# The SEEDSS Initiative
## SOLVING EMERGING ENVIRONMENTAL DEVELOPMENTS AND SECURING SUSTAINABILITY

Environmental sustainability has never been more important. Climate change is a 21st century grand challenge with significant impacts for Michigan and society in general. Agriculture, the state's second leading economic contributor, is no exception. Variable growing seasons, extreme weather events, and the emergence of new pests and plant diseases can have devastating effects. **Michigan agriculture must be better prepared and better equipped to be part of the solution to address climate change mitigation, adaptation and environmental sustainability overall.** Increasing resiliency is critical to ensuring availability of nutritious food for Michiganders and a growing world population.

Implementation of best practices and precision agricultural technologies to increase productivity while sustaining vital natural and renewable resources is paramount. **Enhancing soil and plant health, soil carbon sequestration, efficient use of water, and protecting Michigan's diverse and pristine waterways are fundamental to viable solutions.** None of these are mutually exclusive, yet Michigan on-farm programs lag behind in answers.

**Michigan is the most diverse agricultural state in the country with a reliable source of water**; uniquely positioning the state as other areas of the country (e.g. California) are severely hampered by climate change. It is imperative that Michigan is poised for further agricultural growth in the face of climate change and to help meet growing food security needs. But such challenges cannot be met at the expense of environmental sustainability.

**MSU AgBioResearch and MSU Extension, along with the College of Agriculture and Natural Resources, are cornerstones of the state's land-grant university.** Preeminent expertise in research and outreach within agriculture, food systems and the environment positions MSU researchers and Extension specialists as industry leaders. These experts are uniquely equipped to lead key multidisciplinary research, outreach and education aimed at enhancing environmental sustainability of this vital sector of Michigan's economy. While these efforts are at the core of the organizations' missions, there remain needs. Addressing long-term challenges requires long-term investment.

# Funding ($16 million; $10 million recurring) is requested from the State of Michigan

The SEEDSS (Solving Emerging Environmental Developments and Securing Sustainability) Initiative is specifically designed to deploy targeted long-term research, outreach and education efforts to enhance an environmentally sustainable future for Michigan agriculture. **These critical endeavors cannot be adequately addressed through existing programs focused on emergent needs of Michigan agriculture or federal funding sources that frequently do not account for the diversity of agriculture commodities and accompanying microenvironments (soil and microclimates) or the state's unique water footprint.**

Administered through MSU AgBioResearch and MSU Extension, the SEEDSS Initiative will provide funding to address key gaps in talent and faculty expertise at MSU ($7 million, $1 million recurring). It is necessary to tackle significant problems linked to environmental sustainability of Michigan agriculture and enhance efforts to educate the future workforce on these critical issues. The SEEDSS Initiative will offer a new competitive grants program ($9 million recurring). Grants will specifically target long-term research and on-farm outreach, demonstration projects led by MSU faculty and MSU Extension personnel designed to bolster soil and plant health, soil carbon sequestration and protection of water quality and efficient use of it, and development and deployment of precision technologies to promote environmental sustainability of Michigan agriculture.

Time is of the essence to combat the grand challenges of climate change, ensure food security and an environmentally sustainable Michigan agriculture industry. **Investment in the SEEDSS Initiative will bring these goals home to Michigan and help to make them realities on the farm and for the future.**

The SEEDSS initiative is modeled on the success of Project GREEEN (Generating Research and Extension to meet Economic and Environmental Needs). For more than two decades, Project GREEEN has supported research and outreach that tackles current and emerging plant agriculture issues. The program has generated more than $2 billion in economic impact for the state of Michigan. Building on that progress, support for SEEDSS will position MSU researchers to successfully address longer-term challenges.

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