2022

ARS AMR/ATA Research Webinar Series: Risk

14 June 2022 | 9:00 AM – 12:00 PM ET

Antimicrobial resistance (AMR) is one of the most serious health threats for both animals and humans. The Agricultural Research Service (ARS) within the United States Department of Agriculture (USDA) is mandated to solve agricultural issues of high national priority and AMR is a national and international priority.

In August 2021, ARS hosted a Research Solutions for AMR Workshop, which included participants from all four national program areas: Animal Production and Protection, Crop Production and Protection, Natural Recourses and Sustainable Agriculture Systems, and Nutrition, Food Safety and Quality. During the Workshop, ARS scientists identified research priorities and the AMR vision and mission statements were created.

The Antimicrobial Resistance (AMR) and Alternatives to Antibiotics (ATA) Research Webinar Series will highlight research with U.S. and international partners/stakeholders that ARS and others are performing to address AMR and ATA in agriculture.

This session will focus on the priority topic of **Risk.** Speakers will discuss the development of risk tools and models to assess drivers of AMR across agricultural settings and the development of predictive analyses.

Agenda

Risk

14 June 2022 | 9:00 AM - 12:00 PM ET
Moderated by **Kerry A. Hamilton, Ph.D.,** *Global Futures Scientist,* Julie Ann Wrigley Global Futures Laboratory, Arizona State University

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9:00 AM ET	**Opening remarks** **Kerry A. Hamilton, Ph.D.,** Global Futures Scientist, Julie Ann Wrigley Global Futures Laboratory, Arizona State University
9:10 AM ET	**Occurrence, risk factor analysis, and exposure assessment for antibiotic resistance genes from private wells in a karst aquifer influenced by human and livestock fecal sources** **Tucker R. Burch, Ph.D.**, *Research Agricultural Engineer*, Environmentally Integrated Dairy Management Research Unit, Laboratory for Infectious Disease and the Environment, USDA-ARS
9:35 AM ET	**QMRA's Kryptonite – Making Sense of AMR in the Environment** **John P. Brooks, Ph.D.**, *Research Microbiologist*, USDA-ARS, Genetics and Sustainable Agriculture, USDA-ARS
10:00 AM ET	**Comparative Genomic Assessment of the Evolution and Zoonotic Potential of Swine-associated MRSA ST5 isolates** **Tracy L Nicholson, PhD**, *Research Microbiologist*, Respiratory Diseases of Swine, National Animal Disease Center, USDA-ARS
10:25AM ET	**Risk Assessments of Antimicrobial Resistance in U.S. Beef** **John W. Schmidt, Ph.D.**, *Research Microbiologist*, Meat Safety and Quality Research Unit, U.S. Meat Animal Research Center, USDA-ARS
10:50 AM ET	**Break**
11:00 AM ET	**Roundtable Discussion** ***All panelists***
11:40 AM ET	**Closing Remarks** **Kerry A. Hamilton, Ph.D.,** Global Futures Scientist, Julie Ann Wrigley Global Futures Laboratory, Arizona State University
12:00 PM ET	**Adjourn**

Speakers

Moderator

Kerry A. Hamilton, Ph.D., Global Futures Scientist, Julie Ann Wrigley Global Futures Laboratory, Arizona State University

Dr. Kerry Hamilton is an Assistant Professor in the School of Sustainable Engineering and the Built Environment with a joint appointment in the Biodesign Institute Center for Environmental Health Engineering at Arizona State University. She received her doctoral degree in Environmental Engineering from Drexel University and Master's of Health Science (MHS) degree in Environmental and Occupational Hygiene from Johns Hopkins University. She was a Fulbright Scholar to Australia and Public Health Fellow at the US Environmental Protection Agency. Her research focuses on assessing and reducing health risks from pathogens transmitted by environmental exposures.

Panelists

John P. Brooks, Ph.D., *Research Microbiologist*, USDA-ARS, Genetics and Sustainable Agriculture, USDA-ARS

Dr. John P. Brooks is a research microbiologist with the USDA – ARS located at Mississippi State. He graduated from the University of Arizona with a primary focus on environmental microbiology, particularly utilizing quantitative microbial risk assessment to evaluate the fate and transport of bacterial and viral pathogens through the environment and implications on public health. Currently his lab is focused on the assessment of soil health, antimicrobial resistance in the environment, and pathogen fate and transport.

Tucker R. Burch, Ph.D., *Research Agricultural Engineer*, Environmentally Integrated Dairy Management Research Unit, Laboratory for Infectious Disease and the Environment, USDA-ARS

Dr. Burch received a B.S. from Marquette University (2009) and Ph.D. from the University of Minnesota (2013); both degrees are in civil and environmental engineering. His research program is focused on antimicrobial resistance and quantitative microbial risk assessment. He has published on the fate of ARGs during management of manure and biosolids, on risk assessment for drinking water from private wells contaminated by human and livestock fecal material in northeast Wisconsin, and on risk assessment for waterborne pathogens in public wells across Minnesota.

Tracy L Nicholson, PhD, *Research Microbiologist*, Respiratory Diseases of Swine, National Animal Disease Center, USDA-ARS

Dr. Nicholson earned her Ph.D. from Texas A&M University while working in the laboratory of Dr. Andreas Bäumler studying Salmonella Typhimurium pathogenesis. She then spent 4 years working as a NIH Postdoctoral Research Fellow with Dr. Richard Stephens at University of California, Berkeley, investigating global gene expression in the obligate intracellular bacterium *Chlamydia trachomatis.* Dr. Nicholson is currently a Principal Investigator and Lead Scientist for the USDA/ ARS Project: Virulence Mechanisms, Microbiome Changes and Control Strategies for Priority Bacterial Infections in Swine in Ames, Iowa at the National Animal Disease Center. Her research focusses on virulence and transmission mechanisms used by respiratory bacterial pathogens (*S. suis*, *H. parasuis, B. bronchiseptica*, and MRSA) and the prevalence and transference of antimicrobial genes harbored by these bacterial pathogens.

John W. Schmidt, Ph.D., *Research Microbiologist*, Meat Safety and Quality Research Unit, U.S. Meat Animal Research Center, USDA-ARS

Dr. John Schmidt is Research Microbiologist with the Meat Safety and Quality Research Unit at the US Meat Animal Research Center located in Clay Center, Nebraska. He received his Ph.D. in Microbiology from the University of Illinois. Dr. Schmidt is an expert on antimicrobial resistance, *Salmonella,* and *E. coli* throughout the pork and beef farm-to-fork production systems. Recent collaborative projects have involved Colorado State University, Texas A & M University, University of Nebraska, Kansas State University, Texas Tech University, Cornell University, EPIX Analytics, USDA-Animal and Plant Health Inspection Service, and numerous production and processing companies. Since 2017 he has authored or co-authored 20 peer-reviewed publications. These publications span diverse topics, including beef manure, pork production, retail pork, beef production and processing, retail beef, antimicrobial use during beef production, metagenomics, whole-genome sequencing, and risk assessments.

2022

ARS AMR/ATA Research Webinar Series:

Systems Biology and Detection Strategies

19 July 2022 | 9:00 AM – 12:00 PM ET

Antimicrobial resistance (AMR) is one of the most serious health threats for both animals and humans. The Agricultural Research Service (ARS) within the United States Department of Agriculture (USDA) is mandated to solve agricultural issues of high national priority and AMR is a national and international priority.

In August 2021, ARS hosted a Research Solutions for AMR Workshop, which included participants from all four national program areas: Animal Production and Protection, Crop Production and Protection, Natural Recourses and Sustainable Agriculture Systems, and Nutrition, Food Safety and Quality. During the Workshop, ARS scientists identified research priorities and the AMR vision and mission statements were created.

The Antimicrobial Resistance (AMR) and Alternatives to Antibiotics (ATA) Research Webinar Series will highlight research with U.S. and international partners/stakeholders that ARS and others are performing to address AMR and ATA in agriculture.

This session will focus on the priority topic of **Systems Biology and Detection Strategies.** Speakers will discuss identifying strategies to reduce AMR through the development of rapid and innovative end-user-based technologies, data exchange and analytic tools to populate decision support and risk models, disease diagnostics and rapid detection.

Agenda

Systems Biology and Detection Strategies

19 July 2022 | 9:00 AM - 12:00 PM ET

Moderated by **Jay Garland, Ph.D.,** *Associate Director for Science*, Center for Environmental Solutions and Emergency Response, United States Environmental Protection Agency

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9:00 AM ET	**Opening remarks** **Jay Garland, Ph.D.,** *Associate Director for Science*, Center for Environmental Solutions and Emergency Response, Office of Research and Development, United States EPA
9:10 AM ET	**The glove fits! New approaches to monitoring disease and fungicide resistance** **Walt Mahaffee, Ph.D.,** *Research Plant Pathologist*, Horticulture Crops Disease and Pest Research Unit, Corvallis, OR
9:35 AM ET	**Antimicrobial Resistance in Dairy Animals** **Jo Ann Van Kessel, Ph.D.,** *Research Animal Scientist*, USDA-ARS
10:00 AM ET	**Integrating environmental design concepts, sampling and analysis approaches into a NARMS pilot project for U.S. surface waters** **Manan Sharma, Ph.D.,** *Research Microbiologist* **and Jim Wells, Ph.D.,** *Research Microbiologist*, USDA-ARS, U.S. Meat Animal Research Center
10:25AM ET	**Association of diet and antimicrobial resistance genes in healthy humans** **Danielle Lemay, Ph.D.,** *Research Scientist*, USDA-ARS Western Human Nutrition Research Center
10:50 AM ET	**Break**
11:00 AM ET	**Roundtable Discussion** ***All panelists***
11:40 AM ET	**Closing Remarks** **Jay Garland, Ph.D.,** *Associate Director for Science*, Center for Environmental Solutions and Emergency Response, Office of Research and Development, United States EPA
12:00 PM ET	**Adjourn**

Speakers

Moderator

Jay Garland, Ph.D., *Associate Director for Science*, Center for Environmental Solutions and Emergency Response, Office of Research and Development, United States EPA

Dr. Jay L. Garland joined the EPA's Office of Research and Development in 2011. Dr. Garland received a Ph.D. in Environment Science from the University of Virginia and spent over 20 years working on NASA's efforts to develop closed, bioregenerative life support systems for extended human spaceflight. NASA recognized him for innovative technical achievements four separate times. He has worked on a range of topics, including methods for microbial community analysis, factors affecting survival of human associated pathogens, and various biological approaches for recycling wastes. Dr. Garland has completed visiting fellowships and professorships at the Institute for Environment Sciences in Japan, the University of Innsbruck in Austria, and the University of Buenos Aires in Argentina. His current efforts focus on advancing innovative approaches to water infrastructure, including decentralized water reuse, and mitigating risks associated with antimicrobial resistance in the water cycle.

Panelists

Walt Mahaffee, Ph.D., *Research Plant Pathologist*, Horticulture Crops Disease and Pest Research Unit, Corvallis, OR

Dr. Walt Mahaffee is a Research Plant Pathologist with USDA Agricultural Research Service. His group has extensive experience and success in transferring their research to practical application through direct transfer and partnerships with private industry. Research efforts have led to development of two biological control agents used 10 million acres of cotton and peanuts, development of disease forecasting models used in hop and grape production, and the commercial implementation of inoculum monitoring as a decision aide for determining disease risk and fungicide resistance profile. Current research involves monitoring and mitigation of fungicide resistance, developing a simulation environment for viticulture and cyber-physical system for risk management in agricultural systems, disease epidemiology and pathogen dispersion, and germicidal UV light for management of grape diseases.

Jo Ann Van Kessel, Ph.D., *Research Animal Scientist*, USDA-ARS

Dr. Burch received a B.S. from Marquette University (2009) and Ph.D. from the University of Minnesota (2013); both degrees are in civil and environmental engineering. His research program is focused on antimicrobial resistance and quantitative microbial risk assessment. He has published on the fate of ARGs during management of manure and biosolids, on risk assessment for drinking water from private wells contaminated by human and livestock fecal material in northeast Wisconsin, and on risk assessment for waterborne pathogens in public wells across Minnesota.

Manan Sharma, Ph.D., *Research Microbiologist*, USDA-ARS

Dr. Manan Sharma is a Research Microbiologist in the Environmental Microbial and Food Safety Laboratory with the United States Department of Agriculture, Agricultural Research Service (USDA ARS) in Beltsville, Maryland. His research focuses on pre-harvest produce safety issues and their intersection with environmental sustainability. He also investigates the persistence and detection of antibiotic-resistant pathogens in water as part of the NARMS EWG pilot program. He received in B.S. degree in Microbiology and Cell Science from the University of Florida, and his M.S. and Ph.D. degrees in Food Science and Technology from the University of Georgia.

Jim Wells, Ph.D., *Research Microbiologist*, USDA-ARS, U.S. Meat Animal Research Center

Jim has conducted food safety pre-harvest research with cattle and swine at the US Meat Animal Research Center at Clay Center, NE, since 2002. Jim was trained as a gastrointestinal microbiologist and at USMARC Jim has conducted studies to determine how animal management decisions impact the gastrointestinal colonization and fecal shedding of foodborne pathogens. In addition, the studies have also considered how these pathogens persist in the animal production environment and contribute to the transmission of foodborne pathogens to food and water.

Danielle Lemay, Ph.D., *Research Scientist*, USDA-ARS Western Human Nutrition Research Center

Danielle G. Lemay is a Research Scientist at USDA ARS Western Human Nutrition Research Center. She is also an Associate Adjunct Professor in the Department of Nutrition at the University of California, Davis and the Nutrition Cluster Lead at the USDA/NSF AI Institute for Next-Generation Food Systems. Her lab uses bioinformatics to study how dietary components, especially fermentable carbohydrates, affect host response and whether that response is modulated by the functional capabilities of the resident microbiota. Her lab also applies machine learning/AI to understand the effects of diet on human health. She has a PhD and MS in Nutritional Biology from UC Davis, and a BS in Electrical Engineering & Computer Science from MIT.

2022

ARS AMR/ATA Research Webinar Series:

Mitigation: Diagnostics & ATA

August 16, 2022 | 9:00 AM – 12:00 PM ET

Antimicrobial resistance (AMR) is one of the most serious health threats for both animals and humans. The Agricultural Research Service (ARS) within the United States Department of Agriculture (USDA) is mandated to solve agricultural issues of high national priority and AMR is a national and international priority.

In August 2021, ARS hosted a Research Solutions for AMR Workshop, which included participants from all four national program areas: Animal Production and Protection, Crop Production and Protection, Natural Recourses and Sustainable Agriculture Systems, and Nutrition, Food Safety and Quality. During the Workshop, ARS scientists identified research priorities and the AMR vision and mission statements were created.

The Antimicrobial Resistance (AMR) and Alternatives to Antibiotics (ATA) Research Webinar Series will highlight research with U.S. and international partners/stakeholders that ARS and others are performing to address AMR and ATA in agriculture.

This session will focus on the priority topic of **Mitigation: Diagnostics & ATA.** Speakers will discuss identifying strategies to reduce AMR through the development of rapid and innovative end-user-based technologies, data exchange and analytic tools to populate decision support and risk models, disease diagnostics and rapid detection.

Agenda

Mitigation: Diagnostics & ATA

August 16, 2022 | 9:00 AM - 12:00 PM ET
Moderated by **Lonnie King, Ph.D.,** *Academy Professor and Dean Emeritus,* College of Veterinary Medicine, Ohio State University, Columbus, OH

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9:00 AM ET	**Opening remarks** **Lonnie King, Ph.D.,** *Academy Professor and Dean Emeritus*, College of Veterinary Medicine, Ohio State University, Columbus, OH
9:15 AM ET	**Novel antimicrobials for Dairy Pathogens** **Billy Hart Cooper, Ph.D.,** *Research Chemical Engineer*, Bioproducts Research Unit, Western Regional Research Center, Albany, CA **and Jennifer Wilson-Welder, Ph.D.,** *Research Microbiologist*, Infectious Bacterial Disease Research Unit, National Animal Disease Center, Ames, IA
9:50 AM ET	**New Strategy for Controlling Citrus Greening Disease: A Model for Combating AMR Concerns in Crop Disease Management** **Robert Shatters, Ph.D.,** *Research Leader and Research Molecular Biologist*, U. S. Horticultural Research Laboratory, Fort Pierce, FL **and Michelle Heck, Ph.D.,** *Lead Scientist and Research Molecular Biologist*, Emerging Pests and Pathogens Research Unit, USDA Agricultural Research Service, Ithaca, NY
10:25 AM ET	**Probiotics, phytogenics, egg yolk antibodies, antimicrobial peptides and novel gut metabolites to improve gut health and host immunity** **Hyun Soon Lillehoj, Ph.D.,** *Senior Research Microbiologist*, Supergrade Scientist, USDA Agricultural Research Service, Beltsville, MD
10:50 AM ET	**Break**
11:00 AM ET	**Roundtable Discussion** ***All panelists***
11:40 AM ET	**Closing Remarks** **Lonnie King, Ph.D.,** *Academy Professor and Dean Emeritus*, College of Veterinary Medicine, Ohio State University, Columbus, OH
12:00 PM ET	**Adjourn**

Speakers

Moderator

Lonnie King, DVM, MS, MPA, ACVPM, Academy Professor and Dean Emeritus, College of Veterinary Medicine, Ohio State University, Columbus, OH

Lonnie King, DVM, MS, MPA, ACVPM, has served as dean for 3 colleges over 17 years. Most recently, he was the interim dean of the College of Food, Agricultural and Environmental Sciences at The Ohio State University and was also the VP for Agriculture. He was also dean of the College of Veterinary Medicine at The Ohio State University from 2009 – 2015. At Ohio State, Dr. King held the Ruth Stanton Endowed Chair and served as the Executive Dean for the 7 health science colleges at the university. Before becoming dean at OSU, he was the first Director of the National Center for Zoonotic, Vector-Borne, and Enteric Diseases at the Centers for Disease Control and Prevention. Dr. King led the Center's activities for surveillance, diagnostics, disease investigations, epidemiology, research, public education, policy development, and disease prevention and public health concerns. Before serving as director, he was the first chief of the agency's Office of Strategy and Innovation.

Dr. King served as dean of the College of Veterinary Medicine, Michigan State University, from 1996 to 2006. He led the college's academic programs, research, the teaching hospital, diagnostic center for population and animal health, basic and clinical science departments, and the outreach and continuing education programs. He was also professor of large animal clinical sciences and a distinguished university professor.

In 1992, Dr. King was appointed administrator for the Animal and Plant Health Inspection Service (APHIS), U.S. Department of Agriculture, in Washington, DC. In this role, he provided executive leadership and direction for ensuring the health and care of animals and plants, to improve agricultural productivity and competitiveness, and to contribute to the national economy and public health. Dr. King also served as the country's chief veterinary officer for five years and worked extensively in global trade and closely with the World Animal Health Association (OIE). He also served as the deputy administrator for Veterinary Services of APHIS, USDA where he led national efforts in disease eradication, imports and exports, diagnostic labs and animal welfare.

As a native of Wooster, Ohio, Dr. King received his BS and DVM degrees from The Ohio State University. He earned his MS in epidemiology from the University of Minnesota and received his master's degree in public administration from the American University. Dr. King is a board-certified member of the American College of Veterinary Preventive Medicine and has completed the Senior Executive Fellowship program at Harvard University. Dr. King was elected as a member of the National Academy of Medicine of the National Academies of Science in 2004. He is a past Vice-Chair of the National Academy of Medicine's Forum on Microbial Threats to Health and has been awarded both the Global One Health Award presented in 2013 by the World Small Animal Veterinary Medical Association and the OIE Meritorious Award for his distinguished global career in animal and public health in 2019. Dr. King was awarded an honorary degree, Doctor of Science, from Tufts University in 2022 for his career accomplishments. His interests and expertise are in emerging zoonoses, antimicrobial resistance, global health, food safety and security, One Health, and leadership

development. He just completed a 7-year assignment as the Vice-Chair for the President's Advisory Council Combating Antibiotic Resistant Bacteria and is serving on the boards or in advisory roles for 10 organizations and companies.

Panelists

Billy Hart Cooper, Ph.D., *Research Chemical Engineer*, Bioproducts Research Unit, Western Regional Research Center, Albany, C**A**

Dr. Hart-Cooper is a Research Chemist specializing in biomimetic self-assembly and green chemistry in the Bioproducts Research Unit at the Western Regional Research Center (USDA, ARS). He works with industry and academia to develop alternatives to persistent chemicals and packaging, and his research has been featured in the American Chemical Society's (ACS) Chemical and Engineering News, E&E News and PBS Newshour.

Jennifer Wilson-Welder, Ph.D., *Research Microbiologist*, Infectious Bacterial Disease Research Unit, National Animal Disease Center, Ames, IA

Dr. Jenny Wilson-Welder is a Research Microbiologist at the USDA National Animal Disease Center in Ames, Iowa, studying the pathogenesis and host immune responses to spirochete diseases in cattle. Her current research at the USDA focuses on all things dealing with "smelly hooves" including treponeme pathogenesis, model development, immune response to chronic infection, vaccine development and novel alternatives to antibiotics for treatment. She received her PhD in Veterinary Microbiology and Preventive Medicine from Iowa State University in 2009 and has spent just over 10 years with the USDA at NADC.

Robert Shatters, Ph.D., *Research Leader and Research Molecular Biologist*, U. S. Horticultural Research Laboratory, Fort Pierce, FL

Dr. Robert Shatters is a Research Molecular Biologist and the Research Leader for the Subtropical Insects and Horticulture Research Unit at the U. S. Horticultural Research Laboratory in Fort Pierce, FL. He received a Ph.D. from Washington State University (1988) in Genetics and Cell Biology. He has been a research scientist with the USDA, ARS for 34 years where his research focus has been on applying molecular, cellular and biotechnology approaches to real-world agricultural crop production problems. His current work includes developing biologically-based solutions to emerging crop pest and pathogen issues, and to do so through the development of novel techniques that allow rapid deployment of genetic engineering solutions. Dr. Shatters has published over 120 peer-reviewed papers and holds four patents on his research, two of which are under license. Currently, he leads the USDA, ARS Citrus Grand Challenge, and co-leads (with Dr. Michelle Heck) a team of ARS, university and private sector scientists in a $15 million USDA NIFA grant. This grant focuses on development of solutions to citrus greening disease. A disease that has reduced Florida citrus production by over 70% and threatens California and Texas.

Michelle Heck, Ph.D., *Lead Scientist and Research Molecular Biologist*, Emerging Pests and Pathogens Research Unit, USDA Agricultural Research Service, Ithaca, NY

Dr. Heck serves as a Lead Scientist and Research Molecular Biologist with the Emerging Pests and Pathogens Research Unit located at the Robert W. Holley Center for Agriculture and Health on the Cornell University campus, in Ithaca, NY (USDA-ARS-NEA). Her research is focused on the discovery and characterization of insect vector-plant-pathogen interactions. Vector borne diseases are among the most challenging problems in agriculture. Dr. Heck is a proven leader with the ability to plan and conduct sophisticated experiments using a variety of molecular, genetic and functional genomics methods to gain a deeper understanding of vector-borne plant pathogens. Her research integrates developed knowledge into applied agricultural practices to create novel management strategies for vector-borne plant diseases and the insect vectors. Her studies are conducted in support of the USDA ARS NP 304 Action Plan: Crop Protection and Quarantine, Problem Statement 3A2: Systems approach to environmentally sound pest management.

Dr. Heck received her BA in biology from Boston University and her Ph.D. in biology from Cold Spring Harbor Laboratory. She conducted her postdoctoral training in vector biology and proteomics with Drs. Stewart Gray and Ted Thannhauser at the USDA location in Ithaca. She has been working in research on protein interactions and protein transport in plants and insects for over 20 years and has

an international reputation as an authority in vector biology and the management of vector-borne plant disease. Dr. Heck is a co-lead (with Dr. Robert Shatters) in the USDA ARS Citrus Greening Grand Challenge, which is the Agency's coordinated national response to combat citrus greening disease. She has published over 70 peer-reviewed journal articles, book chapters, and patents. She has been recognized for her scientific excellence with awards, including a 2017 Presidential Early Career Award for Scientists and Engineers from the Obama Whitehouse Office of Science and Technology Policy.

Hyun Soon Lillehoj, Ph.D., *Senior Research Microbiologist*, Supergrade Scientist, USDA Agricultural Research Service, Beltsville, MD

Dr. Lillehoj is a senior research microbiologist (immunologist) at the Agricultural Research Service, USDA and works in the immunology and genomics fields in poultry. Dr. Lillehoj received her Ph.D. in Immunology from Wayne State University, School of Medicine and she was a staff fellow in the Laboratory of Immunology, NIAID, NIH. She joined ARS in 1984. Her research has focused on the avian immune system and its response to intestinal infections, coccidiosis and necrotic enteritis. Her research has led to the development of safe and effective antibiotic-free approaches to control these two economically-important poultry diseases. Among her most important accomplishments are the development and commercialization of novel diagnostic and therapeutic products for avian immunology, and several commercialized antibiotic alternatives. Her research has resulted in more than 510 original papers, 18 patents and 125 commercial licensing agreements. Her accomplishments have been recognized by numerous awards, most notably American Service Medal for Career Achievement Award (Sammies America Medal) which is the highest award given to federal government workers. Dr. Lillehoj was inducted into the ARS Hall of Fame in 2014, AAAP Hall of Honor in 2021, and received 2015 Presidential Rank Award.

2022

ARS AMR/ATA Research Webinar Series:

Mitigation: Diagnostics & ATA

September 20, 2022 | 9:00 AM – 12:00 PM ET

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This session will focus on the priority topic of **Mitigation: Farm Production and Environment.** Speakers will discuss developing novel intervention strategies and alternatives to antibiotics to optimize antibiotic use or reduce AMR transmission in farm practices

Agenda

Mitigation: Farm Production and Environment

September 20, 2022 | 9:00 AM - 12:00 PM ET

Moderated **Noelle Noyes, MA, DVM, Ph.D.,** *McKnight Land-Grant Professor*, *Assistant Professor*, Department of Veterinary Population Medicine University of Minnesota

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9:00 AM ET	**Opening remarks** **Noelle Noyes, MA, DVM, Ph.D.,** *McKnight Land-Grant Professor*, *Assistant Professor*, Department of Veterinary Population Medicine University of Minnesota
9:15 AM ET	**Intelligent pesticide spray technology for sustainable crop production** **Heping Zhu, Ph.D.,** *Agricultural Engineer and Lead Scientist*, USDA/ARS MWA Application Technology Research Unit and, *Adjunct Professor*, FABE Department, Ohio State University
9:40 AM ET	**AMR Mitigation Program at USDA-ARS Riverside** **Abasiofiok Mark Ibekwe Ph.D.,** *Research Microbiologist and Lead Scientist*, USDA/ARS Salinity Laboratory
10:05 AM ET	**Limiting the horizontal transfer of AMR through the application of direct fed microbials** **Adelumola Oladeinde, Ph.D.,** *Research Microbiologist,* Egg Quality and Safety Research Unit, US National Poultry Research Center, Athens, GA
10:30 AM ET	**Studies evaluating dietary and management strategies to reduce antibiotic use in food animal production systems** **Jim Wells, Ph.D.,** *Research Microbiologist*, USDA, ARS, US Meat Animal Research Center
10:55 AM ET	**Break**
11:05 AM ET	**Roundtable Discussion** ***All panelists***
11:45 AM ET	**Closing Remarks** **Noelle Noyes, MA, DVM, Ph.D.,** *McKnight Land-Grant Professor*, *Assistant Professor*, Department of Veterinary Population Medicine University of Minnesota
12:00 PM ET	**Adjourn**

Speakers

Moderator

Noelle Noyes, MA, DVM, Ph.D., *McKnight Land-Grant Professor*, *Assistant Professor*, Department of Veterinary Population Medicine University of Minnesota

Noelle Noyes, M.A., D.V.M., Ph.D., is a veterinary epidemiologist and McKnight Land-Grant Professor in the Department of Veterinary Population Medicine at the University of Minnesota. Noelle received her BA in European Studies from Amherst College and her MA from Osnabrück Universität, Germany while conducting independent research on an Alexander von Humboldt Fellowship. She enrolled in the DVM-PhD dual-degree program at Colorado State University, where she received her doctorate in epidemiology, a USDA NIFA postdoctoral fellowship, and her veterinary degree with specialization in large animal medicine. Her lab investigates antibiotic resistance, microbial ecology, livestock production microbiomes, metagenomics, antibiotic use in veterinary medicine, bioinformatics and statistics. Please visit the lab website for a complete description of our work: www.thenoyeslab.org.

Panelists

Heping Zhu, Ph.D., *Agricultural Engineer and Lead Scientist*, USDA/ARS MWA Application Technology Research Unit and, *Adjunct Professor*, FABE Department, Ohio State University

Dr. Heping Zhu has more than 35 years of academic research and industrial experience in development of innovative methodologies and mechanisms including intelligent spray technologies to protect crops and preserve the environment. He has published more than 300 papers including 158 peer-reviewed journal articles and received 22 U.S. regional and national prestige awards to recognize his accomplishments. He is the Fellow of American Society of Agricultural and Biological Engineers and the recipient of 2022 USDA-ARS MWA Senior Scientist of the Year Award.

Abasiofiok Mark Ibekwe Ph.D., *Research Microbiologist and Lead Scientist*, USDA/ARS Salinity Laboratory

Dr. Ibekwe is a Research Microbiologist at the USDA-ARS-U.S. Salinity Laboratory, Riverside, CA. He conducts basic and applied research to identify the potential transmission routes of antibiotics and ARGs from wastewater and dairy manure to soil-plant-animal systems and develops mitigation strategies for the control of AMR dissemination. His research has many components such as metagenomics based bacterial source tracking for water quality evaluation, persistence of human enteric pathogens in the pre-harvest environment, metagenomics of antimicrobials in agroecosystems, and constructed wetlands for the removal of contaminants for water quality improvement. Dr. Ibekwe has 26 years of research experience with USDA-ARS and holds a Ph.D. from University of Maryland College Park.

Adelumola Oladeinde, Ph.D., *Research Microbiologist,* Egg Quality and Safety Research Unit, US National Poultry Research Center, Athens, GA

Dr. Adelumola Oladeinde is a Research Microbiologist at the U.S. National Poultry Research Center in Athens, Georgia. His research is focused on the reduction of foodborne pathogens and antimicrobial resistance in pre-harvest poultry productions environments. Dr. Oladeinde works with a diverse team of scientists from USDA-ARS, Universities, and Industry to develop multi-pronged approaches for characterizing, understanding, and mitigating the transmission of antimicrobial resistant foodborne pathogens commonly linked to human consumption of chickens. Dr. Oladeinde's current research role is to find, characterize, and apply beneficial commensal bacteria, as an alternative to antibiotics, for the reduction of multidrug resistant Salmonella in broiler chickens. His research has been featured in the American Society of Agronomy (ASA) News, American Society for Microbiology (ASM) News, USDA-ARS News, and poultry-focused newsletters. He received his PhD in Environmental Health Science from the University of Georgia in 2017 and was a student contractor with the U.S. Environmental Protection Agency from 2011 – 2017. Dr. Oladeinde joined ARS in 2018.

Jim Wells, Ph.D., *Research Microbiologist*, USDA, ARS, US Meat Animal Research Center

Jim has conducted food safety pre-harvest research with cattle and swine at the US Meat Animal Research Center at Clay Center, NE, since 2002. Jim was trained as a gastrointestinal microbiologist and at USMARC Jim has conducted studies to determine how animal management decisions impact the gastrointestinal colonization and fecal shedding of foodborne pathogens. In addition, the studies have also considered how these pathogens persist in the animal production environment and contribute to the transmission of foodborne pathogens to food and water.

2022

ARS AMR/ATA Research Webinar Series:

Science Communication

October 18, 2022 | 9:00 AM – 11:00 AM ET

Antimicrobial resistance (AMR) is one of the most serious health threats for both animals and humans. The Agricultural Research Service (ARS) within the United States Department of Agriculture (USDA) is mandated to solve agricultural issues of high national priority and AMR is a national and international priority.

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The Antimicrobial Resistance (AMR) and Alternatives to Antibiotics (ATA) Research Webinar Series will highlight research with U.S. and international partners/stakeholders that ARS and others are performing to address AMR and ATA in agriculture.

This session will focus on the priority topic of **Science Communications.** Speakers will foster collaboration, community building, and communication around ARS AMR research to enhance solution-based research to prioritize risk, enhance understanding, improve detection, and control AMR.

Agenda

Science Communications

October 18, 2022 | 9:00 AM - 11:00 AM ET

Moderated **Paul Plummer, Ph.D.,** *Executive Director*, NIAMRRE, Antimicrobial Resistance Research and Education

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9:00 AM ET	**Opening remarks** **Paul Plummer, Ph.D.,** *Executive Director*, NIAMRRE, Antimicrobial Resistance Research and Education
9:15 AM ET	**Conversations around data interpretation** **Bill Trenkle, PhD,** *Senior Advisor for Scientific Integrity & Departmental Scientific Integrity Officer, USDA* **Kim Kaplan,** *Chief of Special Projects, USDA ARS Office of Communications* **Stephanie Ritchie,** *Lead Librarian for Customer Services, USDA ARS National Agricultural Library*
10:00 AM ET	**Conversations around communicating with different audiences** **John Luchansky, PhD,** *Research Food Microbiologist,* USDA ARS Eastern Regional Research Center **Pamela Ruegg, DVM, MPVM,** *David J. Ellis Professor of Antimicrobial Resistance & Large Animal Clinical Sciences*, Michigan State University College of Veterinary Medicine **Steven Mirsky,** *Research Ecologist*, USDA ARS Sustainable Agricultural Systems Laboratory **Deana Jones, PhD,** *Research Food Technologist*, USDA ARS US National Poultry Research Center **Chelsey Shivley, DVM, PhD, DACAW,** *Antimicrobial Resistance Coordinator*, USDA APHIS Veterinary Services
10:45 AM ET	**Closing Remarks** **Paul Plummer, Ph.D.,** *Executive Director*, NIAMRRE, Antimicrobial Resistance Research and Education
11:00 AM ET	**Adjourn**