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Policy and Oversight Branch; Office of Extramural Programs;
Cooperative State Research, Education, and Extension Service;
USDA; STOP 2299;
1400 Independence Avenue, SW;
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via e-mail to: RFP-OEP@csrees.usda.gov

RE: AFRI RFA

Thank you for the opportunity to provide public comment regarding the Cooperative State Research, Education, and Extension Service (CSREES) implementation of the Agriculture and Food Research Initiative (AFRI), as authorized by Section 7406 of the Food, Conservation, and Energy Act of 2008. Specifically, we wish to comment on ways to improve the RFA regarding USDA funding opportunities for public plant and animal breeding.

In recent decades, the public resources for conventional/classical public plant and animal breeding activities have declined as scarce federal resources have shifted toward higher-profile work in the areas of genomics and molecular genetics. Conventional breeding and genomic activities are categorized together within CSREES, making quantification of this shift difficult. However, the symptoms of this shift have been evident in the land grant universities and farm fields of our nation.

Across the nation, once-strong public plant and animal breeding programs at our land grant universities have atrophied as hard funding for these activities have declined. Plant and animal breeders compete for grant funds, but because a source of money specifically focused on cultivar and breed development is not available, projects to develop cultivars cannot be sustained.

The real world implications of this shift can be felt most acutely in the farm fields of our nation and around the globe by farmers who seek options not provided by the private sector, cannot afford patented varieties, or grow for identity-preserved (IP) markets abroad. Organic and sustainable farmers, whose cropping and livestock systems depend heavily on local adaptation of plants and animals to unique soil, pest, and environmental conditions of their areas need cultivars that are not currently supplied by industry.

Organic farmers are prohibited from using genetically modified germplasm, and many sustainably-oriented farmers choose not to do so because of conflicts with their cropping or marketing systems. Many farmers need cultivars of additional crop species to support longer rotations. The decline in publicly available cultivars leaves these farmers with few options for the seeds and breeds that meet their needs.

The private sector has devoted significant resources to genomics and molecular genetics research to develop patented cultivars for large-scale markets. However, this consolidation of germplasm resources into an ever-narrowing pool controlled by the private sector could jeopardize future food security.

In contrast, breeding for regional or site-specific situations, for products with certain taste and/or nutrition qualities, and for a large number of small-acreage crops is not being conducted by the private sector. Increased diversity and local adaptability of our seed and animal germplasm will restore “resilience”

through increased on-farm diversity to our farming systems, and is key to our future food security. Without breeding support in the public sector, these needs will continue to go unmet.

The role of the AFRI program in reinvigorating the investment in plant and animal breeding is critical. The Food, Conservation, and Energy Act of 2008 has demonstrated Congress' concerns in this regard, by listing "conventional" breeding within both the "Plant Health and Production and Plant Products" and the "Animal Health and Production and Animal Products" priority areas of AFRI. Congress further elaborated on its' concern in this area through Statement of Managers language to accompany the Farm Bill:

> The Managers are aware of the importance of supporting public sector conventional plant and animal breeding, as evidenced by the specific mention of this priority under the "plant health and production and plant products" and "animal health and production and animal products" priorities in AFRI. The Managers intend that the term "conventional breeding," also known as "classical breeding," refer to breeding techniques, which rely on creating an organism with desirable traits through controlled mating and selection. Because conventional breeding is critical to the development of seeds and breeds that are well adapted to local conditions and changing environmental constraints, these efforts are important to the food and agriculture sector. The Managers are aware that participatory breeding programs, where producers are involved in the process of developing new plant varieties and animal breeds, yield varieties and breeds that are better adapted to local environments. The Managers encourage an emphasis on funding of conventional plant and animal breeding as part of the new AFRI."

There is a growing domestic and international concern about increasing climatic shifts, which cause climatic instability, warming, and greater problems with pests and diseases. Strong efforts need to be made now to focus on breeding cultivars for greater resistance to physical and biological stress. At the same time, problems with environmental quality and population growth demand that we focus on breeding new productive cultivars with enhanced field performance and nutritional quality for human and animal consumers. These demands bring a new and real urgency to the need for stronger allocations of public research dollars to breeding new cultivars and breeds in order to enhance and sustain our agriculture into the future.

Our concerns focus on these provisions of the Farm Bill of 2008, which specify conventional plant and animal breeding as a new priority area of research within the AFRI program. The RFA announced in January of this year did not adequately distinguish public plant and animal breeding as a separate and stand alone grant category area. Because the program area that included breeding has formerly funded genomics-oriented projects and because that program did not receive extra money to accompany the inclusion of breeding topics, it naturally did not support many breeding-focused applications.

<u>Therefore, we strongly support revising the RFA to establish a separate and wholly distinguishable category for public plant and animal breeding focused on the development of new publicly held cultivars and / or breeding lines and improved breeds</u>. They should include breeding for improved food quality, breeding improved local adaptation to biotic and abiotic stress, and participatory breeding.

We offer the following specific recommendations with regard to improving implementation of the AFRI program:

1) Two new separately-identifiable program areas should be designated with the AFRI structure, one to address conventional plant breeding, and another to address conventional animal breeding, each with sufficient allocations for each year.

2) CSREES should recognize the unique, long-term nature of conventional/classical plant and animal breeding, and promote project terms that allow for renewable grants of up 10 years in this area.

3) When implementing the matching requirement provisions of the AFRI, we encourage CSREES to recognize that even though the cultivars developed may be commodity-specific and local/regional in nature, the development of public cultivars and breeds is a public good, serving larger societal goals of diversity and agricultural security Where a clear public good can be demonstrated, the matching requirements should be waived or made more flexible.

4) As part of the Request for Application (RFA) process, we urge CSREES not to seek to address the conventional breeding priority area through commodity-specific RFAs. The backlog of need is too great to limit requests to only targeted commodities or crops.

5) As CSREES seeks to reinvigorate conventional breeding more fully into its competitive grant process and system –wide responsibilities, we urge the agency to track grants that actually develop new public cultivars or improved breeds from conventional breeding activities separately from genomic or molecular genetics activities. In this way, the funding and overall public breeding capacity trends will be more easily monitored and analyzed. We also suggest that this tracking system be extended USDA-wide to provide more accurate assessment of overall USDA commitment to public cultivar development.

We realize that such an effort requires a clear definition of how conventional breeding differs from genomics. As stated in the AFRI authorizing language in the 2008 Farm Bill, we believe that conventional breeding includes "cultivar and breed development, selection theory, applied quantitative genetics, breeding for improved food quality, breeding improved local adaptation to biotic and abiotic stress, and participatory breeding." And as further noted in the Farm Bill Statement of Managers, "…the term "conventional breeding," also known as "classical breeding," refer[s] to breeding techniques which rely on creating an organism with desirable traits through controlled mating and selection."

6) We also strongly support the continued strengthening of financial incentives for graduate and undergraduate support for training in classical plant and animal breeding to ensure the next generation of public plant and animal breeders and to encourage graduate students to work with existing classical breeders to better learn both the science and art of breeding and public cultivar development.

In making decisions about allocating scarce federal dollars for high priority agricultural research, we encourage the Agency to consider both alternative sources of funding (e.g. private funding), as well as cost efficiencies of research activities. Unlike genomics and molecular biology, conventional breeding must rely heavily on public sources of funding, with few other sources of funding. In addition, the costs of conventional breeding techniques are significantly less, with much greater track record of cultivar release and public access to the research products.

Thank you for this opportunity to express my concerns. We look forward to working with you further on this and the future AFRI grant award processes.

Sincerely,

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