

**2024 NCR-SARE Graduate Student Projects Recommended for Funding**

| Project # | Title  | Grad Student                | Faculty Advisor | Institution                     | \$\$ Amt Req | Cumulative | Project State | Brief Description  |
|-----------|--|-----------------------------|-----------------|---------------------------------|--------------|------------|---------------|--|
| GNC24-384 | Application of insect-derived resources as soil amendments   | Milena Agila                | Laura Ingwell   | Purdue University               | \$ 19,025    | \$ 19,025  | IN            | Insect frass fertilizers, like cricket frass and black soldier fly compost and pupal casings, from growing insect protein industry enhance soil health and crop yield. Project aims to evaluate their impact on crop production and the susceptibility to herbivores.  |
| GNC24-385 | Estimating Soil Nitrogen Availability in Cropping Systems With and Without Cover Crops                                       | Jessica Bezerra de Oliveira | Chuck Rice      | Kansas State University         | \$ 19,355    | \$ 38,380  | KS            | This project aims to measure nitrogen mineralization potential and the correlation between temperature and moisture in agricultural systems, with and without cover crops, to increase nitrogen use efficiency, reduce costs, and enhance sustainability by minimizing nitrogen losses in the environment.   |
| GNC24-386 | Interactive effects of leaf pulling and non-toxic chemical interventions on rot management in north central region vineyards | Rekha Bhandari              | Rufus Isaacs    | Michigan State University       | \$ 19,995    | \$ 58,375  | MI            | Vineyards in the North Central region are at high risk of cluster rots. This study focuses on understanding the effect of non-toxic chemical alternatives in combination with leaf pulling strategy to manage sour rot and botrytis bunch rot in vineyards.  |
| GNC24-387 | Assessing the impact of different canopy management practices on disease control of cold-climate wine grapes in Wisconsin    | Courtney Cameron            | Leslie Holland  | UW-Madison                      | \$ 14,179    | \$ 72,554  | WI            | Management of cold-climate wine grapes relies on research from <i>Vitis vinifera</i> . However, cold-climate grapes are different in their genetics, training, and vigor. This study aims to evaluate the implication of different canopy management strategies for disease management.                      |
| GNC24-388 | Valuing the Margins: Identifying Marginal Land Within Fields and Valuing the Benefits of Conversion to Perennial Grassland   | Clarissa Dietz              | Randall Jackson | University of Wisconsin-Madison | \$ 17,364    | \$ 89,918  | WI            | This project uses on-farm yield monitor and expense data to find marginal (unprofitable) areas within row-crop fields. It also models ecosystem services (e.g. water quality, carbon) of land use change to perennial grasses and uses economic valuation to estimate the value of these changes to society. |
| GNC24-389 | Harnessing Diptera Diversity as a Bioindicator for Carbon and Nitrogen Loss During Litter Decomposition                      | DeShae Dillard              | Hannah Burrack  | Michigan State University       | \$ 19,870    | \$ 109,788 | MI            | My project investigates the impact of sustainable agriculture on soil health and insect biodiversity, focusing on Diptera (flies) as a bioindicator. I am assessing cover crop decomposition, nutrient cycling, and Diptera diversity in annual row crops of Michigan.                                       |
| GNC24-390 | From the Ground Up: Revealing How Regenerative Agriculture Nurtures Soil Arthropod Communities                               | Christine Elliott           | Ian Kaplan      | Purdue University               | \$ 19,993    | \$ 129,781 | IN            | I propose identifying arthropod biodiversity and agricultural practices that maximizing their soil health benefits in commercial fields. Bridging the gap in documenting the soil health benefits of regenerative agriculture empowers farmers with actionable insights to increase sustainability.          |

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| GNC24-391 | Barriers to Adoption of Prairie Strips: Farmer Perspectives   | Cynthia Fiser                 | Douglas Landis        | Michigan State University      | \$ 14,731 | \$ 144,512 | MI | Perennial prairie strips are a unique way to enhance ecosystem services within agricultural systems to support both ecosystem and human health. However, adoption remains low. My proposal explores perspectives on prairie strip adoption through focus groups and interviews with Michigan farmers.        |
| GNC24-392 | Latine Farmworker Recruitment and Community Wellbeing in Ohio   | Isaiah Franco                 | Douglas Jackson-Smith | Ohio State University          | \$ 18,876 | \$ 163,388 | OH | This study compares the impact of H-2A and non-H-2A farmworker recruitment on community wellbeing in three rural communities in Ohio using American Community Survey data and interviews with Latine farmworkers and key community informants, informing rural adaptation to changing migration patterns.    |
| GNC24-393 | Enhancing Mineral Supplementation Decision-Making for Cow-Calf Producers  | Jesse Fulton                  | Mary Drewnoski        | University of Nebraska Lincoln | \$ 19,987 | \$ 183,375 | NE | This project will develop a mineral calculator tool and educational resources for cow-calf producers and advisors (veterinarians, nutritionists, extension) to aid in selection of mineral mixes, based on an operations forage and water mineral, content that will provide the best return on investment.  |
| GNC24-394 | Companion Planting to Optimize Beneficial Insect Ecosystem Services in Pepper Cropping Systems  | Leah Gastonguay               | Deborah Finke         | University of Missouri         | \$ 19,792 | \$ 203,167 | MO | This project seeks to identify companion plant species identity and diversity mixtures that enhance the health and productivity of Midwestern pepper cropping systems through the promotion of insect pollination and biological pest control ecosystem services.  |
| GNC24-395 | Triple threat: combining multiple IPM tactics to improve thrips control in peppers  | Arnol Gomez                   | Ashley Leach          | Ohio State University          | \$ 19,987 | \$ 223,154 | OH | This project aims to evaluate a multifaceted IPM program to manage the western flower thrips in pepper production by examining the combined effect of different insecticide programs, paired with different mulch types and fertility regimes on thrips population densities and natural enemy conservation. |
| GNC24-396 | Evaluating the Nitrogen Fertilization Effects on Optimizing Root Traits System, Soil Health, and CO2 Emission Flux on Short and Tall Corn Hybrids | Binod Joshi                   | Yichao Rui            | Purdue University              | \$ 19,999 | \$ 243,153 | IN | This project aims to integrate the root imaging WinRhizo analysis system, LI-870 gas analyzer, and soil health data to quantify and compare the influence of varying nitrogen rates on the root system, soil health, and corn performance of short and tall corn hybrids.                                    |
| GNC24-397 | Smart Grazing: A Web-Based Solution for Pasture Management  | Pedro Henrique Jota Fernandes | Yijie Xiong           | University of Nebraska-Lincoln | \$ 20,000 | \$ 263,153 | NE | This project creates a tool that automates image processing for accurate canopy cover, biomass availability and carrying capacity assessment for producers in the North Central Region. Outreach includes grazing schools and extension educator training for improved pasture management practices.         |

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| GNC24-398 | Fungi Fueling Farms: Assessing the Influence of Arbuscular Mycorrhizal Fungi on Increasing Soil Health and Climate Resilience in Kansas | Endy Lopes Kailer  | Chuck Rice               | Kansas State University                  | \$ 19,965 | \$ 283,118 | KS | This project will gather a comprehensive set of root and soil Arbuscular Mycorrhizal Fungi data from local farms and long- term field experiments in Kansas to provide a unique source of information regarding the influence of cultivation practices on indigenous AMF populations of agricultural soils.  |
| GNC24-399 | Cross-infectivity, Genomic Analysis, and Transcriptomic Profiling of Fusarium graminearum in Artificial Barley-Broadleaf Crop Rotation  | Abbeah Mae Navasca | Thomas Baldwin           | NDSU                                     | \$ 20,000 | \$ 303,118 | ND | Crop rotation, cross-infectivity, Fusarium, Fusarium graminearum, FHB, Fusarium Head Blight, barley, potato, soybean, genomics, transcriptomics, RNAseq, two-speed genomes, fast-subgenome, genomic analysis, transcriptomic profiling, broadleaf, crop production   |
| GNC24-400 | Impact of Attract-and-Kill Expansion on Popillia japonica (Coleoptera: Scarabaeidae) in Wisconsin Vineyards                             | Emilie Parkanzky   | Christelle Guédot        | University of Wisconsin - Madison        | \$ 17,183 | \$ 320,301 | WI | Japanese beetle is an economically significant pest in the US in many crop systems, and is the most substantial defoliator of grape. Attract-and-Kill is a potential management strategy for JB control that reduces insecticide by attracting the pests to lures on treated substrate.                      |
| GNC24-401 | Consumer Demand for Regionally Sourced Artisan Bread and its Impact on the Upper Midwest Grain Value Chain                              | Rebekah Schulz     | Len Marquart             | University of Minnesota                  | \$ 19,845 | \$ 340,146 | MN | Increasing small grain consumption, including grains such as oats, rye, and emmer wheat, yields both agricultural and social benefits. Small grains are generally consumed in ways that yield nutritional benefits and there is increasing consumer interest in these grains for their health effects and en |
| GNC24-402 | Developing Practical On-Farm Research Tools for In-Season Field-Specific Nitrogen Recommendations                                       | Luke Waltz         | Sami Khanal              | The Ohio State University                | \$ 19,987 | \$ 360,133 | OH | This project will work with farmers to develop practical on-farm research protocols that can fine-tune generalized nitrogen recommendation tools for each field and season, with the goal of improving profitability and reducing environmental impact.  |
| GNC24-403 | Helping or hurting? Identifying the role of CP42 in promoting or diluting parasites for pollinators                                     | Annaliese Wargin   | Alexandra Harmon-Threatt | University of Illinois, Urbana-Champaign | \$ 19,494 | \$ 379,627 | IL | The Conservation Reserve Program Pollinator Habitat Initiative exists to improve pollinator health, but is rarely formally assessed to determine if it is achieving its goals. This project will investigate the ability of CRP CP42 sites in mediating parasite infection in pollinators.                   |
| GNC24-404 | Knowing Growers: Understanding and Supporting Farmers Where They Are  | Vanessa Whalen     | Eleni Pliakoni           | Kansas State University                  | \$ 19,962 | \$ 399,589 | KS | Mental health providers and community supports learn ways to assist farmers with mental health needs based upon data gathered directly from farmers.   |
| GNC24-405 | Creating a Framework to Facilitate Land Management Relationships Between Non-Operating Landowners and Beginning Producers               | Claire Wineman     | Nellie Hill              | Kansas State University                  | \$ 14,908 | \$ 414,497 | KS | This project seeks to develop tools and educational materials to improve the success and sustainability of land link programming through the frame of catalyzing innovative land access relationships between beginner producers and non-operator landowners.  |