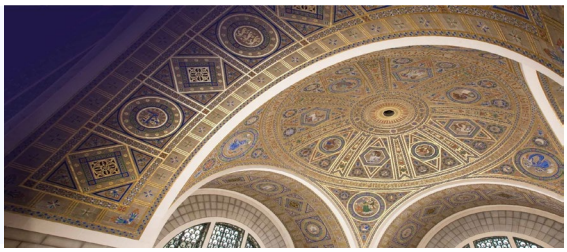
NATIONAL ACADEMIES Sciences Engineering Medicine

Board on Agriculture and Natural Resources

Exploring Linkages Between Soil Health and Human Health

Meeting 12 (Virtual) – September 18, 2023

Public Agenda



MONDAY, SEPTEMBER 18, 2023 (ET)

Purpose The session will focus on plant breeding.

Open session

12:00 **Welcome**

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

12:10 **Overview of the National Academies study process**

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

12:20 **Invited presentations**

Virginia Moore, Cornell University

Plant Breeding for Complex Systems

Jean-Michel Ané, University of Wisconsin-Madison

Engineering Plant-Microbe Symbioses for Enhanced Plant, Soil, and Human Health

Lee DeHaan, The Land Institute

Breeding Perennial Crops

1:30 **Speaker discussion with the committee**

2:00 **Open session concludes**

SPEAKER BIOS

JEAN-MICHEL ANÉ, UNIVERSITY OF WISCONSIN-MADISON

Dr. Ané is a professor in the Department of Bacteriology and the Department of Plant and Agroecosystem Sciences at the University of Wisconsin–Madison. His primary research interest is understanding the molecular mechanisms allowing efficient symbiotic associations between plants and microbes and applying this knowledge to maximize the benefits of such associations in agriculture. His specific goals are to (1) understand the genetic and molecular mechanisms allowing the establishment of mycorrhizal and nitrogen-fixing associations across land plants, (2) study the evolution of these mechanisms to identify critical innovations that enabled the development of these associations, and (3) use this knowledge to engineer more efficient associations between crops and microbes to improve the sustainability of our agriculture for food, feed, and biofuel production.

Lee DeHaan, The Land Institute

Dr. DeHaan obtained a Bachelor of Arts degree from Dordt College in Sioux Center, Iowa, with majors in Biology and Plant Science. He was awarded MS and PhD degrees in the areas of Agronomy and Applied Plant Science from the University of Minnesota. In 2001, Dr. DeHaan began work at The Land Institute to explore the potential for developing perennial grain crops from a wide array of candidate species. He experimented with perennial rye, perennial wheat, perennial legumes, and several wild perennial grasses. Since 2010, his attentions have been dedicated to developing intermediate wheatgrass into a perennial grain crop, using traditional breeding and genomic methods. Over the past six years, companies have begun to release food and beverage products made from intermediate wheatgrass under the trade name Kernza. The program now has collaborators working at institutions around the United States, Canada, and Europe exploring an array of topics, including the ecosystem services of perennial grain crops, the functionality of Kernza in food products, diseases management of Kernza, and optimal management of Kernza fields in diverse environments.

Virginia Moore, Cornell University

Dr. Moore is an assistant professor in the School of Integrative Plant Science (SIPS) at Cornell University. She comes to SIPS from the USDA Sustainable Agricultural Systems Lab where she was a post-doctoral researcher and project manager for the Legume Cover Crop Breeding network, supported by a NIFA-AFRI postdoctoral fellowship. She earned her PhD in Plant Breeding & Plant Genetics from the University of Wisconsin in Madison. Her research program at Cornell focuses on plant breeding for sustainable cropping systems, encompassing breeding for organic systems, for intercropping and polyculture systems, for pest resistance, and for ecosystem services. She works in a range of species, including cover crops, perennial forages, bioenergy crops, and hemp.