

June 23, 2021

Dear Director Castille:

On behalf of the American Society for Microbiology (ASM), thank you for the opportunity to comment on how Federal investments can best address current needs and challenges facing U.S. agriculture. As one of the oldest and largest life science societies with more than 30,000 members in the United States and around the globe, our mission is to promote and advance the microbial sciences. ASM supports policies that respect and enhance the integral role of plant, animal, soil, and water microbiomes in a healthy and economic supply of food, fiber, fuel and a well-functioning agroecosystem, policies that promote research on environmentally sustainable agricultural practices, and policies that facilitate implementation of these practices.

As noted in the National Academies report *Science Breakthroughs to Advance Food and Agricultural Research by 2030*, further understanding of animal, soil, and plant microbiomes will provide opportunities to improve crop production, transform feed efficiency, and increase resilience to stress and disease. Such practices can also help communities mitigate and adapt to climate change. In prior comments to USDA, ASM noted the following specific areas where federal investment is needed:

Supporting a Healthy Soil Microbiome

Microbes play a critical role in the functioning of soils. We know very little about the bacteria and fungi that interact intimately with plants, yet we do know that they play a central role in plant nutrient uptake. ASM encourages further research on soil health, including the fundamental aspects of the interrelations between the biological, chemical, and physical aspects of the soil.

Coordinating Microbiome Research

ASM strongly encourages USDA to recommit to the objectives of the Interagency Microbiome Strategic Plan released in April 2018. This plan, developed by the federal Microbiome Interagency Working Group, recognizes the need for better coordination of microbiome research among federal agencies, and between agencies and both non-federal domestic and international microbiome research efforts. Researchers should be encouraged to share their results and make existing or needed microbiome data, analytics, technology platforms, and expertise publicly available across the federal government and among academic research institutions, national laboratories, and industry. USDA could play a leadership role in this area, linking public sector research efforts with private sector and end-user needs, not only for microbiome data but for other data repositories as well.

Applying Microbiome Science to Food Science and Safety

Microbiological data can contribute to food safety from farm-to-fork, and ASM appreciates the investments made by USDA in this domain. Understanding the interaction of gut bacteria with beneficial microbes has potential to both fight disease and to cut antibiotic use in both humans and food animals. As we learn more about the human gut microbiome, omics technologies can be leveraged to further understand individual perceptions of food and flavor, and in turn the drivers of food choice. Finally,

microbiome science can bring us closer to truly personalized nutrition that takes into account individual preferences as well physiological factors.

Applying Microbiome Science to Animal Health and Nutrition

ASM encourages further investment in research on animal microbiomes. As with humans, microbiome science has implications for nutrition and feeding as well as disease susceptibility. As we move toward greater consensus on and communication concerning policy changes in areas such as antimicrobial stewardship, microbiome science will be an integral part of a One Health approach to antimicrobial resistance. Additionally, with increasing understanding of animal gut microbiomes, nutrient formulations could be combined with more information about the microbiome and its interactions with nutrients, protecting animal health as well as the safety of our food supply. For example, “smart” hog facilities monitor microbiomes for changes that indicate the presence of Salmonella, which allows for quick identification and treatment.

ASM and its members look forward to next steps in this endeavor and stand ready to assist you. If you have any questions or would like to further discuss these comments, please contact me at asegal@amusa.org or 202-942-9294.

Warm regards,



Allen D. Segal
ASM Director of Public Policy and Advocacy