



Mississippi Food Innovation for a Resilient and Sustainable Tomorrow



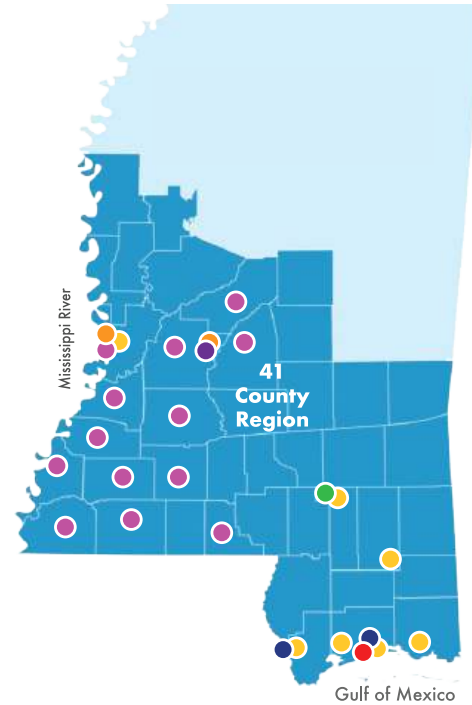
WHAT IS AN NSF ENGINE?

Formally launched in May 2022, the National Science Foundation (NSF) Regional Innovation Engines program is part of the CHIPS and Science Act, which is designed to support collaborative efforts nationwide that advance critical technologies, address societal challenges, cultivate cross-sector partnerships, and stimulate economic growth (especially in historically underserved communities). In May 2023, Jackson State University, in partnership with The University of Southern Mississippi, received a \$1 million NSF Development Award to assist in planning for an upcoming Engines application.

OVERVIEW

MSFIRST will identify gaps and challenges and then develop solutions that will fortify food production and distribution to drive wealth-building and economic development, improve public health, and create and retain a diverse pool of skilled technical workers within historically marginalized communities. The Region of Service is a 41-county area covering Central and South Mississippi. Mississippi is an EPSCoR state with significant agriculture and food industry sectors bounded by the Mississippi River and the Gulf of Mexico, two critical pieces of the nation's food supply chain which are also heavily impacted by climate events. Yet, the prevalence of agriculture-dependent communities experiencing high food insecurity rates demonstrates a need for innovation and connectivity.

REGION



KEY PARTNERS

- JACKSON STATE UNIVERSITY
- UNIVERSITY OF SOUTHERN MISSISSIPPI
- ALCORN STATE UNIVERSITY
- PORT OF GULFPORT
- EXTRA TABLE
- INNOVATE MS
- NOAA

VISION

The vision of the engine is to create an equitable and inclusive innovation ecosystem that harmonizes a network of educational institutions, farmers, small businesses, corporations, governments, and community stakeholders enabling conditions for mitigating human and societal impacts of food insecurity exacerbated by worsening climate events.

for more information, visit MSFIRSTENGINE.ORG





Mississippi Food Innovation for a Resilient and Sustainable Tomorrow



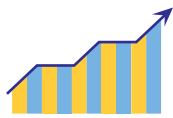
HOLISTIC APPROACH

Building on the region's established Gulf Blue innovation ecosystem and the research capacity of its Carnegie-designated R-1 and R-2 research universities, the University of Southern Mississippi, Jackson State University, and Alcorn State University respectively, this NSF Engine will establish the MSFIRST Knowledge Fusion Center and implement a Networked Open Innovation Model approach to cultivate a cluster around advanced agriculture, aquaculture, and climate resilience technologies. It will employ use-inspired multidisciplinary and community-driven interventions to spur innovations in these technology areas. MSFIRST will address key technological hurdles in these sectors, particularly barriers to technology adoption, scaling systems, efficiency, and logistics, including transportation and storage.

INNOVATION GOALS



GROW RESEARCH CAPACITY



FUND AND ADVANCE USER-INSPIRED RESEARCH



EXPAND AND AUGMENT EXISTING INCUBATION AND ACCELERATION INITIATIVES



FUND INDUSTRY COLLABORATIONS, INCLUDING DEMONSTRATION AND PILOT PROJECTS



PROMOTE THE GROWTH OF GOOD JOBS AND WORKFORCE DEVELOPMENT TO FILL THEM



SOCIETAL IMPACTS

The issues and impacts associated with food insecurity in Mississippi are enormous, systemic, and exacerbated by worsening climate-related events (e.g. floods, droughts, tornadoes, etc.) that disproportionately affect marginalized communities. About 1 in 7 Mississippi adults have type 2 diabetes, a consequence of obesity. Total direct medical expenses for diagnosed diabetes in Mississippi were estimated at \$2.4 billion in 2017 with another \$995 million spent on indirect costs from lost productivity due to diabetes. Along with heart disease and cancer these health issues associated with food insecurities result in significant additional medical expenses and lower labor participation rates for residents and lost productivity for businesses in the state. MSFIRST does not expect to solve these issues, but if it can mitigate these impacts by even a few percent, the savings to the region, let alone the nation, will more than exceed NSF's investment in MSFIRST.

Overarching Challenges:

1. Sustainable Food Production
2. Equitable Food Access
3. Resilient Food Distribution

Keywords:

- Agricultural Technologies
- Environmental Technologies
- Digital Health
- Artificial Intelligence
- Internet of Things

Industry Sectors:

- 1125 (Aquaculture)
- 6242 (Community Food and Housing, and Emergency and Other Relief Services)
- 5417 (Scientific Research and Development Services)