THE ENVIRONMENTAL HEALTH MATTERS INITIATIVE

REDUCING THE HEALTH IMPACTS OF THE NITROGEN PROBLEM

A VIRUTAL WORKSHOP OF THE ENVIRONMENTAL HEALTH MATTERS INITIATIVE

THURSDAY, FEBRUARY 4

WHAT FARM-LEVEL ACTIONS COULD BE TAKEN TO ADDRESS THE NITROGEN PROBLEM?

SPEAKER BIOGRAPHIES

Bruno Basso is an agro-ecosystem scientist and University Foundation Professor in Department of Earth and Environmental Sciences at Michigan State University. His research focuses on long term sustainability of agricultural systems, digital technologies, water and nutrients fluxes across agricultural landscapes under current and future climates both in high-income country as well as smallholder farmers. He holds global patents on AI, crop model systems to evaluate land productivity and environmental sustainability. Before returning to Michigan State University in 2013, he was a professor at the University of Basilicata in Italy. He is a Fellow of the Soil Science Society of America and the American Society of Agronomy, and 2016 recipient of the Innovation of the year award and 2019 Outstanding Faculty Award at Michigan State University. He received the 2010 Pierre Robert Precision Agriculture Award (International Society of Precision Agriculture); 2008 L. Frederick Lloyd Soil Teaching Award; 2007 L.R. Ahuja Agricultural System Modeling Award (Soil Science Society of America). He serves on the scientific advisory board of Field to Market, Invaio and various European firms. He is the cofounder of CiBO Technologies. He is the Chair of a recently formed committee at the Board of Agriculture and Natural Resources of the United State National Academy of Sciences to study and advance the science of soil dynamic information systems. He is a member of the American Society of Agricultural and Biosystems Engineering initiative on Circular Economy for Agricultural Systems. He is the Associate Editor-in-Chief of European Journal of Agronomy, and Editor of Scientific Reports, and Remote Sensing. He is ranked as top 2% scientist across all disciplines and 0.006% in the field of Agronomy, Agriculture, Meteorology. He has consulted with for the United Nation Food and Agricultural Organization (FAO) and advisor to VP Al Gore and his staff on regenerative agriculture research for climate mitigation. He received his PhD in Crop and Soil Sciences in 2000 from Michigan State University.

Jane Frankenberger is a professor of agricultural and biological engineering at Purdue University. Her research focuses on water quality in drained agricultural watersheds, and she has advanced innovative drainage design and management, watershed modeling of agricultural systems, and soil and water conservation strategies while delivering tools and strategies to stakeholders who can use them to inform decision making. She was a leader in forming the Conservation Drainage Network, a national organization working to promote agricultural drainage strategies that protect water quality, and serves on the organizing committee. She is a Fellow of the American Society of Agricultural and Biological Engineers, and currently a member of its Board of Trustees. She served on a National Academies subcommittee on environmental quality and natural resources that produced the report *Frontiers in Agricultural Research:*

Food, Health, Environment, and Communities. She received her PhD from Cornell University in Agricultural and Biological Engineering.

Wendy D. Graham is the Carl S. Swisher Eminent Scholar in Water Resources in the Department of Agricultural and Biological Engineering and Director of the Water Institute at the University of Florida, Gainesville. Her current research focuses on integrated hydrologic modeling; evaluation of impacts of agricultural production on surface and groundwater quality; evaluation of impacts of climate variability and climate change on hydrologic systems; and stochastic modeling and data assimilation. Dr. Graham is currently a member of the National Academic of Sciences Engineering and Medicine (NASEM) Water Science and Technology Board. She served as a member of the NASEM Committee on Independent Scientific Review of Everglades Restoration Progress from 2009-2012 and 2017-2018, and as a member of the NASEM Committee on Review of EPA's Economic Analysis of Final Water Quality Standards for Nutrients for Lakes and Flowing Waters in Florida. 2011-2012. She served as the Hydrologic Sciences Program Director for the National Science Foundation in 2015-2016, and was appointed by the Florida Governor to the State of Florida Blue Green Algae Task Force in 2019. Dr. Graham has a B.S. in environmental engineering from the University of Florida, and a Ph.D. in Civil and Environmental Engineering from the Massachusetts Institute of Technology.

Jerry L. Hatfield is a retired Laboratory Director of the USDA-ARS National Laboratory for Agriculture and the Environment in Ames, Iowa. His research interests focus on the impact of agricultural systems on environmental quality and how improved management can enhance production efficiency and create resilience to weather/climate extremes. He is the recipient of numerous awards including the Hugh Hammond Bennett award, and election to the ARS Hall of Fame. His PhD degree is from Iowa State University in 1975 in the area of Agricultural Climatology with a statistics minor.

Catherine L. Kling is the Tisch University Professor of Environmental, Energy, and Resource Economics in the Dyson School of Applied Economics at Cornell University and the Faculty Director of the Atkinson Center for a Sustainable Future. She specializes in the economic valuation of ecosystem services and the integrated assessment modeling for water quality modeling. Dr. Kling currently chairs the National Academies' Water Science and Technology Board and is a member of the PNAS editorial board. She has been a member of nine Academies study committees, including several focused on water resources and agricultural issues. She served as president of the Association of Environmental and Resource Economists, held editorial positions at ten economics journals, and has published over 100 journal articles and book chapters. She is currently the editor of the Review of Environmental Economics and Policy. She is an elected Fellow of the Association of Environmental and Resources Economists, the Agricultural & Applied Economics Association, and the American Association for the Advancement of Science. She is also a University Fellow at Resources for the Future, a member of the National Academy of Sciences, and served for ten years on EPA's Science Advisory Board. She received her B.A. in business and economics from the University of Iowa and Ph.D. in economics from the University of Maryland, College Park.

David Lee is a Senior Lead Scientist at Booz Allen Hamilton, where he provides technical support to the Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E) on its funding programs related to agriculture and biotechnology. His interests focus on the use of technology to improve agricultural efficiency, whether that be through biotechnology or breeding to improve crop feedstocks, or sensing and analytics tools. His goal is to help enable 'carbon farming', and the reduction of water and energy usage in agriculture. In addition to ARPA-E, he engages regularly with scientists and policy makers at USDA, DOE, and NOAA. Previously, he was the Director of Molecular Biology at Edenspace Systems Corporation, where he led the development of transgenic plants for bioenergy and bioremediation, and received his Ph.D. in plant molecular genetics from UC San Diego.

Alejandro Plastina is an Associate Professor/Extension Economist in the Department of Economics at Iowa State University (ISU). His area of specialization is agricultural production and technology, with an emphasis on farm business and financial management. He currently serves as Co-Director of the ISU-Iowa

Bankers Association Ag Credit School, Chair of the ISU Extension and Outreach Farm Financial Stress Task Force, ISU project director and official representative to USDA/NIFA multistate projects Economics and management of risk in agriculture and natural resources, and Renewing an agriculture of the middle: value chain design, policy approaches, environmental and social impacts. Dr. Plastina has served as Chair of the North-Central Farm Extension Committee in 2019/20. He has received the Agricultural & Applied Economics Association Distinguished Extension Program Award in 2019; the ISU Office of the President Excellence in Remote Instruction Award in 2021; the ISU Extension and Outreach Creativity in Service to All Iowans Award in 2020; the ISU ANR Programming Innovation Award in 2018; and the ISU Extension and Outreach Impacting Iowa Award in 2014. Prior to joining Iowa State University in 2014, Dr. Plastina was Senior Economist at the International Cotton Advisory Committee in Washington, DC. He graduated with a BA in Economics from the University of La Plata (Argentina) in 2000, and an MS in Statistics and a PhD in Agricultural Economics from the University of Nebraska-Lincoln in 2005 and 2007, respectively.

Linda Prokopy is the Director of the Indiana Water Resources Research Center and Department Head and Professor in the Department of Horticulture and Landscape Architecture at Purdue University located in West Lafayette, IN. As an interdisciplinary social scientist, her research focuses on what motivates farmers, primarily in the Midwestern US, to adopt conservation practices. She is a Fellow in the Soil and Water Conservation Society and has also earned the Society's Conservation Research Award. She is a University Faculty Scholar at Purdue and the 2016 winner of Purdue University's Spirit of the Land Grant Mission Award. She served as Editor-in-Chief of *Society and Natural Resources* from 2017-2020 and previously served as an Associate Editor for both the *Journal of Soil and Water Conservation* and the *Journal of the American Water Resources Association*. She has a Ph.D. in Environmental Planning rom the University of North Carolina at Chapel Hill.

James Schepers is a retired Soil Scientist formerly with the USDA-Agriculture Research Service and is currently Professor Emeritus in the Agronomy and Horticulture Department at the University of Nebraska – Lincoln. A majority of his 33-year career involved developing technologies to help producers reduce nitrogen (N) losses to the environment. From 1990 until he retired in 2008 he managed the agronomic aspects of the Nebraska Management Systems Evaluation Area (MSEA) project that was one of five Presidential Initiative efforts to develop and demonstrate improved water and N management practices to protect groundwater. Accomplishments include developing vehicle-mounted crop canopy sensors to monitor crop vigor and make real-time N applications to crops. He has received numerous awards for his efforts and accomplishments from the American Society of Agronomy, Soil Science Society of America and International Society of Precision Agriculture. Schepers holds a Ph.D. from the University of Illinois in Soil Science.

Lisa Schulte Moore is a Professor of Natural Resource Ecology and Management and Associate Director of the Bioeconomy Institute, Iowa State University, Ames, Iowa. She conducts research in the areas of agriculture, ecology, forestry and human-landscape interactions. Her current research addresses the strategic integration of perennials into agricultural landscapes to support new agricultural markets and to meet societal goals for clean water, healthy soils, abundant wildlife and inspiring recreational opportunities. Dr. Schulte Moore has published more than 100 scientific and educational articles. Her honors include the Iowa State University Early Career Award in Teaching (2007), Teaching Award of Merit from the North American Colleges and Teachers of Agriculture (2007), Stanford University Leopold Leadership Fellow (2013), Kavli Frontiers of Science Fellow (2014), University of Minnesota Duluth Academy of Science and Engineering Inductee (2017), and ISU Ivy College of Business innovationENTREPRENEUR Award (2020). Along with her colleagues, she received the Iowa State University College of Agriculture and Life Science Team Award in 2018 and the Soil and Water Conservation Society's Conservation Innovation Award in 2020 for their development of prairie strips. She is on the editorial board for the scientific journal BioScience, a member of Ecological Society of America's "Rapid Response Team," on the board of directors for Iowa Wildlife Federation and Practical Farmers of Iowa, and on the board of trustees for The

Nature Conservancy's Iowa Chapter. Dr. Schulte Moore received her PhD in forestry from the University of Wisconsin-Madison.

Carrie Vollmer-Sanders is the Agriculture Engagement Strategy Director for The Nature Conservancy. Her areas of focus include nutrient movement and conservation practice impacts in agricultural landscapes and the impact of farmer advisors on farmer practice change. She received the White House Champion of Change Award in 2014 for her leadership in developing the 4R Nutrient Stewardship Certification Program. She serves on the US EPA Science Advisory Board and several other non- and for-profit boards. Prior to joining TNC in 2010, she was the Agricultural Ecology Specialist at Michigan Farm Bureau. She and her husband own and operate Grains and Greens, Inc. where they grow corn, soybeans, and wheat. She has a bachelor's degree in Agriculture Education and a master's degree in Agricultural Economics, both from Michigan State University.