

The Role of Agricultural Practices on Development of Antimicrobial Resistant Microbes Affecting Human Health: A Workshop Series

Committee

Sally A. Miller

Co-Chair

Sally A. Miller, Ph.D., is a Distinguished Professor of Food, Agricultural, and Environmental Sciences in Plant Pathology at The Ohio State University in Wooster, OH and State Extension Specialist for vegetable crop disease management. She received her B.Sc. in Biology from The Ohio State University (1976), and M.S. (1979) and Ph.D. (1982) degrees in Plant Pathology from the University of Wisconsin-Madison. Dr. Miller's research is focused on plant pathogen detection and surveillance, disease diagnosis, antimicrobial resistance, and integrated disease management in vegetable crops. She has been active in long-term international agricultural development projects focused on food security and safety in South and Southeast Asia, Ukraine, West and East Africa and Central America. She is a Fellow of the American Phytopathological Society and served as President in 2015/2016. She is currently a member of National Academies of Science, Engineering and Medicine Forum on Microbial Threats and its One Health Action Collaborative, the joint FAO/WHO Expert Meetings on Foodborne Antimicrobial Resistance Roster of Experts, and the executive committee of OSU's Global One Health Initiative.

Paige E. Waterman

Co-Chair

Paige Waterman, M.D., is a retired Army Colonel and Professor of Medicine and Vice Chair for Clinical Research, the F. Edward Hebert School of Medicine, Department of Medicine, at the Uniformed Services University of the Health Sciences, Bethesda, MD. Dr. Waterman is an infectious disease clinician, researcher, and leader in the battle against antimicrobial resistance (AMR). Throughout her career, Dr. Waterman has worked in highly collaborative national and international teams to curb rising drug resistance through the surveillance and early detection of emerging pathogens, policy creation and coordinated antimicrobial stewardship. As a military officer, Dr. Waterman served as deputy director of the then nascent Multidrug-Resistant Organism Repository and Surveillance Network (MRSN), at the Walter Reed Army Institute of Research (WRAIR), to collect pathogens for epidemiologic and molecular characterization, profiling and centralized archiving and clinical correlation. She was also detailed to the Armed Forces Health Surveillance Directorate to establish its antimicrobial resistance effort and become the deputy director of the Global Emerging Infections Surveillance (GEIS) section. Dr. Waterman deployed as the Infectious Disease Theater Consultant and Clinic Chief for the 10th Mountain 3rd Infantry Brigade Combat Team in Afghanistan in 2011-12. Throughout her career, Dr. Waterman has led clinical trials, manufacturing of biologics (vaccines), AMR and antimicrobial stewardship, clinical and bacterial genomic characterization, wound infection diagnostic and therapeutic development efforts, and global infectious disease surveillance. She also led the biodefense and bioeconomy policy effort at the Office of Science and Technology Policy within the Executive Office of the President. She served for more than 4 years as the Medical Research and Development Consultant to the Army Surgeon General and is a past President of the Greater Washington area Infectious Disease Society.

Marin Talbot Brewer

Member

Marin Talbot Brewer, Ph.D., is an Associate Professor of Mycology and Plant Pathology at the University of Georgia where she has been a faculty member since 2011. Her research focuses on the evolution and diversity of fungal threats to plants and people with interests in the genetic basis of disease emergence and host specialization, the evolution of fungicide resistance and fungal mating systems, and the taxonomy and systematics of fungi causing emerging plant diseases. She received her M.S. in Plant, Soil, and Environmental Science from the University of Maine where she studied the effects of biological and cultural controls on soil microbial ecology and Rhizoctonia disease of potato, and her Ph.D. in Plant Pathology and Plant-Microbe Biology from Cornell University in 2011, where her dissertation focused on the phylogeography and mating system of the grape powdery mildew fungus, *Erysiphe necator*. Recent work in the Brewer lab is concentrated on azole resistance in the human pathogen *Aspergillus fumigatus* in environmental settings. Dr. Brewer was a plenary speaker at the Plant Health 2021 meeting where she presented "Does agricultural use of azole fungicides contribute to antifungal resistance of *Aspergillus fumigatus* in humans?" Her research has been funded by diverse agencies including the National Science Foundation, the U.S. Department of Agriculture, and the Centers for Disease Control and Prevention.

Tom Chiller

Member

Tom Chiller, M.D., M.P.H.T.M., is Chief, Mycotic Diseases Branch at the Centers for Disease Control and Prevention. At the CDC, Tom Chiller provides leadership for fungal disease activities, which include detection, prevention and response activities, policy and advocacy, both nationally and internationally. He also serves as the associate director for global programs in the Division of Foodborne, Waterborne, and Environmental Diseases. He remains actively involved in antimicrobial resistance, healthcare associated infections, molecular epidemiology and laboratory activities for fungal diseases. Dr. Chiller is board certified in infectious diseases and is a faculty member in the Division of Infectious Diseases at the Emory School of Medicine. During the past decade with the Mycotic Diseases Branch, Dr. Chiller has led efforts to end deaths from opportunistic fungal infections in HIV, control the spread of MDR *Candida auris* and azole resistant *Aspergillus*, and identify emerging mold infections.

Julius Fajardo

Member

Julius Fajardo, Ph.D., M.S., is a Senior Plant Pathologist in the Office of Pest Management Policy (OPMP) under the Office of the Chief Economist of USDA. Dr. Fajardo joined OPMP in 2012 as a Plant Pathologist. In this capacity, Dr. Fajardo's portfolio includes policy issues involving registration reviews of fungicides, biofungicides, nematicides, and plant growth regulators as well as fungicide resistance in collaboration with EPA. He has worked on emerging diseases and pathogens through USDA-ARS' National Plant Disease Recovery System, USDA-APHIS' Multi-Agency Coordination Group for citrus greening or huanglongbing including the Federal Interagency Committee on Invasive Terrestrial Animals and Pathogens (ITAP). Dr. Fajardo provides scientific support with the Office of the Chief Scientist on the role of antibacterial and antifungal compounds in crops on foodborne antimicrobial resistance. Dr. Fajardo received his Doctor of Philosophy in Plant Pathology from Texas A&M University in 1992 and earned a Bachelor of Science in Agriculture and Master of Science degrees in Plant Pathology from the University of the Philippines at Los Banos in 1980 and 1985, respectively.

Susan Jennings

Member

Susan Jennings, M.S., is the Senior Advisor for Public Health at EPA's Office of Pesticide Programs. She coordinates regulatory and policy issues involving pesticides used to protect public health. This work can be complex and requires the Agency to support and maximize the benefits of pesticides used to protect human health, while still ensuring that they do not pose unreasonable adverse effects to human health or the environment. Susan serves as the staff lead on OPP's emergency responses to situations such as the Zika virus, actively supports IPM and other control discussions, and participates in other public health activities as they arise. She is currently leading the efforts on antibiotic resistance for antibiotics used on crops at the Office of Pesticide Programs. Susan has a Bachelor of Science from Carnegie Mellon University and a Master of Science in Environmental Engineering from Virginia Tech.

Ramanan Laxminarayan

Member

Ramanan Laxminarayan, Ph.D., is founder and director of the Center for Disease Dynamics, Economics & Policy (CDDEP) in Washington, D.C. and New Delhi, and a senior research scholar at Princeton University. He is an affiliate professor at the University of Washington, senior associate at the Johns Hopkins Bloomberg School of Public Health, and a visiting professor at the University of Strathclyde in Scotland. Laxminarayan chairs the board of GARD-P, a global product development partnership created by the World Health Organization, that aims to develop and deliver new treatments for bacterial infections. He is founder and board chair at HealthCubed, which works to improve access to healthcare and diagnostics worldwide. Since 1995, Laxminarayan has worked to improve the understanding of antibiotic resistance as a problem of managing a shared global resource. His work encompasses extensive peer-reviewed research, public outreach, and direct engagement across Asia and Africa through the Global Antibiotic Resistance Partnership. Through his prolific research, active public outreach (including a TED talk that has been viewed over a million times) and sustained policy engagement, he has played a central role in bringing the issue of drug resistance to the attention of leaders and policymakers worldwide and to the United Nations General Assembly in September 2016.

Jeffrey Lejeune

Member

Jeff Lejeune, Ph.D., D.V.M., serves as Food Safety Officer, in the Food Systems and Food Safety Division of the Food and Agriculture Organization of the United Nations (FAO) and FAO Secretariat for the FAO/WHO Joint Expert Meeting on Microbiological Risk Assessment (JEMRA). His veterinary training was completed in Canada (UPEI), at the University of Prince Edward Island and his PhD (Veterinary Microbiology) at Washington State University. Before moving to FAO he served as a Professor of Food Safety and Program head at the Food Animal Health Research Program, College of Veterinary Medicine, The Ohio State University. His prior research was primarily focused on understanding the ecological mechanisms involved with the survival, dissemination, and prevention pathogen contamination of food, notably that caused by Shiga toxin-producing E. coli and antimicrobial resistant bacteria. He has served on the editorial boards of several peer-reviewed journals and participated in scientific committees, including prior work with two National Academies committees focused on food safety hazards: the Standing Committee on the Use of Public Health Data in FSIS Food Safety Programs 2008-2017. And the ad hoc Committee for Review of the Food Safety and Inspection Service Risk-Based Approach to Public-Health Attribution. 2008.

Mervalin Morant

Member

Mervalin Morant, Ph.D., received her Ph.D. in Botany and Plant Pathology from Purdue University in 1988 and her Post-doctorate from the University of Illinois, Champaign-Urbana, before joining the faculty at the University of Maryland Eastern Shore in 1990. She participated in Mali, West Africa on a US Agency for International Development (USAID), Integrated Pest Management grant program from 1998 to 2000 where she worked alongside farmers and scientists to produce pesticide-free green beans for export to France. In 2003 as the Chair of the Department of Agriculture, she was hired as a Soil Ecologist by the US Department of Agriculture as a National Program Leader (NPL) in Natural Resources and Environment and later transferred to the Institute of Food Safety, Nutrition and Health. As the co-Lead for the Nanotechnology for Agricultural and Food Systems and the NPL for Antimicrobial Resistance program, Mervalin represented the National Institute of Food and Agriculture (NIFA) on the Presidential Advisory Council on Combating Antimicrobial Resistant Bacteria (PACCARB) until 2020. She then joined the Science and Technology Directorate at the Department of Homeland Security, where she is currently the Program Manager for the Food, Agriculture and Veterinary Defense program.

Philip Neil Taylor

Member

Philip Taylor, Ph.D., M.Sc., gained a first class honours degree in Plant Sciences from Wye College; University of London in 1982. He then pursued an academic career path with a Ph.D. at John Innes Institute on the Downy mildew of pea and these studies led on to two post-docs one in Illinois and one in Durham UK. Subsequently he became a lecturer in molecular plant pathology at the university of Hull UK. He then gave up the academic life to become a farmer, successfully running a large commercial farm taking it into organic, and GM production as well as conventional production. He represented the National farmers union on biotechnical matters as part of their working party. Years later another change of tack took him to CABI as part of the international development group and he became the training manager for Plantwise a large donor funded programme designed to bolster extension services in developing countries. He has travelled extensively in this role.

Julie Liao

Staff Officer