

The Role of Plant Agricultural Practices on Development of Antimicrobial Resistant Fungi Affecting Human Health

A Workshop

TUESDAY, JUNE 21, 2022 - Virtual (all times in EDT)

Bridging the Two Worlds: Fungal Pathogens in Plant and Human Health	
10:00 AM–10:10 AM	<p>Welcome Remarks, Workshop Overview, and Goals Paige Waterman, Uniformed Services University of Health Sciences <i>Workshop co-chair</i></p>
10:10 AM–11:05 AM	<p>Opening Panel Tom Chiller, U.S. Centers for Disease Control and Prevention <i>Moderator</i></p> <p>Antifungal drug uses in human medicine Arturo Casadevall, Johns Hopkins University Bloomberg School of Public Health</p> <p>Fungicide uses in plant agriculture Tony Dorn, U.S. Department of Agriculture</p> <p>Quadrupartite Alliance joint activities on antimicrobial resistance (AMR) Tim Corrigan, World Health Organization</p>
11:05 AM–11:20 AM	Break
11:20 AM–12:35 PM	<p>Fungal Diseases, Antifungal Resistance, and Human Health Tom Chiller, U.S. Centers for Disease Control and Prevention <i>Moderator</i></p> <p>Impact of invasive fungal diseases and antifungal drug resistance on human health Andrej Spec, Washington University at St. Louis</p> <p>Overview of aspergillosis and mechanisms of antifungal drug resistance David Denning, Global Action For Fungal Infections</p> <p>Overview of drug-resistant, invasive <i>Candida</i> infections Brendan Jackson, U.S. Centers for Disease Control and Prevention</p>

	<p>Current research in understanding pathogenesis and host immunity toward developing treatment options Michail Lionakis, National Institute of Allergy and Infectious Diseases</p>
12:35 PM–1:15 PM	<p>Fungicide Resistance in Plant Protection Use Marin Talbot Brewer, University of Georgia <i>Moderator</i></p> <p>Genetics and mechanisms of fungicide resistance Matthew Fisher, Imperial College London</p> <p>Azole-resistant <i>Aspergillus fumigatus</i> in agronomic settings: hotspots and coldspots Kevin Doughty, CropLife International</p>
1:15 PM–1:55 PM	<p>Discussion</p>
1:55 PM–2:00 PM	<p>Summary and Adjourn</p>
END OF DAY 1	

WEDNESDAY, JUNE 22, 2022 - Virtual (all times in EDT)

Effects of Fungicide Use in Plants on Humans and the Environment	
10:00 AM–10:05 AM	Welcome Remarks, Review of Day 1 Jeff Lejeune , Food and Agriculture Organization of the United Nations
10:05 AM–10:45AM	Role of Fungicide Use in Food Safety and Security Phil Taylor , Centre for Agriculture and Bioscience International (CABI) <i>Moderator</i> Case examples to illustrate (1) the role of azole fungicides in safeguarding food safety and security, and (2) potential drivers of fungicide use in the US Tim Brenneman , University of Georgia Pierce Paul , The Ohio State University
10:45 AM-12:15PM	Dimensions of Fungicide Regulations, Use Management, and Risk Assessment Lynn Goldman , George Washington University Milken Institute School of Public Health <i>Moderator</i> Documentation of azole fungicide use in plants in low- and middle-income countries Phil Taylor , Centre for Agriculture and Bioscience International (CABI) Registration and health threats assessment of fungicides Nathan Mellor , US Environmental Protection Agency Magdalini Sachana , Organisation for Economic Co-operation and Development Occupational exposure to environmental resistant fungi and possible implications in human health Raquel Sabino , Portuguese National Institute of Health Dr. Ricardo Jorge, Lisbon School of Medicine
12:15 PM-12:30 PM	Break
12:30 PM–1:15 PM	Innovations in Antimicrobial Resistance Surveillance Tools and Technologies Jeff Lejeune , Food and Agriculture Organization of the United Nations <i>Moderator</i> <i>Aspergillus fumigatus</i> azole resistance survey by air sampling through a citizen science approach Wieland Meyer , Curtin Medical School, Curtin University Innovation in data collection tools for surveillance and mitigation: crop and environment simulation tools Brian Bailey , University of California, Davis

	Sampling strategies, interpretation of sampling outcomes, and evaluation of surveillance and management technologies Karen Garrett , University of Florida
1:15 PM–1:55 PM	Discussion
1:55 PM–2:00 PM	Summary and Adjourn
END OF DAY 2	

MONDAY, JUNE 27, 2022 - National Academy of Sciences (2101 Constitution Ave NW, Washington, DC 20037)

Mitigation Strategies for Fungicide/Antifungal Resistance	
8:00 AM–10:00 AM	In-Person Networking and Breakfast
10:00 AM–10:15 AM	Welcome virtual attendees; Review of workshop thus far Paige Waterman , Uniformed Services University of Health Sciences <i>workshop co-chair</i>
10:15 AM–11:45 AM	One Health Approach to Antimicrobial Resistance (AMR) and Pathogen Surveillance Maryn McKenna , Wired <i>Moderator</i> The necessity and benefits of taking a One Health approach in AMR surveillance and mitigation measures Paul Verweij , Radboud University Bas Zwaan , Wageningen University Genomic surveillance and epidemiology Marin Talbot Brewer , University of Georgia Diagnostics, resistance testing, and surveillance capabilities in local and national levels: health care systems Shawn Lockhart , U.S. Centers for Disease Control and Prevention One Health approach to AMR and pathogen surveillance at the international level Jorge Pinto Ferreira , Food and Agriculture Organization of the United Nations
11:45 AM–12:30 PM	Antifungal Drug Development and Stewardship in Health Care Maryn McKenna , Wired <i>Moderator</i> New antifungal drugs in development with different modes of action David Andes , University of Wisconsin Incentives and market for drug development and global access John Rex , F2G
12:30 PM–1:00 PM	Break

1:00 PM–1:50 PM	<p>Integrated Disease Management Tim Widmer, U.S. Department of Agriculture <i>Moderator</i></p> <p>Precision application technologies and communication with growers and other stakeholders Melanie Ivey, The Ohio State University</p> <p>Current research toward targeted approaches and considering localized risk factors Walt Mahaffee, U.S. Department of Agriculture</p> <p>Mitigation measures in compost “hot spots” Jianhua Zhang, National Institute for Public Health and the Environment</p>
1:50 PM–2:00 PM	<p>Summary of Workshop</p>
2:30 PM–4:30 PM	<p>Poster and Networking Session</p>
END OF WORKSHOP	