**Institute of Food Technologists**
525 W. Van Buren Street., Suite 1000
Chicago, IL 60607-3830 USA

**+1.312.782.8424**
+1.312.782.8348 Fax
ift.org

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RE: Foundation for Food and Agriculture Research (FFAR) Research Strategy Refresh

The following responses to FFAR prompts were submitted via web portal:
https://app.smartsheet.com/b/form/6a11f2049bd24442868745996101530f

The Institute of Food Technologists (IFT) appreciates the opportunity to provide input on the Foundation for Food and Agriculture Research (FFAR) Research Strategy Refresh. IFT is a global organization of approximately 12,000 individual members, in 95 countries, who are committed to advancing the science of food. IFT provides scientific, technical, and career development resources for advancing the science of food and its application across the global food and agricultural systems. We believe that science is essential to ensuring a global food supply that is sustainable, safe, nutritious, and accessible to all.

We commend FFAR for their focus on interdisciplinary research and public-private partnerships to address key challenges in food, agriculture, and nutrition. We also agree with the importance of investing in the scientific workforce to develop the next generation of scientists. We believe the research strategy refresh will continue to advance the "audacious" research supported by FFAR and develop evidence-based and actionable solutions to some of the world's greatest food, agriculture, and nutrition challenges. In doing this it is essential to elevate the focus on food science, the critical middle connecting segment of the food system.

**What big challenges or issues are you currently facing in your sector?**

In recent years the food and agriculture sector has faced some of its greatest challenges in decades. A global pandemic, climate change, energy, and water shortages, and escalating military conflicts have tested the resiliency and flexibility of the global and domestic food supply chain. Millions around the globe suffer from food and nutrition insecurity, yet 1/3 of food produced is wasted. Domestically, increases in microbial food safety recalls have led to illness and food shortages for some of the most vulnerable of our population. The recent White House Conference on Hunger, Nutrition and Health also brought to light the growing issue of diet-related chronic diseases and the numerous disparities in food and nutrition security across our nation.

These challenges have revealed many knowledge gaps that need to be addressed through translatable research and we believe food science and technology can play a critical role in solutions to these major challenges. Food science and technology has contributed substantially to improving food and nutrition security and health around the globe. Food processing technologies, such as fortification, have saved lives and improved the quality of life domestically and around the globe. Preservation technologies, such as high-pressure processing and modified atmosphere packaging, have improved shelf-stability to help ensure nutritious foods are not wasted but available, affordable, and safe.

Despite these and many other successful technologies, food science and technology research remain chronically underfunded, which is particularly concerning when AgriFood is the third largest contributor to the US GDP[1]. Within the FFAR strategy refresh there is a clear emphasis on agriculture and nutrition research, but in between the field and fork is food science and technology, which seems overlooked. We encourage FFAR to consider research and solutions across the entire food supply chain, including food science and technology.

**What do you think will be the big challenges or opportunities in the future of your field?**

With a continually growing population and limited resources, future research and technological advancements must focus on greater efficiency, affordability, and agility while improving nutritional value and reducing planetary impact. For these reasons, IFT believes the following research areas will be critical to future-proofing the food system and encourages FFAR to consider where these may fit within or be added to the current research strategy refresh.

- Research and development of sustainable technologies that increase access to safe, affordable, and convenient food products that fit into healthy, culturally-relevant dietary patterns and meet consumer preferences.
- Development and accelerated implementation of technologies to reduce food loss and waste across the food supply chain, such as packaging technologies to improve shelf-life, valorization of waste streams and crop losses.
- Development and implementation of food processing technologies that minimize resource use (e.g., water, energy) while maintaining food safety and improving nutrient retention and quality.
- Advancing research on foodborne pathogen risks and agricultural diseases related to natural and human driven disasters. Accelerate research on rapid, reliable methods for early detection of potential contamination.
- Development of scientific methods, new IoT tools (e.g., sensors) and modeling tools to assess agricultural, aquacultural, livestock, forestry, and human microbiome ecosystems

[1] IFT. *Food Research: Call to Action on Funding and Priorities*. January 2020. https://www.ift.org/policy-and-advocacy/advocacy/funding-white-paper

and their impact on food safety, supply chain resilience and human, animal and plant health and disease.

- Development of new low/no cost digital data collection technologies to improve supply chain traceability and transparency.
- Training and educational resources on safety and other aspects of food production for food and agriculture work force to maintain the food supply, especially during crisis.

**What do you need research to deliver?**

IFT believes the most promising opportunities and solutions are those that will address multiple issues relating to food and nutrition security, health, and sustainability. Solutions will need to be cross-functional in approach and consider all aspects of the food supply chain from farm to fork. Development and implementation of solutions will require multi-stakeholder engagement and investment to ensure solutions reach a broad scale.