



National Institute of Food and Agriculture
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Agriculture and Food Research Initiative (AFRI) Foundational Program

Plant Health and Production and Plant Products FY 2016 RFA

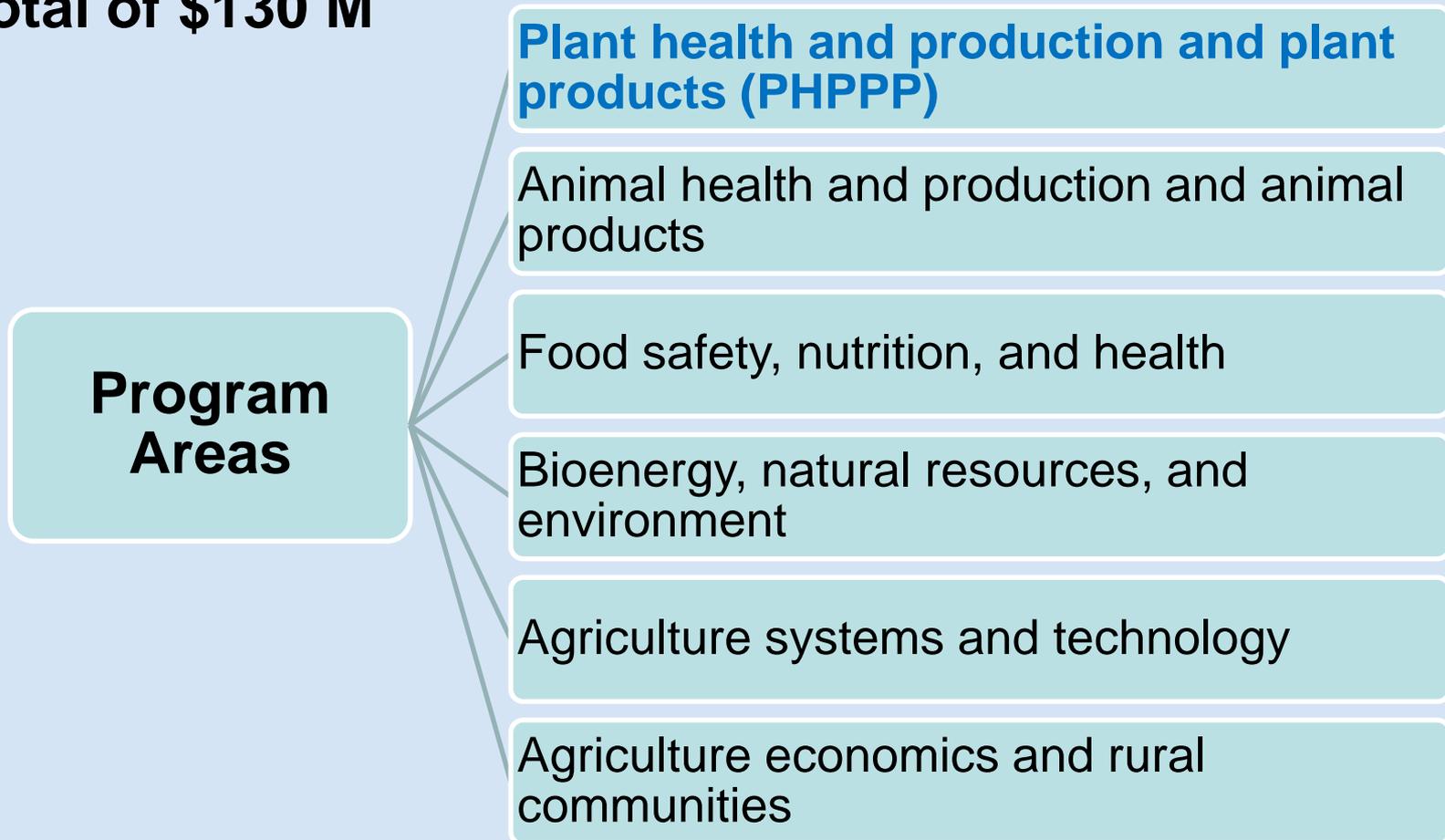
Program Priorities, Deadlines and Contact Information





2016 AFRI Foundational Program

Total of \$130 M





FY 2015 PHPPP

Five Program Area Priorities, ~\$30 million

- Plant Breeding for Agricultural Production
- Growth and Development, Composition and Stress Tolerance
- Understanding Plant-Associated Microorganisms and Plant-Microbe Interactions
- Controlling Weedy and Invasive Plants
- Plant-Associated Insects and Nematodes



FY 2016 PHPPP

Four Program Area Priorities, ~\$33 million

- Foundational Knowledge of Ag. Product. Systems
- Pests and Beneficial Species in Ag. Production Systems
(Insects/Nematodes + Weedy and Invasive Plants)
- Physiology of Agricultural Plants
(Growth/Development, Stress Tolerance, Photosynthesis, Metabolism and Nutrient Use)
- Plant Breeding for Agricultural Production

The former Plant-Associated Microbes and Plant-Microbe Interactions program area priority has been replaced by the Plant Biotic Interactions Program offered in partnership with the National Science Foundation. Go to <https://nifa.usda.gov/funding-opportunity/nsf-nifa-plant-biotic-interactions-program-pbi>



Rationale for Restructuring PHPPP in 2016

- Offer funding through broader results-oriented priorities rather than narrow discipline-based priorities.
 - Award funding to projects with the best potential to fill knowledge gaps and address stakeholder needs.
- Promote interdisciplinary opportunities in foundational research.
 - For example, multi-trophic interactions, systems approaches, and agronomic practices.
- Be more responsive to high priority areas of research.
 - Such as plant microbiome, pollinator health, and impacts of pesticide resistance on plant/animal/microbial systems.



FY 2016 AFRI Foundational Program RFA (includes PHPPP)

- Posted May 13, 2016
- Funds available: Approximately \$33 million
- Maximum size of grants: \$500,000 including IDCs
- Proposal submission deadlines vary for each program area priority



Foundational Knowledge of Ag. Prod. Systems

Program Area Priority Code: A1102

Program Area Priority Contacts:

Dr. Mathieu Ngouajio, 202-401-4895 or
mngouajio@nifa.usda.gov

Dr. Robert M. Nowierski, 202-401-4900 or
rnowierski@nifa.usda.gov

Application Deadline: August 17, 2016



Foundational Knowledge of Ag. Prod. Systems

- The goal of this program is to support research advancing our understanding of cropland, managed forest, and rangeland production systems.
- Research supported by this priority area will address critical or process-limiting dynamics that occur among and within the various management components of the production system.



Foundational Knowledge of Ag. Prod. Systems

Priorities (must address one or more):

- How multiple management components in ag production systems can be integrated to enhance plant resilience to various stressors and improve product quality and/or productivity.
- How ag production can alter the plant microbiome; how alterations affect plant resilience to various stressors and/or affect product quality and/or productivity.
- How changes in production system management or biodiversity affect soil health.
- Synthesis and meta-analysis of existing data to derive general principles about the function and properties of ag production systems.



Pests and Beneficial Species in Agricultural Production Systems

Program Area Priority Code: A1112

Program Area Priority Contacts:

Dr. Mary Purcell-Miramontes, 202-401-5168 or
mpurcell@nifa.usda.gov

Dr. Jeffrey Steiner, 202-734-1067 or
Jeffrey.steiner@nifa.usda.gov

Application Deadline: July 21, 2016



Pests and Beneficial Species in Agricultural Production Systems

- The goal of this program area priority is to elucidate the fundamental ecological, molecular, biological and/or chemical processes affecting the abundance and spread of plant-associated pests (**insects, nematodes, pathogens and weeds**) and healthy populations of beneficial species (**pollinators and biological control agents**) in agricultural production systems (**including croplands, managed forests and rangelands**); and to increase our understanding of multi-trophic interactions between plants, pests, and/or beneficial species.



Pests and Beneficial Species in Agricultural Production Systems

Priorities (must address one or more):

- Interactions of pests or beneficial species with plant compounds, genes or stressors.
- Effects of communication, attractants and/or defense signaling systems on pests or beneficial species.
- Understanding movement or dispersal dynamics of pests or beneficial organisms, including pests that vector plant diseases.
- Mechanisms of resistance to pesticides and/or strategies to mitigate resistance.
- Elucidation of individual or interacting factors that affect pollinator populations that will lead to the development of novel tools and technologies to mitigate their losses.



Physiology of Agricultural Plants

Program Area Priority Code: A1152

Program Area Priority Contacts:

Dr. Liang-Shiou Lin, 202-401-5045 or
lilin@nifa.usda.gov

Dr. Shing Kwok, 202-401-6060 or
skwok@nifa.usda.gov

Application Deadline: August 11, 2016



Physiology of Agricultural Plants

This program area priority will support projects that use molecular, biochemical, whole-plant, agronomic or eco-physiological approaches to improve plant productivity or performance.



Physiology of Agricultural Plants

Priorities:

- Plant growth and developmental processes.
- Mechanisms of plant response to abiotic stresses.
- Photosynthetic efficiency, carbon assimilation and/or source-sink relationship.
- Primary and secondary metabolism in agriculturally-important plants and associated weeds, with particular relevance to nutritional quality of food and feed and economically-important traits including traits with potential benefits in weed control.
- Nutrient uptake (**macronutrients and/or micronutrients**), assimilation, accumulation and/or utilization.



Plant Breeding for Agricultural Production

Program Area Priority Code: A1141

Program Area Priority Contacts:

Dr. Ed Kaleikau, 202-401-1931 or
ekaleikau@nifa.usda.gov

Dr. Liang-Shiou Lin, 202-401-5045 or
[llin@nifa.usda.gov](mailto:lilin@nifa.usda.gov)

Application Deadline: July 28, 2016



Plant Breeding for Agricultural Production

- This program area priority will support public breeding efforts to improve crop productivity, efficiency, quality, performance, and/or local adaptation.
- Both conventional and genomics-enabled plant breeding will be supported.
- These efforts should address the priority needs identified by the USDA Roadmap for Plant Breeding (<http://nifa.usda.gov/sites/default/files/resources/usda-roadmap-plant-breeding.pdf>).



Plant Breeding for Agricultural Production

Priorities:

- Pre-breeding and germplasm enhancement, cultivar development, selection theory, applied quantitative genetics, and participatory breeding.
- **NIFA and Commodity Board co-funding topics:**
 - Kansas Wheat Commission: Breeding for genetic resistance to wheat viruses
 - Iowa Corn Promotion Board: Environmental influence on phenomics in crop improvement and production



Points of Contact for Feedback

- Foundational Knowledge of Agricultural Production Systems
Mathieu Ngouajio and Robert Nowierski
- Pests and Beneficial Species in Agricultural Production Systems
Mary Purcell-Miramontes and Jeffrey Steiner
- Physiology of Agricultural Plants
Liang-Shiou Lin and Shing Kwok
- Plant Breeding for Agricultural Production
Ed Kaleikau and Liang-Shiou Lin
- General Comments
Michael Fitzner