

2021 NCR-SARE Graduate Student Grant Projects Recommended for Funding

Project Number	Title	Graduate Student	Major Professor	Primary Institution	Project State	\$\$ Funded	Cumulative	Brief Description
GNC21-316	Identifying determinants and opportunities for expansion of organic small grain acreage in Wisconsin	Lauren Asprooth	Ryan Galt	University of California, Davis	WI	\$ 14,850	\$ 14,850	This research seeks to create regenerative and profitable organic farming systems through the integration of small grains. To increase acreage, we will study the barriers and determinants to their adoption, and opportunities for expansion, through a survey and focus groups.
GNC21-317	Evaluating the relationships between pasture management, soil health and ecosystem services through on-farm monitoring	Abigail Augarten	Matthew Ruark	UW-Madison	WI	\$ 14,905	\$ 29,755	The project collaborates with farmers in two regions of Wisconsin to measure biological and physical soil health indicators; assess how they relate to pasture management, inherent soil properties and productivity; and develop recommendations for best management practices in pastures.
GNC21-318	Managing teff as a living mulch for organic acorn squash in mesotunnel systems	Sharon Badilla	Mark Gleason	Iowa State University	IA	\$ 14,962	\$ 44,717	Mesotunnels can reduce pests, diseases, and insecticide use and increase yield in organic cucurbit crops. My project assesses teff as a weed control strategy in mesotunnels. I will determine whether mid-season mowing of teff controls weeds while reducing competition with acorn squash.
GNC21-319	Soil Health Indicators in Areas Affected by Pipeline Installation	Luis Bentancor	Bradley Miller	Iowa State University	IA	\$ 14,964	\$ 59,681	Evaluation and digital mapping of soil health indicators in two different landform regions of Iowa (Des Moines Lobe vs Southern Iowa Drift Plain), six years after pipeline installation.
GNC21-320	Effects of depth and cover crop treatment on the functioning and diversity of soil microbial communities	Emily Bernhard	Victoria Borowicz	Illinois State University	IL	\$ 14,982	\$ 74,663	The objective of this research is to evaluate the impact of cover crops (cereal rye; pennycress; and pea, clover, radish, oat mix) on soil microbial communities at varying depths. EcoPlate will be used to characterize soil microbial communities.

GNC21-321	Using On-Farm Soil Health to Engage Research and Education Towards Sustainable Agriculture	Carlos Bonini Pires	Chuck Rice	Kansas State University	KS	\$ 14,832	\$ 89,495	This project aims to use on-farm soil health to engage research and education towards sustainable agriculture, providing integrated research, extension, and education efforts to identify and implement management practices to sustainably increase agricultural productivity while improving soil health.
GNC21-322	Evaluating the soil block technique for organic vegetable transplant production	Anne Carey	Ajay Nair	Iowa State University	IA	\$ 14,926	\$ 104,421	This project will scientifically evaluate the growth parameters and root system architecture of organic vegetable transplants grown with the soil block technique, in plastic flats, and with five commercially available organic media, employing the WinRhizo software.
GNC21-323	Exploratory study for silvopasture adoption among Hispanic beef producers in Missouri	Andria Caruthers	Sarah Lovell	University of Missouri	MO	\$ 14,882	\$ 119,303	This project is an exploratory study to assess Hispanic beef producers knowledge, awareness and interest in silvopasture adoption. Semi-structured interviews and producer site visits will provide insight into current management practices and identify producers short and long term goals.
GNC21-324	Addressing the Weed and Soil Management Trade-offs in Vegetables Through Integrated Cultural and Mechanical Strategies	Noelle Connors	Daniel Brainard	Michigan State University	MI	\$ 14,984	\$ 134,287	We will conduct field studies to explore 1) the benefits of integrating cultural and mechanical weed control in carrots; and 2) how pre-plant soil management affects mechanical cultivation tool efficacy in winter squash. Results will be shared with growers through field days and grower meetings.
GNC21-325	Characterization of Melissococcus pluitious strains in Michigan honey bees	Peter Fowler	Meghan Milbrath	Michigan State University	MI	\$ 14,850	\$ 149,137	European foulbrood, caused by the bacterium Melissococcus pluitonius, is one of the most severe diseases affecting Michigan honey bees. This project will identify regionally circulating strains and help elucidate the role that strain type plays in diagnostics among Michigan apiaries.

GNC21-326	Effect of Electrical Weed Control on Soil Health and Carrot Crop	Christopher Galbraith	Sushila Chaudhari	Michigan State University	MI	\$ 15,000	\$ 164,137	The objective of this research is to determine the biological, environmental, and operational factors that influence the success of electrical weed control in carrot production systems and explore the impact of this technology on crop safety and soil health.
GNC21-327	Improving sustainability of North Central Region peach production through novel training systems and optimization of branch angle.	Andrea Kohler	Courtney Hollender	Michigan State University	MI	\$ 14,883	\$ 179,020	This project tests high-density and planar canopy systems for peach production. It also analyzes the impact of branch angle on implementing those training systems, and surveys branch angle in commercial peach cultivars. Finally, it surveys growers to discover obstacles to adopting these systems.
GNC21-328	Enhancing the polyphenolic content and demand of Upper Midwestern, locally produced beef	Lucas Krusinski	Jenifer Fenton	Michigan State University	MI	\$ 15,000	\$ 194,020	The goal of this project is to demonstrate that polyphenolic content of beef is influenced by the finishing system and by-product feeds to favor a profile that enhances human health when consumed.
GNC21-329	Assessing attract-and-kill as a new management strategy for Japanese beetle in Wisconsin vineyards	Mitchell Lannan	Christelle Guédot	UW-Madison	WI	\$ 12,080	\$ 206,100	We will assess the impact of A&K as an alternative management strategy for JB to decrease this pest's population while reducing environmental impact and non-target effects of the chemical control standard practice on pollinators.
GNC21-330	The Effects of Collective Trauma on Iowa Farmers	Chris Morris	J. Arbuckle	Iowa State University	IA	\$ 13,618	\$ 219,718	This study will use in-depth interviews and a survey to investigate how Iowa farmers perceive experiences of collective trauma and how experiencing collective trauma may have affected their decision-making process with regard to management decisions and conservation adoption on their farms.

GNC21-331	A socio-hydrological framework for assessing groundwater sustainability in an irrigated agricultural landscape.	Amina Naliaka	Ruopu Li	Southern Illinois University	NE	\$ 14,820	\$ 234,538	This project's aim is to develop a socio-hydrological modeling framework for examining the sustainability of aquifers in irrigation agricultural landscapes and evaluating potential solutions to improve the resilience to cope with challenges associated with climate variability and change.
GNC21-332	The impact of agricultural practices on microbial spatiotemporal dynamics and contributions to soil health	Sakshi Paudel	Samiran Banerjee	North Dakota State University	ND	\$ 14,883	\$ 249,421	The research aims to investigate how microbial communities contribute to soil health and how agricultural practices have an impact on microbial spatiotemporal dynamics. Project will facilitate the deepening of the understanding of soil microbiome and soil health of the producers of North Dakota.
GNC21-333	Black Farmers and Climate Adaptation	Maritza Pierre	Douglas Jackson-Smith	Ohio State University	OH	\$ 14,968	\$ 264,389	The purpose of this project is to study Black farmers' adaptation to climate change. The study will examine how Black farmers are responding or adapting to climate change impacts as well as the role that social networks play in reducing Black farmers' social vulnerability to climate change.
GNC21-334	Optimization of agricultural anaerobic co-digestion with diverse feedstocks	Jennifer Rackliffe	Jiqin Ni	Purdue University	IN	\$ 14,978	\$ 279,367	Agricultural anaerobic digesters can improve efficiency and profitability by co-digesting agro-industrial waste (feedstocks) in addition to manure, but developing an optimal
GNC21-335	Exploring the synergistic potential of fungicides and parasites as stressors of bumble bee health and pollination services in greenhouse tomatoes	Emily Runnion	Frances Sivakoff	The Ohio State University	OH	\$ 14,993	\$ 294,360	Bumble bees are important pollinators in greenhouses. However, their pollination services may be diminished by pesticides and infection. The goal of this study is to analyze the effects of fungicide exposure and parasite infection on the pollination efficiency of bumble bees in tomato greenhouses.

GNC21-336	Conserving pollinators on farms with prairie strips	Corinn Rutkoski	Sarah Evans	Michigan State University	MI	\$ 12,234	\$ 306,594	We propose a paired research project and outreach program to 1) investigate the mechanisms of neonicotinoid insecticide removal by prairie strips and 2) foster shared learning about prairie strip implementation and pollinator conservation benefits with farmers in southern Michigan.
GNC21-337	Consumer demand for cannabis-infused beverages and its impact on the economic sustainability of local farms and craft beverage producers	Aaron Staples	Trey Malone	Michigan State University	MI	\$ 14,431	\$ 321,025	This study uses survey data to analyze consumer preference for alcohol and cannabis-derived products and identify the demand for cannabis-infused, non-alcoholic beverages. Results offer critical insights for craft beverage producers and niche crop farmers supplying the alcohol and cannabis markets.
GNC21-338	Overcoming Barriers to Grass-Based Agriculture in the Driftless Region	John Strauser	William Stewart	University of Illinois at Urbana-Champaign	IL	\$ 11,827	\$ 332,852	The decline of grass-based farming practices has been associated with negative environmental impacts. To shift agricultural practices in the direction of sustainable practices, there is a need to understand and elevate the visibility of community-based influences on farming decisions.
GNC21-339	Weed Suppression by Grazed Winter Cover Crops with Varied Timing of Livestock Removal	Lily Woitaszewski	Sarah Lancaster	Kansas State University	KS	\$ 14,839	\$ 347,691	The proposed project will produce quantitative data pertaining to the level of weed suppression on cattle grazed winter cover crops based on timing of livestock removal. The efforts of this project are focused around economic factors including optimizing cattle grazing length and weed suppression.