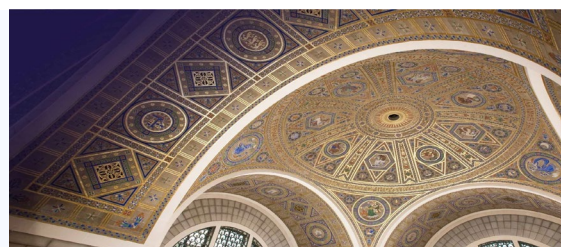


Exploring Linkages Between Soil Health and Human Health

Meeting 9 (Hybrid) – July 26, 2023

Public Agenda



National Academy of Sciences Building

2101 Constitution Avenue NW, Room 120

WEDNESDAY, JULY 26, 2023 (EASTERN)

Purpose	The session will focus on soil microbial compounds used in drug development and on harvesting and processing practices that affect micronutrient and phytochemical bioavailability in food.
	Open session
1:30	Welcome <i>Diana H. Wall, Committee Chair & Session Moderator, Colorado State University</i>
1:40	Committee introductions
1:45	Overview of the National Academies study process <i>Kara Laney, Study Director, National Academies of Sciences, Engineering, and Medicine</i>
2:00	Invited Presentations <i>Jo Handelsman, Director, Wisconsin Institute for Discovery and Professor, Department of Plant Pathology, University of Wisconsin-Madison (remote)</i>
2:30	<i>Katherine Karberg, Medical Affairs Manager, Bayer Crop Science</i>
3:00	Break
3:15	Invited presentations <i>Bhimu Patil, Regents Professor and Director of the Vegetable and Fruit Improvement Center, Texas A&M University</i>
3:45	<i>Mario Ferruzzi, Professor of Pediatrics and Chief of Developmental Nutrition, University of Arkansas for Medical Sciences (remote)</i>
4:15	Speaker discussion with the committee
5:00	Open session concludes

SPEAKER BIOS

MARIO FERRUZZI, UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

Dr. Mario Ferruzzi is a Professor and Arkansas Children's Endowed Chair in Digestive Disease and Nutrition Research. He serves as Chief for the Section of Developmental Nutrition in the Department of Pediatrics at the University of Arkansas for Medical Sciences. He also serves as the Director of the Arkansas Children's Nutrition Center, a partnership between Arkansas Children's Research Institute and USDA's Agricultural Research Service. He received his B.S. (1996) in chemistry from Duke University and Ph.D. (2001) in food science and nutrition from The Ohio State University. Dr. Ferruzzi joined the Arkansas Children's Nutrition Center as the Director in 2021 having previously served on as a David H. Murdock Distinguished Professor at North Carolina State University's Plants for Human Health Institute (2016-2021) and as a Professor of Food Science and Nutrition Science at Purdue University (2004-2016). Dr. Ferruzzi's research interests are at the interface of agriculture, food, and nutrition sciences in the study of food matrix and processing factors that influence micronutrient and phytochemical bioavailability, metabolism, and impact to human health. He has a particular interest in strategies that can be leveraged to improve the nutritional and functional quality of food products for at risk populations.

JO HANDELSMAN, UNIVERSITY OF WISCONSIN—MADISON

Dr. Jo Handelsman is the director of the Wisconsin Institute for Discovery (WID) and a Vilas Research Professor and Howard Hughes Medical Institute Professor in the Department of Plant Pathology at the University of Wisconsin—Madison. She joined the faculty at UW-Madison in 1985 where she served for 25 years before moving to Yale University in 2010. From 2014 to 2017, she served as a science advisor to President Barack Obama in her role as Associate Director for Science in the White House Office of Science and Technology Policy. After leaving the White House, Handelsman returned to UW-Madison where she continues to work on national policy as well as direct WID and pursue her own research on the soil and human microbiomes. In 2021 Handelsman published *A World Without Soil*, a book that presents the soil erosion crisis and policy recommendations to avert it. Handelsman is a renowned microbiologist whose research seeks to understand how microorganisms cooperate with and antagonize each other. She is known for pioneering the field of functional metagenomics. Handelsman has been elected to the National Academy of Sciences, the American Academy of Arts and Sciences, and the National Academy of Inventors and received the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring from President Obama in 2011.

KATHERINE KARBERG, BAYER CROP SCIENCE

Dr. Katie Karberg is the medical affairs manager for Bayer Crop Science based in St. Louis, Missouri. She is a physician-scientist that has worked in academia and industry in the sectors of medicine and agriculture, both in basic and applied research. The constant in all her work is the microbial world – how the microbes that live in, on, and around us impact human, animal, plant, and environmental health. She obtained her M.D. and Ph.D. in microbiology from the University of Illinois Urbana-Champaign, with her research in microbial evolutionary genomics, especially how microbes co-evolve through horizontal gene transfer and genome reduction processes in complex microbial ecosystems such as the gut. Prior to her academic training, she was a research associate in microbial genomics for an agricultural biotechnology company (Cereon Genomics) where she was seeking to harness the vast genetic diversity of environmental microbes, including soil microbes, for plant biotechnology traits. In her current role, she provides guidance on safety aspects of products for the entire product lifecycle, from the discovery phase to commercialized products, with an emphasis on navigating the complexities of the human, animal, plant, and environmental microbial interfaces, tapping into her diverse experience, but also in the context of basic toxicological principles.

BHIMU PATIL, TEXAS A&M UNIVERSITY

Dr. Bhimu Patil is the Regents Professor, Inaugural Leonard Pike University Professor, and Director of the Vegetable and Fruit Improvement Center at Texas A&M University and Director of the USDA National Center of

Excellence for Melons. Dr. Patil's research focuses on the profound impact of fruits and vegetables on human health, particularly exploring the effects of harvesting and post-harvesting practices on their quality. He has pioneered the concept of 'Foods for Health,' integrating various aspects of fruit and vegetable production, including breeding, agronomy, harvesting, distribution, sales, health benefits, quality assurance, and food safety, with an emphasis on consumption. Among his notable achievements is securing \$4.4 million in funding for the USDA-SCRI-CAPS National Center of Excellence. This initiative has successfully addressed the risk of food-borne illnesses associated with melons and improved the economic outcomes for melon farmers. Dr. Patil has received 19 esteemed awards, including "Fellow" recognition from the American Chemical Society (ACS), American Society for Horticultural Sciences, Brazilian Horticulture Society, Indian Horticulture Society, and the Division of Agri. Food Chem of ACS. He is also a Senior and Junior Fellow at Texas A&M University. Dr. Patil co-founded the international symposium on FAV Health in 2005 and has successfully chaired or co-chaired 25 symposia throughout his career.