

**MSU AgBioResearch  
Michigan State University  
Critical Issues as Identified in the USDA NIFA Plan of Work**

1. **Water Quality and Quantity** - Michigan has more than 36 million acres of land with more than 11,000 inland lakes and 36,000 miles of streams. Assuring water quality so that the state's water resources support designated uses such as drinking, recreation, and ecological health is a long-term concern. We will: - Increase participant's understanding of ecology, natural resources management, and decision-making, ecosystems, and processes, and contested issues - Increase participants' awareness of the impacts their actions have on water resources - Determine the best way to remove pollutants from soil and water and turn over these areas into safe, productive sites - Keep Michigan's surface and groundwater clean and make all citizens aware of why this is a critical issue - Ensure that a safe, secure and plentiful water supply is available for the state's citizens, industries, wildlife, and natural areas. Events include conferences, demonstration sites, field days, symposia, workshops, and trainings.
2. **Plant and Animal Production and Health** - Michigan produces more than 200 commodities, making the state second only to California in terms of crop diversity. Agriculture is now one of the fastest-growing sectors of the Michigan economy. Animal agriculture and its associated products --milk, meat, wool, eggs, cheese, and butter -- also make up a significant portion of Michigan's economy. We will: - Increase farmers' success with protecting the environment, ensuring food safety, reaching new markets, and advancing agriculture through applied research - Conduct research on selecting animals with desirable traits and on new methods to combat diseases and parasites - Study nutrition and animal management systems.
3. **Secure Food and Fiber Systems** - Our expertise in biosystems engineering, food processing, and nutritional immunology is paving the way for the creation of new food products that offer Michigan residents food choices with greater health benefits. Engineering and processing advances will lead to greater cost efficiencies, enhanced food safety and security, and increased development of non-food products (e.g., biofuels, building materials). We will - Enhance the production and profitability of small-scale agriculture projects and improve community wellness - Use educational processes to facilitate the incorporation of renewable energy into households, governmental offices, and businesses - Increase the capacity to develop forest and agricultural-based renewable resources in ecologically and economically sustainable ways. Services include consulting, counseling, and tutoring.
4. **Human Health, Youth, and Families** - Promoting well-being for Michigan's youth and families requires attending to individuals' physical, social-emotional, and behavioral health. To improve the health and safety of Michigan's adults, youth, and families, we developed broad and comprehensive research and education programs to address Michigan residents' needs. Youth development, community development, nutrition, and food safety research and education, and family and parenting skills are important areas of focus. We

will: - Support Michigan residents in eating healthier, being better caregivers, and preventing and managing chronic health conditions through education - Develop better models for the human health and human services sectors - Study the function of nutrients and other components related to human health - Improve management of financial resources by individuals and families through education - Prepare youth for life and work.

5. **Environmental Stewardship and Natural Resources Management** - Michigan's natural resources are a fundamental asset for the state's future economic opportunities. Challenges concern how residents of the state can best benefit from its rich natural heritage without overburdening the carrying capacity of its natural systems and reducing opportunities for residents and visitors alike. Our natural resource programs improve public understanding, help landowners and communities use those assets for sustainable long-term social and economic development, and conserve natural resources for future generations. We will: - Develop tools and technology to help Michigan's natural resource-based tourism industry grow by meeting consumer demands - Determine how wildlife, fisheries, and natural resources areas respond to habitat management to encourage management for sustainable benefits. Products include audio or video products; curricula; data or databases; equipment or instruments; patent applications; applications for Plant Variety Act protection; models; networks and/or collaborations fostered by the project or activity; physical collections or resources, new animal germplasm, or genetic maps; software; technology, methods, or techniques; train the trainer manuals; website(s) with the appropriate URL(s); information, skills, and technology for individuals, communities, and programs; or students graduated in agricultural sciences.
6. **Workforce Development, Community Resource Development, and Innovation** - Successful and thriving communities combine knowledgeable and engaged legislators, businesses, community groups, and residents. Agricultural producers benefit from improving their business and financial management skills, whether they raise dairy cows or grow blueberries. Marketing, distribution, and other economic variables also play a critical role in the success and profitability of the state's agriculture and natural resources industries. We will: - Assist entrepreneurs who develop and commercialize high-value, consumer-responsive products and businesses - Research and provide education on international trade and development, economic policy, domestic and foreign policy, and community resource planning and development to help Michigan growers and producers navigate governmental regulations both here and abroad, as well as connect them with foreign buyers and markets - Assist Michigan communities in making critical policy decisions and functioning more smoothly with citizen involvement.