



Environment and Natural Resources Trust Fund

M.L. 2022 Final Work Plan Accepted

General Information

ID Number: 2022-303

Staff Lead: Corrie Layfield

Date this document submitted to LCCMR: August 29, 2022

Project Title: Forever Green Agriculture Initiative

Project Budget: \$763,000

Project Manager Information

Name: Mitchell Hunter

Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences

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Project Reporting

Reporting Schedule: March 1 / September 1 of each year.

Project Completion: June 30, 2025

Final Report Due Date: August 14, 2025

Legal Information

Legal Citation: M.L. 2022, Chp. 94, Sec. 2, Subd. 10i

Appropriation Language: \$763,000 the second year is from the trust fund to the commissioner of agriculture for grants to the Board of Regents of the University of Minnesota to fund the Forever Green Agriculture Initiative and protect the state's natural resources while increasing the efficiency, profitability, and productivity of Minnesota farmers by incorporating perennial and winter-annual crops into existing agricultural practices.

Appropriation End Date: June 30, 2025

Narrative

Project Summary: The Forever Green Initiative will fund up to eight research projects focused on developing perennial and winter-annual crops that protect soil, water, and other natural resources.

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

Protection and enhancement of Minnesota’s natural resources is complicated by agricultural production systems that primarily produce summer-annual crops. These crops only cover the soil during the warm season; at other times, soil is vulnerable to erosion and the loss of nutrients to surface water or groundwater. Increasing vegetative cover on agricultural land can help protect soil health and water quality while improving wildlife habitat, pollinator resources, and carbon sequestration potential. Traditionally in the U.S., such conservation has been undertaken through land retirement, which is costly and limits opportunities for rural economic development.

However, a new approach is emerging, based on augmenting current crop production systems with economically viable perennial and winter-annual crops. Such crops enable farmers to move toward continuous vegetative cover on their land—protecting soil, water, and other natural resources—while also producing marketable agricultural commodities.

To realize the potential of this new approach, it is essential to develop and maintain active research programs that can breed economically viable varieties of these crops and determine how to manage them within cropping systems.

Likewise, robust end uses, markets, and supply chains are critically needed to enable scaling and maximize the benefits for Minnesota’s natural resources.

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.

The University of Minnesota’s Forever Green Initiative (FGI) is the national leader in this new approach to protecting and enhancing natural resources while driving new economic opportunities for growers, industry, and communities. The FGI focuses on development of new perennial and winter-annual crops, new agricultural production systems that include these crops, and new supply and value chains that provide profitable markets for these crops. For example, FGI is taking this approach to advancing winter-hardy “cash cover crops” such as pennycress, camelina, and winter barley, and perennial crops such as intermediate wheatgrass (Kernza®) and hybrid hazelnuts.

There are sixteen FGI crop teams spanning disciplines including genomics, breeding, agronomy, natural resource sciences, food science, sociology, economics, and commercialization. This interdisciplinary approach allows for rapid scientific advancement, leading to crop varieties with attractive characteristics for farmers coupled with information on agronomic management and ecological benefits. Food science research and engagement with potential end-users paves the way for rapid commercialization, which is critical to scaling up production and thus realizing the potential for water quality improvement.

The requested funding will support continued advancement of these crops, cropping systems, and supply chains. Funds will be awarded via a competitive process to ensure maximum impact.

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?

Research sub-projects supported by this project will help advance development of perennial and winter-annual crops and cropping systems that help protect soil and water resources while also producing marketable commodities. Specific outcomes could include: improved understanding of crop genomes that enable more efficient breeding; development of enhanced breeding programs that accelerate progress toward release of commercial varieties; improved knowledge of management practices that enhance yield, profitability, and ecosystem services; enhanced understanding of natural resource outcomes; advances in food science that show the nutritional and functional characteristics of the crops; and development of new potential end uses and supply chains.

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?

In the Future

Activities and Milestones

Activity 1: Selecting sub-projects

Activity Budget: \$1

Activity Description:

Funds will be awarded to up to eight sub-projects, with a maximum award amount of \$150,000, following a request for proposals (RFP) and peer review process. There will be a single RFP in the fall of 2022 with funding awards made by early 2023. Proposals will be reviewed by a panel including FGI faculty and staff and department heads from across the College of Food, Agricultural, and Natural Resources Sciences (CFANS). The RFP process will be overseen by the CFANS Associate Dean for Research and Graduate Programs. The Associate Dean's office and FGI staff will work together to develop the RFP and evaluation criteria based on academic best practices, experience with past FGI RFPs, and the FGI strategy and mission. Evaluation criteria will include: 1) alignment with the FGI strategy for protecting natural resources, 2) technical and scientific merit, 3) qualifications of the research team, and 4) timeliness and necessity of the project. All reviewers will score proposals and the panel will meet to discuss and select proposals for funding and set funding amounts. The Associate Dean and FGI leadership will meet to review the panel's recommendations and ensure alignment with the FGI strategy and mission.

Activity Milestones:

Description	Approximate Completion Date
Develop RFP and evaluation criteria	September 30, 2022
Release RFP to Forever Green Initiative researchers	September 30, 2022
Receive proposals	October 31, 2022
Review panel completes review and meets to discuss proposals	January 31, 2023
Final funding awards determined and announced	February 28, 2023

Activity 2: Awarding and administering sub-projects

Activity Budget: \$762,999

Activity Description:

Each sub-project recommended for funding will be added as an activity in an amended work plan for LCCMR review and approval. Proposals will be developed using the LCCMR work plan and budget structures during the RFP process, so that the materials can be readily uploaded into the LCCMR dashboard. Leaders of each sub-project will be given access to the dashboard to upload their information. The project manager, Mitch Hunter, will assist as needed and ensure that all materials are complete for all new sub-projects before submitting the work plan amendment request. The project manager will also liaise with Margaret Wagner at the Minnesota Department of Agriculture (MDA) to ensure that the budget categories used align with MDA categories, since the funds will be supplied as a contract between MDA and UMN. When the work plan is amended, funds will be shifted from the budget line "to be awarded to sub-projects" to the budget line "awarded to sub-projects" in Professional and Technical Contracts. The project manager will ensure timely project updates and submission of the final report and findings.

Activity Milestones:

Description	Approximate Completion Date
Submit work plan revision with new subprojects	March 31, 2023
Provide ongoing grant support and ensure timely submission of project updates	June 30, 2025
Submit final report and findings	June 30, 2025

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
TBD	TBD	The Forever Green Initiative collaborates with many partners to conduct research and develop supply chains. Some current partners include the Agricultural Utilization Research Institute, USDA Agricultural Research Service, The Land Institute, and a number of Minnesota-based food and agriculture businesses.	No
Margaret Wagner	Minnesota Department of Agriculture	Administrative partner and project collaborator	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

Findings, data, and other research products will be disseminated through multiple channels. Updates on progress and research results will be disseminated by CFANS via websites, social media, publications, and media releases. Findings will be presented at local and national conferences and via peer-reviewed publications and student theses. Findings will also be shared with growers and industry partners at field days and meetings. The Forever Green Partnership, which unites members from private, public, and advocacy sectors around a common interest in increasing Continuous Living Cover in agriculture, provides another avenue to share outcomes with NGOs and companies, as does the MBOLD coalition, which includes many of the leading food and agriculture companies based in Minnesota. Crop varieties developed as a result of this research will be released to farmers in partnership with private seed companies. Funding from the Minnesota Environment and Natural Resources Trust Fund (ENRTF) will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications and outreach.

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?

This project will enable FGI crop teams to continue the process of developing crops and moving them toward commercialization. Depending on the stage of crop development, implementation will proceed through ongoing scientific research and partnerships with seed companies, supply chain actors, and end users. The FGI has been supported by a wide range of funding sources over many years, including the Minnesota Legislature, LCCMR, other state funding, and a range of federal and private funding. The FGI and crop teams will continue to pursue funding from this diverse mix of sources to advance our research and lead to on-the-ground implementation.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
							Sub Total	-
Contracts and Services								
To be awarded to sub-projects	Sub award	Budget reserve for awarding to subprojects upon approval by LCCMR				11		\$763,000
Awarded to sub-projects	Sub award	Total amount awarded to subprojects				0		-
							Sub Total	\$763,000
Equipment, Tools, and Supplies								
							Sub Total	-
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
							Sub Total	-
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								

							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$763,000

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				
In-Kind	McKnight Foundation funding for Forever Green Initiative	Staff time administering the internal RFP process and completing progress reports	Secured	\$7,500
			Non State Sub Total	\$7,500
			Funds Total	\$7,500

Attachments

Required Attachments

Visual Component

File: [e6455fc4-0e4.pdf](#)

Alternate Text for Visual Component

A 42-page document providing an overview of the Forever Green Initiative, including the challenge we are addressing, our logic model, an overview of our proposed solution, and detailed information on our 17 crops and crop groups....

Optional Attachments

Support Letter or Other

Title	File
Background Check Certification Form	25b5a5f8-069.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

N/A

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

N/A

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

Yes

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

Yes

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

No

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

Yes, Sponsored Projects Administration