our practice is established.

## Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Reducing Plastic Pollution With Biodegradable Erosion Control Products	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08i	\$200,000

## Project Manager and Organization Qualifications

**Project Manager Name:** Luca Zullo

**Job Title:** Senior Director of Science and Technology

**Provide description of the project manager's qualifications to manage the proposed project.**

Dr. Luca C. Zullo is a professional with extensive experience in guiding product and process design decisions, as well as technology transfer and commercialization. With a comprehensive background in process engineering and a wealth of experience spanning diverse industries, Dr. Zullo is well-equipped to navigate the intricacies of LCA implementation and leverage its insights for sustainable innovation in the fields of agriculture and agribusiness. His tenure in leadership roles within research institutes, consulting firms, and corporate environments has honed his strategic acumen in integrating sustainability principles into practical applications. Dr. Zullo has demonstrated the ability to translate technical expertise into actionable strategies. He has been involved in projects encompassing alternative energy, biomass utilization, and renewable chemicals. Notable projects include the design and construction of one of the largest manure digesters in the US and the development of technology to convert bioethanol into a green chemical solvent, which led to the construction of a world-class plant currently operating in the Midwest. A key factor in this technology's success was the ability to produce a drop-in replacement for an incumbent product with a greatly reduced carbon footprint. Dr. Zullo holds a Ph.D. in Chemical Engineering from Imperial College of Science and Technology of London, UK, and a Degree in Chemical Engineering from the University of Padua, Italy.

**Organization:** Agricultural Utilization Research Institute

**Organization Description:**

The Agricultural Utilization Research Institute (AURI) helps foster long-term economic benefit for Minnesota through value-added agricultural products. It accomplishes this mission by helping develop new uses for agricultural products through science and technology, while collaborating with businesses and entrepreneurs to bring ideas to reality. AURI provides a broad range of services including hands-on scientific technical assistance and technology transfer, a network of resources, and the applied research necessary to generate ideas for new ag-based products and processes and to help move them to market. With labs specific to analytical chemistry, coproducts, food, meat, and microbiology, as well as

staff experienced in science, technology and innovation processes, AURI is a one-of-a-kind resource that aids Minnesota businesses looking to create more value for the state's agricultural products.

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
AURI Commercialization Team (Business Development Directors)		Identify and meet with businesses to understand need/fit for this service and help with implementation, coordinate with AURI technical team and external contractors to guide LCA process and act as liaison to businesses in the LCA and intervention implementation processes. Take part in workshops and development of reports.			27.27%	0.87		\$100,000
AURI Technical Team (Microbiologist, Chemist, Coproduct Scientist, Senior Director of Science and Technology)		Support LCA process, conduct preliminary assessments, work with small-medium businesses, collect and analyze data, compile LCA results, offer technical assistance to businesses implementing sustainability interventions, take part in workshops and development of reports.			27.27%	0.87		\$100,000
AURI Outreach Team (Communications Director, Communications Coordinator)		Support project teams in development and delivery of informational materials and project reports. Assist in staging and promoting workshops and coordination of outreach and dissemination activities.			27.27%	0.12		\$12,500
AURI Project Manager		Manage AURI project activities, contracts, budgets, timelines, and ensure project follows grant rules and meets reporting requirements.			27.27%	0.09		\$8,500
							<b>Sub Total</b>	<b>\$221,000</b>
<b>Contracts and Services</b>								
TBD	Professional or Technical Service Contract	AURI will contract with external service provider(s) offering topical support in engineering, environmental, and technical disciplines and other LCA-related technical services as needed to complement AURI in-house abilities and complete project activities.				1.74		\$200,000

							<b>Sub Total</b>	<b>\$200,000</b>
<b>Equipment, Tools, and Supplies</b>								
							<b>Sub Total</b>	-
<b>Capital Expenditures</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								
							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
	Miles/ Meals/ Lodging	Number of trips, miles, and people to be determined as participating businesses identified. Estimate total of 90 trips within Minnesota at average cost of \$300. Mileage, lodging, and per diem rates to be set as provided for by Minnesota Management and Budget under the applicable "Commissioner's Plan."	In-state travel by AURI project staff to meet with small and medium-sized businesses, provide technical assistance, host informational events, and perform project activities.					\$27,500
							<b>Sub Total</b>	<b>\$27,500</b>
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
	Publication	Report design and development.	Design and development costs to publish a digital report sharing best practices, common issues, and project findings for release to Minnesota businesses and the public.					\$7,500
							<b>Sub Total</b>	<b>\$7,500</b>
<b>Other Expenses</b>								
		Workshop Expenses	Expenses to host LCA in-person and/or virtual workshops and					\$15,000

			outreach events for Minnesota businesses, including room and equipment rentals, audiovisual services, and other event-related expenses.					
							<b>Sub Total</b>	<b>\$15,000</b>
							<b>Grand Total</b>	<b>\$471,000</b>



Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

**Total Project Cost: \$471,000**

**This amount accurately reflects total project cost?**

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [3e0789a7-aa6.pdf](#)

#### *Alternate Text for Visual Component*

The graphic describes the project goals and includes a visual of the LCA process, lists potential implementation actions businesses may take after an LCA, and shares a brief overview of how an LCA can help businesses understand their environmental impact and make changes to improve sustainability....

#### *Financial Capacity*

Title	File
Certificate of Good Standing	<a href="#">c10fee9f-0e9.pdf</a>
Form 990	<a href="#">d1661072-3a4.pdf</a>
Audit Documentation	<a href="#">ccf837aa-92d.pdf</a>

#### *Board Resolution or Letter*

Title	File
Letter of Authorization- AURI LCA Proposal 03.26.24	<a href="#">360c0be4-2ee.pdf</a>

## Administrative Use

**Does your project include restoration or acquisition of land rights?**

No

**Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?**

No

**Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?**

N/A

**Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?**

N/A

**Does your project include original, hypothesis-driven research?**

No

**Does the organization have a fiscal agent for this project?**

No

**Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?**

No

**Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?**

No

**Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:**

