AI is a federal-government-wide priority.

USDA priorities

General priorities from Secretary Vilsack, who will work to address inequity and inequality, meet the moment on climate and nutrition insecurity, and build fairer markets and stronger rural communities.

• Equity and inclusion
• Climate and regenerative agriculture
• Rural economic development
• Nutrition security
• Open and competitive markets

Plant Breeding for Agricultural Production

- Public breeding efforts to improve crop productivity, efficiency, quality, and performance

- Introduction of desirable traits that may include, but not limited to:
    - increased nutrient use efficiency
    - increased photosynthetic efficiency
    - tolerance to drought, flood and temperature
    - extremes associated with climate change
    - resistance to pests and diseases
    - improved taste, aroma, or nutrition

- Removal of undesirable traits through traditional genetic approaches and targeted gene editing

AFRI FAS Plant Breeding for Agricultural Production

Program Code: A1141

Deadline: September 22, 2022

Maximum Award Amount:

- Plant Breeding Projects: $800,000
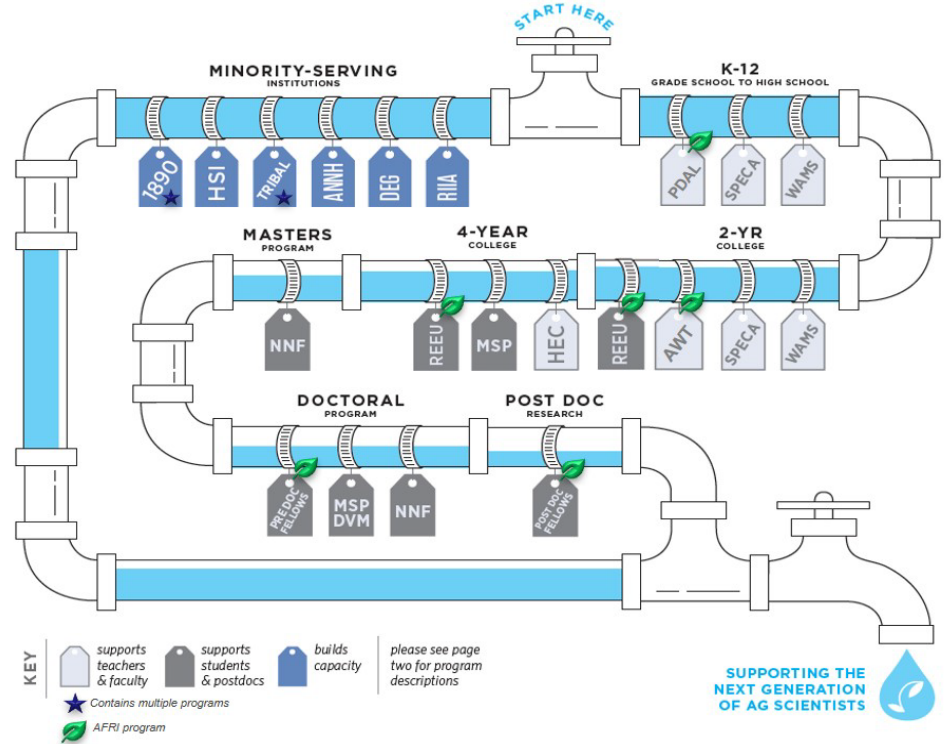- Coordination Innovation Networks: $1,150,000

Contact:

- Dr. Christian Tobias, (610) 312-7619 or christian.tobias@usda.gov
- Dr. Ann Stapleton, (816) 274-1942 or ann.stapleton@usda.gov

Artificial Intelligence (AI) is a federal-government-wide priority

AFRI EDW – a full range of educational research programs

FAIR and CARE for data: these are fundamental to NIFA awards

CARE Principles for Indigenous Data Governance

Special Collection: Research Data Alliance Results

Practice Papers

The CARE Principles for Indigenous Data Governance

Authors: Stephanie Russo Carroll ✉, Ibrahim Garba, Oscar L. Figueroa-Rodríguez, Jarita Holbrook, Raymond Lovett, Simeon Materechera, Mark Parsons, Kay Raseroka, Desi Rodriguez-Lonebear, Robyn Rowe, Rodrigo Sara, Jennifer D. Walker, Jane Anderson, Maui Hudson

Abstract

Concerns about secondary use of data and limited opportunities for benefit-sharing

AFRI DSFAS – cross-cutting research that generates **new knowledge in agriculture and data science/AI**

AI Institutes for Climate-Smart Agriculture – joint NIFA and NSF program

AFRI Education and Workforce Development

Goals of NIFA's Education Portfolio

- Improve scientific and agricultural literacy

- Recruit and train a skilled workforce to face challenges and provide needed skills

- Promote greater learning and engagement through improved formal and non-formal instruction and teacher training

- Advance science by supporting more inclusive graduate and postdoctoral training in critical research fields

- *Strengthen educational capacities of MSIs in instruction, curriculum and educational infrastructure*

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AFRI Foundational Cross-cutting: Data Science for Food & Agricultural Systems (DSFAS)

Program Area Priority Code: A1541

Proposed Budget Requests: $650,000 total per project for project periods of 3-5 years; for coordination innovation networks priority only $1,000,000 total per project for project periods of up to five years.

 Special priority areas in modeling!

DSFAS-CIN *Climate Modeling* for creative, novel projects that meet the overall goals of advancing both climate modeling and data science/AI areas.

DSFAS-CIN *Food System Modeling* to advance food systems simulation modeling, especially examining transitions to robust, resilient, and cooperative food supply networks, and with a focus on underserved communities

Project Types: Research Projects or Integrated (research, education and /or extension) Projects only

Application Deadline: November 17, 2022

Contact: Ann Stapleton, ann.Stapleton@usda.gov ; NIFA-DSFAS@usda.gov

AFRI FAS DSFAS – cross-cutting research that generates **new knowledge in agriculture <u>and</u> data science/AI**

Crosscutting means more than one NIFA AFRI FAS area; in this case it's technology PLUS at least one of the other areas:

Plant health and production and plant products
Animal health and production and animal products
Food safety, nutrition, and health
Bioenergy, natural resources, and environment
Agriculture systems and **technology**
Agriculture economics and rural communities

MUST have both data science/AI AND agricultural research strengths to be highly rated.

Equity is a key priority of the Biden-Harris administration agenda.
There are **numerous Executive Orders (EO)** related to **equity** helping **drive concrete actions** across Government.

EO 13985
Advancing Racial Equity through the Federal Government is the governing document for **external/programmatic equity** work.
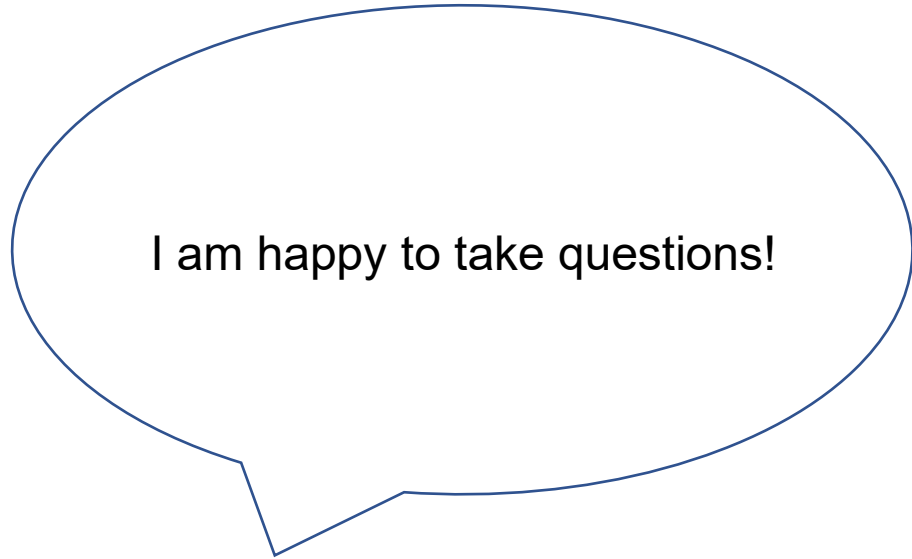
The **Justice40** initiative, **tribal consultation EO**, **Customer Experience EO**, as well as several other EOs collectively contribute to our external focused EO work.

Non-Discrimination Statement

https://www.usda.gov/non-discrimiation-statement

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- USDA is an equal opportunity provider, employer and lender.

I am happy to take questions!

Consider signing up for USDA NIFA Federal register announcements to hear about ways to provide formal stakeholder input. It's how we hear your voice!

The goals of the NIFA DEIA Team work are to
- enhance research and investment in communities to ensure diversity, equity, inclusion and accessibility;
- help reduce barriers to access and advance opportunities for underserved communities; and
- clarify how NIFA collects and uses data to continually improve its services.

 These goals stem from the creation and development of a concept paper on racial equity and the following executive orders: 1) Advancing Racial Equity and Support for Underserved Communities Through the Federal Government, and 2) Diversity, Equity, Inclusion and Accessibility Through the Federal Government.

The DEIA team created overarching goals and activities to address while working in conjunction with other initiatives addressing the priorities of The Biden Administration and USDA.

https://nifa.usda.gov/diversity-equity-inclusion-accessibility-deia

USDA-NIFA and NSF Invest a total of $220M in Artificial Intelligence Research Institutes

New investment builds on the first round of Artificial Intelligence (AI) Research Institutes funded in 2020.

"In the tradition of USDA-NIFA investments, these new institutes leverage the scientific power of U.S. land-grant universities informed by close partnership with farmers, producers, educators and innovators to provide sustainable crop production solutions and address these pressing societal challenges," said *USDA-NIFA Director Dr. Carrie Castille*. "These innovation centers will:

speed our ability to meet critical needs in the future agricultural workforce

provide equitable and fair market access

increase nutrition security and

provide tools for climate-smart agriculture."

How NIFA funds are provided

- **Capacity grants** - for land-grant institutions, schools of forestry, and schools of veterinary medicine to fund research and extension activities. The amount of funds provided to each institution is determined by a formula.

- **Competitive grants** - for fundamental and applied research, extension, and higher education activities, as well as for projects that integrate research, education, and extension functions. Individuals, institutions, or organizations may apply according to criteria listed in the Request For Applications (RFA).

AFRI Farm Bill Priorities

Plant Health, Production, and Plant Products

Animal Health, Production, and Animal Products

Food Safety, Nutrition, and Health

Bioenergy, Natural Resources, and Environment

Agriculture Systems and Technology

Agriculture Economics and Rural Communities

NIFA funded projects must support at least one priority area

New in 2021

USDA-NIFA Institute for Agricultural AI for Transforming Workforce and Decision Support (AgAID) Prediction, decision support, and robotics-enabled agriculture, using a unique <u>adopt-adapt-amplify</u> approach to develop and deliver AI solutions to agriculture that address pressing challenges related to labor, water, weather and climate change.

USDA-NIFA AI Institute for Resilient Agriculture (AIIRA) AI-driven digital twins that model plants at an unprecedented scale; tools for crop improvement and production for resiliency to climate change. Focusing on Native American bidirectional engagement and farmer programs.

USDA-NIFA AI Institute for Next Generation Food Systems,

USDA-NIFA AI Institute for Future Agricultural Resilience, Management and Sustainability

The FY22 solicitation is now in the full proposal phase. See https://nifa.usda.gov/funding-opportunity/artificial-intelligence-ai-research-institutes and https://beta.nsf.gov/funding/opportunities/national-artificial-intelligence-research-institutes .