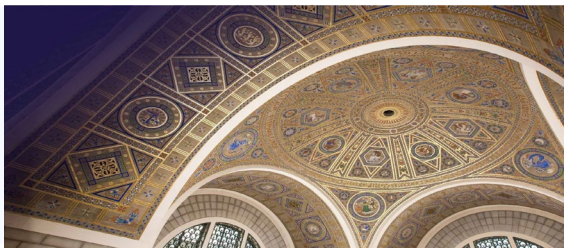
NATIONAL ACADEMIES Sciences Engineering Medicine

Board on Agriculture and Natural Resources

Exploring Linkages Between Soil Health and Human Health

Meeting 5 (Hybrid) – June 22, 2023

Public Agenda



THURSDAY, JUNE 22, 2023 (ET)

Purpose The session will focus on the linkages between soil health and human health and on the microbiome.

Open session

1:00 **Welcome**

Diana H. Wall, Committee Chair & Session Moderator, Colorado State University

1:10 **Committee introductions**

1:20 **Overview of the National Academies study process**

Kara Laney, Study Director, National Academies of Sciences, Engineering, and Medicine

1:30 **Invited presentations**

Tim Griffin, Professor in Nutrition, Agriculture, and Sustainable Food Systems, Friedman School of Nutrition Science and Policy, Tufts University

2:00 *Kelly Wrighton, Associate Professor, Colorado State University*

2:30 **Break**

2:45 **Invited presentations**

Nhu Nguyen, Associate Professor, University of Hawai'i at Mānoa

3:15 *Amanda Ashworth, Research Soil Scientist, USDA Agricultural Research Service (remote)*

3:45 **Speaker discussion with the committee**

4:30 **Open session concludes**

SPEAKER BIOS

AMANDA ASHWORTH, USDA AGRICULTURAL RESEARCH SERVICE

Dr. Ashworth received her B.S. in Environmental, Soil, and Water Science from the University of Arkansas in 2008; M.S. in Crop, Soil and Environmental Sciences, University of Arkansas in 2010; and, a Ph.D. in Plant, Soils, & Insects in the Plant Sciences Department at the University of Tennessee in 2014. She is currently a Research Soil Scientist and Acting Research Leader at the USDA-Agricultural Research Service, Poultry Production and Product

Safety Research Unit in Fayetteville, Arkansas. Prior to joining USDA-ARS, she worked at the University of Tennessee, University of the Virgin Islands, INRA in France, and the Bureau of Land Management in California. Dr. Ashworth has published 124 peer-reviewed research articles focused on plant-soil-water interactions at the systems-level related to the development of best management practices in pasture and cropping systems. She was selected as the USDA-ARS' Herbert L. Rothbart Outstanding Early Career Scientist of the Year in 2019. She also received both the Soil Science Society of America and Crop Science Society of America Early Career Awards in 2020. She serves on the Soil Science Society of America Editorial Board and previously on the American Society of Agronomy Board of Directors.

Timothy Griffin, Tufts University

Dr. Griffin is an Associate Professor at the Friedman School of Nutrition Science and Policy, Tufts University. At the Friedman School, he is Dean of Educational Affairs and also Division Chair–Agriculture, Food and the Environment. He teaches classes on U.S. agriculture, agricultural science and policy, and the linkage between food system domains. In 2018, he was named as the inaugural recipient of the Teri & Barry Volpert Family Professorship in Nutrition, Agriculture, and Sustainable Food Systems. He also provides leadership for the Tufts Institute of the Environment and various non-profit and private sector initiatives focused on agriculture and sustainability. His current research focuses on assessment of sustainability across environmental, social, and economic metrics, regional food systems, and climate change impacts on agriculture. He supervises doctoral students conducting research on topics ranging from precision agriculture to food access to water rights and advises M.S. students at the intersection of food system disciplines. He served as an advisor to the 2015 Dietary Guidelines Advisory Committee, focusing on Sustainability, and as a member of the National Academy of Sciences study Genetically Engineered Crops: Experiences and Prospects. He has given more than 800 scientific and public presentations on agriculture and the food system and published 100 peer-reviewed scientific articles across many scientific disciplines. Prior to coming to the Friedman School, he served as Lead Scientist/Agronomist at USDA-Agricultural Research Service (2000-2008) and Extension Specialist in Sustainable Agriculture at the University of Maine (1992-2000), the first such position in the United States.

Nhu Nguyen, University of Hawai'i at Mānoa

Dr. Nguyen is an Associate Professor of Soil Microbial Ecology at the University of Hawaii at Manoa. His research examines the interconnectivity and flow of soil carbon and other nutrients across the plant-microbe-soil continuum. He studies the mechanisms of microbial interactions, in particular fungal-bacterial interactions, that mediate these soil processes and their outcomes across natural, agricultural, and urban environments. Dr. Nguyen completed a Ph.D. in Microbiology at the University of California, Berkeley in 2012 and received postdoctoral training at the University of Minnesota, Twin Cities, and the University of California, Berkeley.

Kelly Wrighton, Colorado State University

Dr. Wrighton is an Associate Professor at Colorado State University, where her laboratory uses genomic technologies to uncover how microorganisms control the chemical world in, on, and around us. Her laboratory research is ecosystem agnostic, as every environment offers new perspectives on the factors that control the chemical transformations microorganisms catalyze. Current focus areas include soil microbiomes in agriculture and wetland soils and modulating greenhouse gasses from these systems. Broadly the Wrighton laboratory is interested in using microorganisms to sustain human, livestock, and soil health, while controlling carbon and nitrogen loss from these systems. Beyond these areas, Dr. Wrighton has a research history that includes harnessing microbial metabolism for biodegradation, biofuels, and in the energy sector. She was awarded the Presidential Early Career Award for Scientist and Engineers in 2020, is a named Fellow of the American Geophysical Union, and has earned awards from the International Society of Microbial Ecology and International Geobiology Society for her team's scientific contributions. She was recently awarded the Bishop Endowed Chair at Colorado State University. Dr. Wrighton received a B.S. and an M.S. in microbiology from California Polytechnic State University, San Luis Obispo, and a Ph.D. in plant and microbiology from the University of California, Berkeley.