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Testimony submitted for the U.S. Senate Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies for the USDA, Agricultural Research Service

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Chair and Members of the Subcommittee, thank you for this opportunity to present FAR-B's statement supporting funding for USDA-ARS, especially its flagship research facility in Beltsville, Maryland, which includes the Henry S. Wallace Beltsville Agricultural Research Center (**BARC**) and the Beltsville Human Research Center (**BHNRC**), as well the U.S. National Arboretum (**USNA**) in Washington, DC, which has research scientists located at BARC. Those three locations constituted the Beltsville Area prior to ARS consolidation from eight Areas to five. For convenience, we now refer to those organizations as Beltsville in the Northeast Area of ARS.

Beltsville research is essential to expanding the wealth of knowledge that addresses agricultural and human health problems and is transferred to the public. The social returns from dollars invested in agricultural research realize a net social gain to farmers, the food industry, and consumers, including safe and healthier food as well as abundance of commodities for the United States and our world trade partners.

Beltsville's location is ideal for partnering with the University of Maryland and other educational institutions in agricultural research. Through such collaboration, research results on agricultural practices is extended to farmers in rural communities and to meet the need for transfer of this information and technology throughout the U.S. agricultural community.

Beltsville Agricultural Research Center (BARC)

Satellite remote sensing of evapotranspiration, in BARC's Hydrology and Remote Sensing Laboratory uses **remote sensing basic and applied research to address water and soil resource concerns related to the production of food and fiber, climate change, and conservation of natural resources**. The satellite remote sensing models developed are now used in U.S. partnerships to direct efforts at expanded agricultural drainage on regional hydrology in the corn belt; water management in managed forest plantations; calibrated hydrologic and water quality modeling in support of the Chesapeake Bay Program; and modeled water management from farm to watershed. A BARC modeling system is used in a National Oceanic and Atmospheric Administration system to deliver daily maps of crop water use and drought over North America and distributed worldwide by the National Aeronautics and Space Administration (**NASA**) as a drought early warning system, which recently became part of the OpenET (evapotranspiration) project involving NASA, the U.S. Geological Survey, and many universities and environmental nonprofits to create a platform of data now accessible with Google Earth. It is also used in the European Space Agency's Sentinel Application Platform.

The USDA Lumina Strawberry was developed by BARC's Genetic Improvement of Fruits and Vegetables Laboratory scientists. It is a new early-season variety, and with the mid-season Keepsake and late-harvest Cordial makes the **third strawberry cultivar developed at BARC with increased shelf life and superior disease resistance**. USDA Lumina strawberries are 24% more marketable than their early-season predecessor after 2 weeks of storage postharvest. They are very disease -resistant and, therefore, usually do not need to be sprayed with pesticides. This research is of great value to strawberry producers, retailers, and consumers; strawberries are the most valuable annual food crop that a farmer can grow on an acre.

BARC's Animal Genomics and Improvement Laboratory in cooperation with Pennsylvania State University developed **a strategy to reduce the incidence of Early Onset Muscle Weakness Disorder** in dairy cattle after discovering a major genetic mutation. Young calves with this genetic marker from both parents have a much higher death rate because they are unable to stand. From national data that includes the genotypes of 6 million Holsteins, DNA was traced back through many generations to identify the condition's mutation cause, and each animal's mutation status was reported to breeders starting in December 2023. Now, with improved pedigree tracking and genetic testing, mating selection has reduced the incidence of this disorder.

BARC's Environmental Microbial and Food Safety Laboratory is responsible for the development and implementation of papaya food safety standards. Scientific support was needed to reduce pathogen-borne foodborne illness from outbreaks associated with contaminated papayas imported from Mexico. Best food safety practices were developed after BARC scientists conducted **pioneering research to identify and describe in detail the packing house operating conditions that led to papaya contamination** and made recommendations that resulted in the **first food safety guidelines for papayas**. The result is safer produce for U.S. consumers.

Beltsville Human Nutrition Research Center (BHNRC)

BHNRC is the oldest of six such Centers in ARS and the broadest in scope. It is the only one of the six to be located at a comprehensive agricultural research facility like BARC. Its four laboratory missions in the current program cover the broad scope of human nutrition as related to health: investigate the role of nutrients and food components at the cellular level; examine the impact of dietary interventions on health in animal and human research; conduct mission-critical surveys to find out what people are eating; and support an expanded understanding of just what is actually in food.

BHNRC's Methods and Application of Food Composition Laboratory is responsible for Food Data Central (**FDC**), which is among the top five accessed websites on data.gov. FDC is USDA's **online integrated food and nutrient data system** since 2024 and an international resource that **links the composition of food, what foods people eat, and the effect of agricultural practices and variances of climate on the nutrient values of our food product**s. The 2.9 million visitors over the last 12 months are a 69% increase over the previous year. In light of the need for this data bank to remain competitive in multidisciplinary laboratory food analyses and be accessible for diverse users, increased funding is needed to sustain it. Costs have increased for the complicated laboratory food analyses required for multiple components, advanced information

technology and data storage platforms needs, and necessary security measures. This research is being advanced with the incorporation of artificial intelligence and machine learning. To maintain the outstanding level of service provided to the United States and the world, at least $1 million of additional funding is requested.

U.S. National Arboretum (USNA)

The National Arboretum in Washington, DC, with its Floral and Nursery Crops Research Unit located in Beltsville, is renowned as a scientific and collections-based public garden. USNA is dedicated to enhancing the economic, environmental, and aesthetic value of the U.S. nursery, floriculture, and turf industries through long-term, multidisciplinary research along with conservation of genetic resources, interpretative gardens, and exhibits.

USNA scientists at Beltsville are leading the effort to elucidate cool virulence mechanisms in Ralstonia, a devastating "select agent" disease of potatoes (brown rot), tomatoes and eggplants (bacterial wilt), and geraniums (southern wilt). That disease can harm more than 200 crop species. Ralstonia has been identified as a select agent by the Federal Select Agent Program, which is jointly comprised of the Centers for Disease Control and Prevention, Division of Regulatory Science and Compliance and the Animal and Plant Health Inspection Service, Division of Agricultural Select Agents and Toxins.

USNA scientists are conducting research on dormancy triggered by heat, drought, or cold stress as well as pest resistance in cool and warm season turfgrasses with the goal of identifying genes of value in breeding superior, sustainable turfgrass for different climatic zones. Other USNA scientists conduct research on virus diseases of ornamental crops and pathogenicity of selected bacterial pathogens to facilitate effective control of bacterial diseases of major significance to ornamental and agronomic crops. They are developing technologies for improved detection, differentiation, and identification of new and emerging viruses as well as new cultivars that are disease and pest resistant, tolerant of environmental stresses, and have superior ornamental qualities.

With more than 750,000 people per year visiting the USNA campus in Washington, DC, which is a 50% increase over the last decade, equitable and safe access is essential. However, the current infrastructure is old, failing, and inadequate. Adequate funding is needed to address the challenges of adequate vehicular and pedestrian access and safety, especially for the USNA centennial in 2027.

Notable Recent Beltsville Scientist Recognition

At the recent ARS Annual Employee Recognition Program, Dr. Mohamed Alburaki was honored for **significant achievements in enhancing honeybee research and contributing substantially to the improvement of pollinator health**. According to USDA, honeybees pollinate $15 billion worth of crops in the United States each year, including more than 130 types of fruits, nuts, and vegetables.

Also at the ARS Annual Employee Recognition Program, Dr. Curtis P. Van Tassell was honored for **leadership in livestock genetics employing a multidisciplinary approach to achieve unprecedented advances for the dairy and beef industries of the United States.**

In summary, the laboratories that comprise the above locations produce distinguished basic and applied agricultural research to benefit society with their accomplishments, and the scientists have steadfast determination to continue their dedicated service to the United States and world. They are best able to continue their mission unabated with safe buildings and upgraded infrastructure. **We therefore recommend full funding for the research programs of the Beltsville Locations.**

Mr. Chairman, this concludes our statement. Thank you for your consideration and support for the educational, research, and outreach missions of the Beltsville Locations of the Agricultural Research Service.

Sincerely,

David A. Prevar