

2020 CERSA UAS/Spray Drift Virtual Workshop

List of Participants

Kevin Armbrust, Louisiana State University, Chair, Dept Environmental Sciences, armbrust@lsu.edu

Professor and Chair - Environmental Chemist/toxicologist in the Department of Environmental Sciences at Louisiana State University. His expertise and research interests include assessments of the fate and effects of pesticides and other chemicals in and upon Louisiana watersheds, wetlands and coastal areas especially as they impact the regulatory sciences, as well as risks associated with chemical contaminants in manufactured and retail food.

John Attebury, Federal Aviation Administration. General Aviation and Commercial Division. john.h.attebury@faa.gov. Aviation Safety Inspector. 14 CFR Part 137 UAS focal point.

Ed Bals, Micron Sprayers, Regulatory Affairs and Technical Officer. edward.bals@micron.co.uk

Ed works in Research and Development for Micron Sprayers, a global leader in the production of Low Volume and Ultra Low Volume application equipment. He is also the UK's lead expert on UASS (Unmanned Aerial Spraying Systems) for the ISO Working Group 25, being actively involved in the development of ISO standard series 23117.

Roberto Barbosa, Corteva Agrisciences, Formulation Science Leader. roberto.n.barbosa@corteva.com

Adam Barlow, John Deere, Product Safety & Compliance. BarlowAdamJ@JohnDeere.com

Bryn Bircher, Health and Safety Executive, Chemicals Regulation Division. bryn.bircher@hse.gov.uk. Bryn is a member of the OECD Working Group on Pesticides Drone Subgroup. He has 12 years' experience of working in the regulation of pesticides, and is currently responsible for HSE CRD's strategy on pesticide application using new technology.

Amy Blankinship, US EPA, OPP, EFED, Branch Chief, Environmental Risk Branch 2, blankinship.amy@epa.gov

She has over 10 years of experience in conducting ecological risk assessments for pesticide registrations and has been a member of several international expert groups on topics such as endocrine disruption, aquatic toxicology, and issues related to spray drift.

Geoff Bock, NC State, Project Manager and Interim Director of Operations, NC Plant Sciences Initiative, grbock@ncsu.edu

Geoff serves as the Project Manager and Interim Director of Operations for the North Carolina Plant Sciences Initiative (NC PSI), an effort to establish North Carolina as the world leader in plant sciences research and innovation. Geoff has been involved with CERSA since its establishment, and he is serving this workshop as a member of the Organizing Committee as well as managing workshop communications and logistics.

Jane Bonds, Bonds Consulting Group. With over 20 years experience in pesticide application Jane specializes in aerial pesticide application (including unmanned vehicles) in agriculture and public health entomology.

Ross Breckels, PMRA, Environmental Risk Assessor, ross.breckels@canada.ca

Scientific Evaluator at PMRA - Biologist and regulatory scientist. His expertise is in aquatic biology and he is involved in several technical teams pertaining to mitigation and ecosystem health, such as vegetative filter strips, drift mitigation, and water monitoring.

Scott Bretthauer, National Agricultural Aviation Association, Director of Education & Safety, SBretthauer@agaviation.org

Scott received his PhD from the University of Illinois, where he worked for thirteen years as an Extension Specialist in Pesticide Application Technology. While there he conducted outreach and research focused on improving efficacy and reducing drift for aerial applications. In 2017 he became the Director of Education & Safety for the National Agricultural Aviation Association. One of his primary responsibilities in this role is to oversee the Professional Aerial Applicators' Support System (PAASS) program, which has been a major factor in reducing agricultural aviation accidents and drift incidents.

Danesha Seth Carley, NC State, Director, CERSA, dgseth2@ncsu.edu

Director for the Southern IPM Center, and the new Center of Excellence for Regulatory Science in Agriculture (CERSA). As an Associate Professor in Horticultural Science at NC State, her research and outreach programs focus on sustainable managed landscapes. Recent projects include the restoration of historic Pinehurst No. 2 and No. 4 Golf Courses, and pollinator protection and habitat conservation.

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Dan Cederberg, Project Engineer, TeeJet Technologies, dan.cederberg@teejet.com. Experience developing new spray nozzles and fluid delivery technologies, including for UAV spray applications.

Kevin Costello, US EPA, OPP, PRD, Branch Chief, Risk Management and Implementation Branch II, costello.kevin@epa.gov
Branch Chief, Risk Management and Implementation Branch 2. With 14 years each of ecological risk assessment and risk management experience, he has expertise in several aspects of pesticide regulation. He took part in the 2017 and 2018 CERSA workshops.

Nathan Davis, Office of the Indiana State Chemist, Pesticide Investigator, davi1280@purdue.edu

Hugh Dawick is a Director of Pesticides at the Australian Pesticides and Veterinary Medicines Authority with a specific interest in application technology and spray drift policy. Hugh has been with the APVMA for 18 months prior to which he worked at the UK Chemicals Regulation Directorate for 23 years as an occupational exposure and application technology expert. Hugh has worked on a number of European Expert Groups relating to the development of European Guidance documents relating to occupational exposure and risk assessment to pesticides and biocides.

Jeff Dawson, EPA/Office of Pesticide Programs/Senior Scientist (Director's Office) dawson.jeff@epa.gov Area of expertise is human health risk assessment with a focus on exposures to conventional pesticides and fumigants with 30+ years of experience. Authored EPA policy for conducting risk assessments associated with spray drift of pesticides. In a former position, conducted spray drift field research and wind tunnel testing of droplet spectra.

Rodney Edmundson, APVMA, Rodney.Edmundson@apvma.gov.au

Derek François, Pest Management Regulatory Agency, Health Canada, Senior Biologist. derek.francois@canada.ca. Area of expertise is environmental risk assessment and regulation of pest control products for past 27 years. Focus on spray drift mitigation and reassessment of current risk assessment and risk mitigation methodologies.

Brad Fritz, USDA-ARS, Aerial Application Tech Res Unit. brad.fritz@usda.gov

Claire Glennie, Health & Safety Executive, Chemicals Regulation Division. claire.glennie@hse.gov.uk. Claire is a UK member of the OECD Working Group on Pesticides Drone Subgroup. She is a regulatory scientist with experience in the environmental assessment of pesticides and an interest in how to develop regulation to include new technology and to better understand any differences in environmental exposure and risk.

Shanique Grant, Syngenta, Technical Expert. shanique.grant@syngenta.com

Pat Havens, Corteva Agriscience, Environmental Exposure Assessment, Crop Protection Regulatory Sciences, Corteva Agriscience Laureate. pat.havens@corteva.com. 30+ years experience in pesticide fate, transport, risk assessment, and regulatory science policy work at spatial scales from laboratory to field to simulation.

Becca Haynie, Syngenta Crop Protection. Federal Regulatory Product Manager, Fungicides. becca.haynie@syngenta.com

Clint Hoffmann, Corteva AgriSciences, Application Engineer, Product and Process Technology, clint.hoffmann@corteva.com
As an Application Engineer with Corteva, his primary focus is on product development of new formulations from the discovery phase to product launch and customer support. Corteva is exploring the role of UAVs on the agrichemical business and if speciality formulations are warranted. Prior to joining Corteva, he spent 25 years with USDA-ARS's Aerial Application Technology project.

Trenton Houston, University of Nebraska-Lincoln, Graduate Student, thouston@huskers.unl.edu

Monisha Kaul, US EPA, OPP, BEAD, Branch Chief, Biological Analysis Branch, kaul.monisha@epa.gov

Faruque Khan (khan.faruque@epa.gov) is a Senior Scientist with the U.S. Environmental Protection Agency's (EPA), Office of Pesticide Programs. Provides leadership and direction to staff scientists to support pesticide registration and reregistration and advises senior management on scientific issues related to environmental fate and transport of pesticides at the national and international level.

Greg Kruger, University of Nebraska-Lincoln, Associate Professor, gkruger2@unl.edu

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Greg leads all efforts from the Pesticide Application Technology Laboratory at the University of Nebraska-Lincoln's West Central Research, Education and Extension Center in North Platte, NE. His research covers drift and efficacy of pesticides applied through a variety of different platforms over a wide range of crops.

Lyle Mangen, Global Product Specialist, CNH Industrial, LLC, lyle.mangen@cnhind.com Lyle is responsible for product configuration and definition for Case IH and New Holland crop protection and nutrient application products, across all global regions.

Dan Martin (Dan.Martin@usda.gov) is a Research Engineer with the USDA-ARS Aerial Application Technology Research Unit. He has over 25 years of training and experience in aerial spray application technologies and is recognized nationally and internationally as an authority in manned and unmanned aerial application systems for precision agriculture and pest management.

Walter Mayer, Bayer AG, Germany, Application Technology Expert. walter.mayer@bayer.com
Member of the global Application Technology team for the past 5 years. Involved in global activities around UAS/drones for spraying and measures to mitigate drift (not only with UAS). Interested in digital tools and modern ways to improve application methods of all kind with regard to efficacy and efficiency, whilst keeping environmental and human safety aspects upfront.

Laura McConnell, Bayer CropScience, Principal Scientist, Regulatory Scientific Affairs laura.mcconnell@bayer.com
brings 25 years of experience in environmental and agricultural science research, previously serving as a research chemist and lead scientist in the U.S. Department of Agriculture's Agricultural Research Service. At Bayer, McConnell focuses on communication, collaboration and engagement with the scientific community on topics relevant to the regulation of agricultural technologies.

Andrew D. Moore, Chief Executive Officer, National Agricultural Aviation Association (NAAA). NAAA supports the interests of business owners and pilots licensed as commercial applicators that use aircraft to enhance food, fiber and bio-fuel production, protect forestry and control health-threatening pests. Moore has served in this position since 2002 and oversees the NAAA's government relations efforts, educational programs, finances, communication and outreach efforts, and various industry conferences. He started at NAAA in 1997 as its director of government relations. He was born and raised in Bakersfield, California located in the state's Central Valley. He grew up in agriculture and for four generations his family has farmed in Arvin, California—just outside of Bakersfield—where they grow potatoes, carrots, almonds, pistachios, and navel oranges.
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Neill Newton, Sr. Application Specialist, Syngenta. neill.newton@syngenta.com. For the past 4 years I have led Syngenta's global drone application network focusing on educating and building awareness in countries with FTO as well as leading application research efforts with objectives of ensuring safe, efficient and efficacious applications from UAAS.. I have research interest in precision application and understanding the ways new technologies may alter the way we think about formulation development.

Jeff Perine, Principal Scientist, Syngenta. jeff.perine@syngenta.com. Jeff has 30 years of experience in the chemical industry and 17 years in pesticide environmental fate and exposure. He has a strong interest in spray drift risk assessment and mitigation from all application methods including UAS and is eager to support the development of sound regulation with this exciting new technology.

Robby Personette, Manager, Agrichemical Programs Section, Wisconsin Department of Agriculture, Trade and Consumer Protection. Chair - Association of American Pesticide Control Officials (AAPCO) - Technology Workgroup.

Brian Rau, Aviation Consultant to the National Agricultural Aviation Association, Aerial Applicator with 40 plus years of experience, Bachelor of Science Degree from North Dakota State University. Member of the ND Regulatory Review group for UAV aerial application.

Damon Reabe, Dairyland Aviation, President. damon@dairylandaviation.com

Bill Reynolds, Leading Edge Associates, President. breyolds@leateam.com

Brian Richardson, Principal Scientist, NZ Forest Research Institute (Scion), brian.richardson@scionresearch.com
Experience in aerial spray application research, spray modelling, forest vegetation management, forest pest management and pest eradication during biosecurity incursions.

Rob Richardson, North Carolina State University. rob_richardson@ncsu.edu. Professor and Extension Specialist with

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responsibilities for Aquatic and Non-cropland weed management. Part of his research involves sUAS for sensing and herbicide application.

Gary Roberson (gtrobers@ncsu.edu), Professor and Extension Specialist, Biological and Agricultural Engineering, North Carolina State University. Dr Roberson has 40 years of agricultural engineering experience in industry and the university. His focus is on agricultural machinery systems and precision agriculture technology. He has worked with a wide range of application systems for field crops.

Zoe Ruge, US EPA, OPP, EFED, ruge.zoe@epa.gov

Zoe is a physical scientist with the Environmental Fate and Effects Division, conducting ecological risk assessments for pesticide registrations. Prior to joining OPP, she worked in the Standards and Health Protection Division in the Office of Science and Technology.

Andrew Russell, Bayer CropScience, Regulatory Affairs Manager, Canada, andrew.russell1@bayer.com

Over 25 years experience in crop protection regulatory practice with industry and PMRA.

Bryan Sanders, President, HSE-UAV, LLC, bsanders@hse-uav.com America's leading full-service provider of industrial drones. As one of the first companies to introduce spraying UAS to the Americas, he and his team work closely with research partners and regulators to create the future of remotely piloted aerial applications systems (RPAAS). He also serves as chairperson for the North American RPAAS Committee.

Jerome Schleier, Corteva Agrisciences, Environmental Exposure Assessment. jerome.schleieriii@corteva.com

Tom Smith, National Pesticide Safety Education Center, Executive Director. tomsmith@npsec.us

Cory Southam, *Operations Manager*, Strongfield Environmental Solutions Inc. cory@strongfieldenviro.com. Cory is Operations Manager for Strongfield Environmental as well as the acting chair for the North American RPAAS (Remotely Piloted Aerial Application Systems) Working Group. Cory has been working with RPAAS platforms for the past 2 years and hopes that the efforts made by the working group help promote regulations of RPAAS platforms in Canada and the United States.

Lucas Souza, Ministry of Agriculture, Livestock and Food Supply, Agricultural Engineer, lucas.fsouza@agricultura.gov.br Doctor Science in the area of Agrometeorology and currently works and helps to develop a specific legislation about the use of DRONES to apply pesticides. He has over 3 years of experience in conducting agricultural aviation at the Ministry.

David Spak, Bayer E.S., North America, Bayer Vegetation Management. david.spak@bayer.com 28 years in the crop/non-crop protection industry. Currently responsible for new product development and product stewardship for herbicides used for managing invasive vegetation in industrial, forestry, and range and pasture areas.

Jane Tang Head of Environmental Exposure Modeling, Bayer. Jane-zhenxu.tang@bayer.com, 25+ years experience in hydrological/water quality modeling at field and watershed scale, and 15+ years in environmental exposure assessment of pesticides in air, soil and water.

Shara Tardif, Executive Director, Canadian Aerial Applicators Association. ed@canadianaerialapplicators.com. The primary objective of the CAAA is to promote safety and professionalism amongst members and the aerial application industry in Canada. The CAAA works with federal and provincial government agencies to design policies that are fair and equitable and, above all, that protect both rural customers and urban dwellers. Education and training of members is a main priority of CAAA.

Harold Thistle, TEALS, LLC, President. hwthistle@gmail.com

Janice Villeneuve, Section Head, PMRA, Health Canada. janice.villeneuve@canada.ca. Janice has 20+ years experience in the environmental assessment of pesticides. She currently managing a section of evaluators working on diverse submissions and project including the drift management tech team.

Mao Mao Wang, Syngenta, Technical Expert. maomao.wang@syngenta.com.

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Greg Watson, Bayer CropScience, Regulatory Policy Manager / Analyst, Bayer Fellow. greg.watson@bayer.com Over 30 years experience in crop protection regulatory practice and policy, currently representing the crop protection industry in the Organisation for Economic Co-operation and Development Working Group Pesticide Drone Subgroup.

JD Whall, Senior Evaluation Officer, PMRA, Health Canada. john david.whall@canada.ca. JD has 18 years experience in the environmental assessment of pesticides and specializes in spray drift mitigation. He is currently representing the Agency on the North American RPAAS working group and the OECD Working Group on Pesticides' Drone Subgroup.

Jeff Zimmerman, AGCO, Technical Project Engineer. jeffrey.zimmerman@agcocorp.com