

A view from above - application of drones and remote sensing for air and water quality measures around livestock farms

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Aerial photos of farms and farming practices are becoming easier to find and collect. **But drones and satellites can provide more than pretty pictures. The three speakers will share applications of drones and remote sensing for air and water quality measures around livestock farms.** Dirk Charlson will share his simple approach to collecting drone imagery, and the range of opportunities for analyzing images and mapping practices. Nesli Akdeniz has collected air quality measures in pasture systems with drones. Finally, Becca Muenich has used remote sensing to examine land application practices. While it may seem like these applications are flying by faster than we can see, the speakers will help ground us with their experience.

An application for continuing education credit for Certified Crop Advisors (CCAs) and members of the American Registry of Professional Animal Scientists (ARPAS) will be submitted.

Additional Information

- Using Remote Sensing to Identify Liquid Manure Applications
<https://doi.org/10.1016/j.jenvman.2022.115334>
- Direct Air Emission Measurements from Livestock Pastures
<https://doi.org/10.3390/rs17173059>

Dr. Rhonda Miller: is the Agricultural Environmental Quality Extension Specialist and a Professor in the Agricultural Systems Technology and Education (ASTE) Department at Utah State University. Dr. Miller works with animal waste management, water quality, and air quality issues. She serves as an agricultural liaison for many state committees and actively works to help agriculture remain economically viable while preserving the environment. Her research focuses upon environmental impacts in agricultural systems. Dr. Miller serves on several LPELC committees. She received her B.S. and M.S. from the University of Nebraska, and her Ph.D. in Agronomy from Iowa State; E-mail: rhonda.miller@usu.edu.



Rhonda Miller
Utah State University

Dr. Nesli Akdeniz: is an assistant professor and extension specialist in Biological Systems Engineering at the University of Wisconsin-Madison. **Her research and extension program focuses on livestock production, ventilation design, and air quality measurements.** She received her PhD from Iowa State University and has fifteen years of experience measuring air emissions from livestock systems. Please feel free to contact her at nesli@wisc.edu or visit her website at <https://bse.wisc.edu/staff/akdeniz-neslihan/> for more information.



Nesli Akdeniz
University of Wisconsin



Rebecca Muenich
University of Arkansas

Dr. Rebecca Muenich: is an Associate Professor of Biological & Agricultural Engineering at the University of Arkansas. **Her work is focused on integrating process-based models, remote sensing and geospatial sciences, and data science to create and assess nature-based solutions at large scales.** Dr. Muenich received her B.S. in Biological Engineering from the University of Arkansas, a Ph.D. and M.S. in Agricultural & Biological Engineering from Purdue University, and completed a Postdoctoral Fellowship at the University of Michigan. She has been working on improving how we quantify livestock contributions of nutrients to the landscape for over 15 years as part of large-scale modeling efforts. Contact info: rlogsdo@uark.edu.



Dirk Charlson
University of Nebraska

Dr. Dirk Charlson: is the Statewide Extension Educator for Digital Agriculture at the University of Nebraska-Lincoln, specializing in drone education for agriculture. **He provides adult training and workforce development in aerial drone imagery and ag-chemical spray applications, with a strong focus on state and federal regulations for legal drone operation.** A third-generation pilot with nearly a decade of professional drone experience, Dr. Charlson has worked as an aerial crop and urban consultant and now leads Nebraska's outreach efforts to help producers and professionals safely integrate drone technology into their operations. You can contact him at dirk.charlson@unl.edu.

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