

2018 NCR-SARE Graduate Student Grant Proposals Recommended for Funding

Project #	Project Title	Grad Student Last Name	Major Professor Last Name	Primary Grantee	State	Requested	Cumulative	Systems Area	Commodity	Project Description
GNC18-253	Improving Kernza®+alfalfa Bicultures by developing a Kernza® Crop Calendar, Identifying Compatible Germplasm, and Monitoring Changes in Soil Health Properties.	Barrball	Schlautman	The Land Institute	KS	\$11,891	\$11,891	Crop Production	Agronomic	Kernza® growth, development, and nitrogen content will be measured and modelled in response to accumulation of growing degree days in Kansas in monocultures and Kernza®+alfalfa bicultures. Effects of both cropping systems on soil health for subsequent rotations and the role of alfalfa variety in biculture productivity will be monitored.
GNC18-254	Predation, Herbivory, and Farmer Profitability and Sustainability in Response to Interseeded Covercrops in Standing Corn for Agroecosystem Diversification.	Bredeson	Lundgren	Ecdysis Foundation	SD	\$11,907	\$23,798	Crop Production	Agronomic	The effects of interseeded cover crops on corn-dwelling invertebrate communities and their function (namely pest predation) will be examined in area cornfields. Producers will gain a working knowledge on how plant diversity translates to farm resilience and net profitability in agroecosystems designed to reduce chemical inputs.
GNC18-255	Cover crop mixtures for nitrogen use efficiency on grain farms in Southern Michigan	Bressler	Blesh	University of Michigan	MI	\$11,970	\$35,768	Soil Management	Agronomic	The proposed project will determine how overwintering legume-grass cover crop mixtures impact key nitrogen cycling processes that impact the sustainability and profitability of farms. Results will be shared widely with farmers through growers' workshops, talks at regional farmer meetings, and educational materials distributed online and in print.
GNC18-256	Developing Educational Resources on Sustainable Food Systems for High School Students	Charoenmuang	Knobloch	Purdue University	IN	\$11,354	\$47,122	Education & Training	Vegetables	This project will produce online modules and experiential learning activities about sustainable food systems by involving farmers and agricultural professionals in the learning experiences. It will expand the opportunities for high school students to increase knowledge and understanding about food in the context of environment, economy, and community.
GNC18-257	Linking Agricultural Production and Conservation Through In-field Prairie Plantings	English	Liebman	Iowa State University	IA	\$10,781	\$57,903	Natural Resources/ Environment	Other plants (herbs, natives, etc.)	Integrating native, perennial vegetation into crop fields can help farmers achieve production and conservation goals on the same acres. This project will examine the vegetation composition of prairie communities planted within crop fields on 21 farms in Iowa to understand how to maintain biodiverse patches in an agricultural landscape.
GNC18-258	Evaluating the Impact of Insecticides on Arthropods in Cover Crop to Corn Transitions.	Inveninato Carmona	McMechan	University of Nebraska-Lincoln	NE	\$11,716	\$69,619	Pest Management	Agronomic	Cover crops provide habitat for both pest and beneficial arthropods. Newly emerging pests of cover crop to corn systems have increased the use of insecticides during cover crop termination. This project evaluates the efficacy and impact of insecticide timing on arthropods in cover crop systems to promote best management practices.
GNC18-259	Prevention of avian pathogenic Escherichia coli (APEC) infections in poultry using novel probiotics	Kathayat	Rajashekara	The Ohio State University	OH	\$11,817	\$81,436	Animal Production	Animals	This study will test efficacy of anti-APEC probiotics identified in our laboratory to prevent APEC infections in poultry both in controlled laboratory and field conditions. Outcomes from this study will aid in the development of control method alternative to antibiotics, thus reduce the reliance on antibiotics and promote antibiotic stewardship.
GNC18-260	Combined Effects of Inundative Biocontrol and Anaerobic Soil Disinfestation (ASD) Using Non-Host Cover Crops as Carbon Sources for Clubroot Management in Cruciferous Crops	Khadka	Miller	The Ohio State University, Department of Plant Pathology	OH	\$11,995	\$93,431	Pest Management	Vegetables	This project will identify effective biological approaches to manage clubroot disease of cruciferous vegetables by combining cover crops, anaerobic soil disinfestation and biological control agents.
GNC18-261	The Effects of Two Winter Rye Cover Crop Seeding Methods on Corn Disease, Growth and Development	Kurtz	Robertson	Iowa State University of Science and Technology	IA	\$11,817	\$105,248	Pest Management	Agronomic	This project will investigate the effects of two winter rye cover crop seeding methods on corn seedling disease and plant growth. It will test the hypothesis that the distance between decomposing rye residue and corn seedlings affects the risk of seedling disease.

GNC18-262	Developing Financial and Risk Management Tools for Organic Grain Farmers	Lancaster	Torres	Purdue University	IN	\$12,000	\$117,248	Farm Business Management	Agronomic	Develop a financial calculator software that uses enterprise budgets and financial indicators for transitioning and certified organic grain farmers. The calculator will help farmers evaluate and benchmark financial feasibility of organic production. This calculator could also be used by operations to compare the long-term financial gains of crop rotations systems.
GNC18-263	Integrating Cover Crops into Bell Pepper Production Systems for Improving Phosphorus Uptake, Increasing Ecosystem Services and Bell Pepper Yield	Lavin	Sadeghpour	Southern Illinois University	IL	\$11,598	\$128,846	Production Systems	Vegetables	This project will investigate the potential of phosphorus solubilizing cover crop species in bell pepper production systems for improving soil health, weed suppression, P use efficiency, and overall farm profitability. Our results will increase growers' awareness and knowledge about cover crop management options and benefits in bell pepper production systems.
GNC18-264	Springtails as Bioindicators of Soil Health	McCroskey	Holland	Purdue University	IN	\$11,988	\$140,834	Soil Management	Agronomic	Soil bioindicators represent a sustainable, minimally-invasive agricultural tool that can rapidly indicate the nutritive "quality" of a soil. In this project, springtail communities will be sampled from both conventional and agroecological farm fields in Indiana, examining community metrics and their relation to soil dynamics to develop a Collembolan-based biotic index.
GNC18-265	Impact of Mulches on Management of Spotted Wing Drosophila, Fruit Yield and Quality	McIntosh	Guedot	Department of Entomology, University of Wisconsin - Madison	WI	\$11,987	\$152,821	Pest Management	Fruits	We will assess the impact of four types of mulches on spotted wing drosophila (SWD) adult presence, berry infestation, fruit yield and quality. We aim to provide recommendations to berry growers for managing SWD more sustainably and effectively using a cultural control method, while also improving fruit yield and quality.
GNC18-266	How much does diversification improve soil water holding capacity?	Nichols	Liebman	Iowa State University	IA	\$11,543	\$164,364	Crop Production	Agronomic	We don't yet completely understand how diversified systems produce higher and less variable maize yields compared to simple systems. This project will use on-farm research to quantify how much more water soil under diversified management can hold compared to soil under simple maize/soybean systems.
GNC18-267	Farm to Fridge: Assessing Need and Availability of Underutilized Refrigeration in Rural Grocery Stores for Use by Fruit and Vegetable Farmers	Olive	Jordan	University of Minnesota - College of Food, Agricultural and Natural Resource Science	MN	\$12,000	\$176,364	Sustainable Communities	Vegetables	Through farmer focus groups, rural grocery/farmer surveys, assessment, and outreach, this project seeks to support the profitability of small and mid-size Minnesota fruit and vegetable farmers through a "farm to fridge" model: assessing the opportunity for farmers to connect with existing, underutilized refrigeration space in rural grocery stores.
GNC18-268	Nutrition Management for European Foulbrood (EFB) Recovery in Honey Bees	Quinlan	Isaacs	Michigan State University	MI	\$11,995	\$188,359	Animal Production	Animals	Honey bee colonies with European foulbrood disease (EFB) can die or become smaller and less productive. However, treating with antibiotics is environmentally and economically costly. This study will evaluate whether improved nutrition through supplemental feeding and improved apiary location can be used to accelerate recovery and improve colony survival.
GNC18-269	Understanding Cereal Rye Nitrogen Decomposition and its Transition into Inorganic and Organic Soil Nitrogen Pools	Roth	Armstrong	Purdue University	IN	\$11,999	\$200,358	Soil Management	Agronomic	The overarching goal of this project is to develop a comprehensive understanding of how cover crop nitrogen decomposition influences the inorganic, organic, and soil microbial biomass nitrogen pools.
GNC18-270	Monitoring Belowground Arthropods Associated with Cover Crops in Great Plain High Tunnel Systems	Skinner	Rivard	Kansas State University	KS	\$11,999	\$212,357	Soil Management	Vegetables	This project will unearth the trends in belowground arthropod communities found in high tunnel production systems when cover crops are utilized in the Midwest.
GNC18-271	Double Cropping Field Peas with Cover Crops, Forages and Short Season Crops in Sub-Humid Climates	Tonon Rosa	Stepanovic	University of Nebraska-Lincoln	NE	\$11,525	\$223,882	Crop Production	Agronomic	This project aims to develop a sustainable crop rotation plan in Eastern Nebraska as an alternative to the usual corn-soybean system, contributing to crop diversity, economic improvements and environmental benefits.

GNC18-272	I Do Not Think It Means What You Think It Means: Explorations of Mental Models of Soil Health	Wade	Culman	the Ohio State University	OH	\$11,810	\$235,692	Natural Resources/ Environment	Agronomic	Soil health is a widely-discussed topic in production agriculture. Although formal definitions have been proposed, few studies have looked at how stakeholders within the agricultural production system conceptualize this topic. This study seeks to define mental models amongst these stakeholders in order to improve communication between and amongst these groups.
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