

FY20 federal research funding overview

The \$186 million in total federal research funding received in FY20 is particularly impressive considering the previous benchmark of \$181.8 million set in FY19 was buoyed in part by the Critical Materials Institute (CMI) of Ames Laboratory receiving two years of Department of Energy (DOE) funding – totaling approximately \$45 million – during the university’s 2019 fiscal year. With just one \$25-million allocation for CMI received in FY20, DOE funding for Ames Lab totaled \$60.6 million, down \$22.4 million or 27% compared to FY19’s total of \$83 million.

U.S. Department of Agriculture

The most significant factor contributing to the record level of federal research funding Iowa State achieved in FY20 was the support of the USDA. The \$47.8 million in research funding Iowa State received from the department in FY20 was more than double the amount received in FY19. Key to the strong overall research funding support from USDA in FY20 were five individual awards of \$1 million or more from the National Institute of Food and Agriculture (NIFA):

- The Consortium for Cultivating Human and Naturally reGenerative Enterprises ([C-CHANGE](#)), led by director Lisa Schulte Moore, received a \$10 million award. The funds will be used to explore and develop a new biobased value chain to aid agricultural producers based on the production of renewable natural gas;
- A team led by Pat Schnable, director of the Plant Sciences Institute, received an award of \$2.9 million to build on and extend the ongoing [Genomes to Fields](#) initiative – in tandem with partner institutions, the University of Arizona and University of Nebraska-Lincoln – by:
 - Deploying, evaluating and using field sensors and imaging technologies;
 - Creating data management, sharing and analytics platforms; and
 - Training the next generation of agricultural researchers;
- Mark Gleason, professor of Plant Pathology and Microbiology, and his team received an award of \$2 million to evaluate the commercial farm-scale performance of systems that combine the use of mesotunnels and biological controls to enhance the production and quality of organic cucurbit crops (melons, squash, pumpkins, cucumbers);
- A multidisciplinary team led by associate professor of Horticulture, Ajay Nair, received an award of \$2 million to explore the hypothesis that diverse crop rotations integrated with pasture-based poultry production will enable vegetable growers to A) Build healthy soil and significantly reduce pest- and disease-related crop damage; B) Significantly improve vegetable growth characteristics and nutrient-related deficiencies; C) Deliver higher marketable yield and quality; and D) create plant-animal integrated systems that that will increase farm profitability and long-term sustainability; and
- Joshua Selsby, professor, Animal Science – and a multidisciplinary team including Iowa State’s Lance Baumgard, Jason Ross, Nick Serao, Lee Schulz and Brett Ramirez as well as Rob Rhoads of Virginia Tech University and Sara White of Texas A&M University – received an award of \$1 million to explore the hypothesis that female pigs are more susceptible to heat stress than male pigs. Understanding the sex-based differences in heat stress susceptibility can lead to changes and enhancements in production systems and practices that can make positive contributions to the pork industry.

Department of Commerce

Another key award that had a significant impact on federal research funding in FY20 was the decision made by the National Institute of Standards and Technology (NIST) – a bureau of the Department of Commerce – to provide Iowa State’s Center for Statistics and Applications in Forensic Evidence (CSAFE) a [five-year \\$20 million cooperative agreement extension](#) to continue and expand its work.

Health and Human Services

Over the past several years, funding from HHS and the various centers and institutes of the National Institutes of Health (NIH) has grown steadily. In FY15 Iowa State received HHS grants and awards totaling \$9.2 million. By contrast, the university received just over \$18.6 million in HHS funding in both the 2019 and 2020 fiscal years. Much of the expanded investment in recent years has been tied to research involving technologies such as nanovaccines, combatting antimicrobial resistance, and genome editing. Here are two of the more noteworthy projects that received HHS/NIH funding in FY20:

- Animal Science professor, Christopher Tuggle received initial funding of \$740,894 for the first year of a four-year award expected to total \$2.95 million. Tuggle is leading an effort to [transfer a human immune system](#) into severe combined immune deficiency (SCID) pigs. The research could pave the way to new treatments for a wide range of health problems, from severe burns to various forms of cancer. The pigs are also valuable for studying regenerative medicine, or the possibility of repairing damaged tissues with a patient’s own cells, rather than replacing them.
- Jennifer Margrett, professor, Human Development and Family Studies, is leading a team that received \$408,621 for a project expected to receive \$2.5 million over five years. Margrett’s study will investigate the impact significant others have on cognitive performance – especially collaborative prospective memory – among middle-aged and older adults. The project is innovative because it systematically examines behavioral, social and physiological processes affecting everyday memory in both a controlled lab setting and the daily lives of couples.

National Science Foundation

NSF – along with DOE and USDA – has historically been one of Iowa State’s top three federal research sponsors. The university received funding for 129 projects in FY20, which is a five-year high. However, the total funding received from the agency decreased to \$31.7 million, a five-year low. This amount is \$1.8 million, or 5.5%, below the \$33.5 million in awards the university received from NSF in FY19.

One of the most notable projects receiving NSF funding in FY20 is a multidisciplinary, multi-institutional effort being led by Janette Thompson, Morrill Professor, Natural Resource Ecology and Management. The \$2.5 million award will be used to develop data-driven simulations that will enhance understanding of urban and near-urban agriculture and the use of localized food production to increase city resiliency and sustainability. In this project, the Des Moines/West Des Moines Metropolitan Statistical Area (MSA) will serve as a case study to represent cities located in rain-fed agricultural areas. Analyses from the study will reveal new knowledge about whether environmental impacts of Food-Energy-Water (FEW) systems can be decreased and local food supplies increased through shifts in crop production in urban and urban-adjacent areas, and if these changes are likely to have positive social and economic effects.