

**Ed Kaleikau, National Program Leader, NIFA**  
**2019 and 2020 AFRI update report**  
**National Plant Germplasm Coordinating Committee, June 13, 2019**  
**USDA/ARS George Washington Carver Center, Beltsville, MD**

**RFA Titles, FY 2019 Posting Dates, and FY 2020 Update Dates**

<b>RFA Title</b>	<b>FY 2019 Posting Date</b>	<b>Planned Update for FY 2020 Information</b>
<a href="#"><u>AFRI Education and Workforce Development</u></a>	<a href="#"><u>April 16, 2019</u></a>	check back after February 6, 2020
<a href="#"><u>AFRI Foundational and Applied Science</u></a>	<a href="#"><u>May 7, 2019</u></a>	check back after December 18, 2019
<a href="#"><u>AFRI Sustainable Agricultural Systems</u></a>	<a href="#"><u>March 29, 2019</u></a>	TBD

- The obvious big change is that it's now covering 2 years.

**FY 2019 & 2020 AFRI Education and Workforce Development RFA Highlights:**

- There's a new Agricultural Workforce Training Grants (A7601) program. Through curriculum development at community, junior, and technical colleges/institutes this program will expand job-based, experiential learning opportunities for students to enable a work-ready labor force for 21st century agricultural jobs.
- Name change of Professional Development for Secondary School Teachers and Educational Professionals (PD-STEP) program to Professional Development for Agricultural Literacy (PDAL) program. Maximum award size & duration changed to \$500k and 4 years.
- Increase in project duration with a proportional increase in max award size for the Predoctoral Fellowships (A7101) to \$180k and 3 years.
- For FY 2019, Research and Extension Experiences for Undergraduates (A7401) is including a special request for an Education Coordination Network.

**FY 2019 & FY 2020 AFRI Foundational & Applied Science RFA Highlights**

- Conference grant applications are now allowed year-round for program area priorities that fund conference grants. Requirement of Letters of Intent for all conference grants. Letters of intent should be submitted a minimum of 135 days before the conference, and after LOI decision response, the application should be submitted a minimum of 90 days before the conference begins.
- The Exploratory Program (A1801) did not return in this RFA.
- The Critical Agricultural Research and Extension (CARE) (A1701) and Food and Agriculture Cyber informatics Tools (FACT) (A1541) programs no longer require LOIs.
- We have some new or reworked program areas:

- Foundational Knowledge of Plant Products (A1103)
- Food Safety and Defense (A1332)
- Novel Foods and Innovative Manufacturing Technologies (A1364)
- Diet, Nutrition and the Prevention of Chronic Diseases (A1344)
- Food and Human Health (A1343)
- Mitigating Antimicrobial Resistance Across the Food Chain (A1366)
- Soil Health (A1401)
- Water Quantity and Quality (A1411)
- Agricultural Innovation through Gene Editing (A1191)
- Inter-Disciplinary Engagement in Animal Systems (A1261)

**Cross-cutting Program Areas Priorities:**

- Tactical Sciences for Agricultural Biosecurity
- Agricultural Innovation through Gene Editing
- Inter-Disciplinary Engagement in Animal Systems (IDEAS)
- Agricultural Microbiomes
- Food and Agriculture Cyberinformatics Tools (FACT)
- Critical Agricultural Research and Extension (CARE)

**FY 2019 Sustainable Agricultural Systems RFA Highlights:**

Started in 2018.

Progression of the Challenge Areas to new multidisciplinary systems-level work.

Must be integrated to include research, education and extension.

Up to \$10 million per systems-level Coordinated Agricultural Project (CAP) grant.

**Soliciting creative and visionary projects that:**

- use transdisciplinary approaches
- integrate research, education, and extension
- promote convergence of science and technology
- solve present and future challenges to food and agricultural production system
- result in societal benefits

**Goals:**

- Increase profitability in agriculture by reducing input use, expanding existing and creating new markets, increasing productivity, and curbing production losses due to environmental and biological stresses, including pests and diseases
- Foster economic development and prosperity in rural America by catalyzing the bioeconomy through value added innovation, including production of high-value bio-based chemicals and other products using agricultural feedstocks.
- Enhance the contribution of food and agriculture to health of the nation through development, adoption, and application of new or existing technologies, tools, education, and other resources to ensure access to sufficient quantities of safe, nutritious, and affordable food.

## **FY 2019 and 2020 AFRI Plant Breeding for Agricultural Production (A1141)**

Supports public breeding to improve crop productivity, efficiency, quality, and performance, particularly for local and regional adaptation to soils and climates of U.S. farming systems. Conventional/classical and/or genomics-enabled plant breeding approaches will be supported.

Research is encouraged to genetically dissect and then introduce desirable traits that may include, but are not limited to: increased nutrient use efficiency; increased photosynthetic efficiency; tolerance to drought, flood and temperature extremes; resistance to pests and diseases; improved taste, aroma, nutrition, or food safety; adaptation to vertical agriculture systems; and gene editing.

**Project Types:** Research and **Integrated Projects\***

**Grant Types:** Standard, Conference, and FASE (Strengthening Standard, New Investigator, Strengthening Conference, Seed, Equipment, and Sabbatical)

### **Application Deadlines:**

- **Fiscal Year 2019:** Thursday, July 18, 2019
- **Fiscal Year 2020:** Thursday, March 19, 2020\*
- **Conference Grants:** submitted after LOI decision and a minimum of 90 days before the conference begins\*

### **4 Funding opportunities:**

- Plant Breeding Research
- **Later Stages of Cultivar Development\***
- **Crop Breeding Innovation Hubs (integrated research and extension)\***
- **High Intensity Phenotyping Sites (integrated research and education)\***

### **Plant Breeding Research:**

- pre-breeding and germplasm enhancement;
- participatory breeding;
- selection theory;
- applied quantitative genetics;
- phenomics;
- **modeling (including crop growth models) in breeding.\***
- **\$500,000**, for up to three years; **\$650,000** for specific types of partnerships.\*

### **Later Stages of Cultivar Development:\***

- testing and evaluation of developed materials in established regional trials with the primary goal of releasing publicly finished cultivars
- **\$300,000**, for up to three years.

### **Crop Breeding Innovation Hubs (integrated research and extension):\***

- develop and evaluate research outputs in elite germplasm and subsequently distribute the improved lines to public and private breeding programs.
- **\$1,000,000**, for up to five years. Only 1 award.

### **High Intensity Phenotyping Sites** (integrated research and education):\*

- Support ongoing community-based experiments; deployment, evaluation, and use of field sensors and imaging technologies; creation of data management, sharing, and analytics platforms; and training the next generation of agricultural researchers.
- **\$3,000,000**, for project periods up to three years. Only 1 award.

### **Commodity Board co-funding opportunities** (1:1 matching):

- **Kansas Wheat Commission.** Utilize technologies, tools and methods to access and mobilize genes within collections of wild wheat species for germplasm enhancement and elite cultivar development.
- **National Peanut Board.** Research on marker-trait associations in the core collection and cultivated and wild species of peanut through intensive phenotyping to expand genetic diversity and discover new desirable traits and high quality genetic markers.

### **Additional Information:**

- Release or distribution of germplasm: Researchers must consult with the relevant National Plant Germplasm System (NPGS) curator to determine whether and how to deposit germplasm, transgenic plants, mutants, plant populations, or other kinds of materials into the NPGS or stock center. Project directors must confer with the crop curators and crop germplasm committees early in the application development process regarding the desirability of submitting genetic stocks and experimental plant populations generated by NIFA funding for deposit into NPGS repositories. More information is available on the [NPGS website](#).
- **Conference Grant applications:** 1) a workshop that brings together experts in plant breeding and related sciences to develop a research roadmap for **breeding crops specific to U.S. vertical agriculture systems\***, and/or 2) plant breeding research and education to provide graduate student and post-doctoral interaction with public and private geneticists, breeders, and other scientists to promote careers in plant breeding, genetics, and genomics.

### **Recent and upcoming NIFA AFRI Conferences:**

- 2019 Organic Wheat Conference, January 29-30, 2019, Manhattan KS; Opportunity is Knocking: White Paper on Establishing an Organic Winter Wheat Breeding Pipeline in the Great Plains, [http://kswheat.com/sites/default/files/hpi\\_organic\\_conference\\_white\\_paper.pdf](http://kswheat.com/sites/default/files/hpi_organic_conference_white_paper.pdf)
- Breeding Crops for Enhanced Food Safety, June 4-6, 2019, University of California, Davis.
- Emerging Opportunities for Pulse Production: Genetics, Genomics, Phenomics, and Integrated Pest Management, June 24 - 25, 2019, Pullman, WA
- National Association of Plant Breeders Annual Meeting, April 25-29, 2019, Pine Ridge, GA
  - AFRI Plant Breeding PD meeting, Poster and Oral presentations.

### **NIFA AFRI Workshop Reports:**

- Training in Plant Genetic Resources Management: A Way Forward. Gayle M. Volk, Deana Namuth-Couvert, and Patrick F. Byrne\*, Crop Science, March 2019.

- Idea Factory: the Maize Genomes to Fields Initiative. Carolyn J. Lawrence-Dill\*, Patrick S. Schnable, and Nathan M. Springer, Crop Science, April 2019.
- Big Data Driven Agriculture: Big Data Analytics in Plant Breeding, Genomics, and the Use of Remote Sensing Technologies to Advance Crop Productivity. Nadia Shakoor,\* Daniel Northrup, Seth Murray, and Todd C. Mockler, Plant Phenome, May 2019.