



## Air Emissions from Land Application of Manure

September 18, 2009

2:30 pm (eastern), 1:30 pm (central), 12:30 pm (mountain), 11:30 am (pacific)

Manure has long been known to be beneficial for soil fertility and health. The aspect of air emissions resulting from manure application is a relatively new area of study. This webcast presentation will start with a discussion on the main air quality issues associated with manure application – including ammonia nitrogen loss, odor complaints, and potential greenhouse gas emissions. Presenters will emphasize the importance of equipment in reducing air emissions and show results of field studies comparing the use of various types of currently available manure application equipment. There will also be an update on North American equipment research and development for subsurface application of solid manures. *An application for continuing education credit for Certified Crop Advisors (CCAs) and members of the American Registry of Professional Animal Scientists (ARPAS) has been submitted.*



**Dr. Curtis Dell** is a soil scientist with the USDA ARS Pasture Systems and Watershed Management Research Unit. His Ph.D. research focused on effects of burning on C and N cycling and microbial ecology in prairie soils. He has also served as a Congressional Science Fellow and a post-doctoral research associate at Michigan State University before joining USDA-ARS in 2001. The focus of his research is C, N, and P cycling in manured and pasture soils and currently emphasizes nitrogen gas emissions. He and colleagues are investigating impacts of manure injection and subsurface application methods on gas losses. He received his Ph.D. from Kansas State University in 1998. Phone: 814-863-0984 Email: [curtis.dell@ars.usda.gov](mailto:curtis.dell@ars.usda.gov).

**Dr. Robin Brandt** is the director of the *Penn State Odor Assessment Laboratory*, in the Department of Agricultural and Biological Engineering, where he also serves as a lecturer. His current research focus employs human sensory evaluation to quantify agricultural odors for investigation of odor reduction practices. Dr. Brandt is a registered professional engineer with over 25 years experience in land-based recycling programs. Phone: 814-865-2809 Email: [rcb100@psu.edu](mailto:rcb100@psu.edu)



**Joy Agnew**, is currently a project leader at the Prairie Agricultural Machinery Institute (PAMI) as well as a PhD candidate in Ag/Bio Engineering at the University of Saskatchewan. Her research program involved the measurement and comparison of GHG and odour emissions from manure spreading. Her general research focus involves the environmental impacts of manure management including emissions from earthen manure storages, production buildings and manure spreading, as well as the development of the precision solid manure injector prototype. She also taught first and second year general engineering courses and a fourth year waste management course as lecturer at the U of S. Email: [jagnew@pami.ca](mailto:jagnew@pami.ca)

### How Do I Participate?

On the day of the webcast, go to [http://www.extension.org/pages/Live\\_Webcast\\_Information](http://www.extension.org/pages/Live_Webcast_Information) to download the speaker's power point presentations and connect to the virtual meeting room. First time viewers should also follow the steps at: [http://www.extension.org/pages/How\\_Do\\_I\\_Participate\\_in\\_a\\_Webcast%3F](http://www.extension.org/pages/How_Do_I_Participate_in_a_Webcast%3F).

### Links for More Information:

- \*Odor Management in Agriculture and Food Processing (Penn State) <http://www.abe.psu.edu/EntireOdorManual.pdf>
- \*Ammonia Emissions fact sheet (Penn State) <http://agenpolicy.aers.psu.edu/Documents/BeckerGravesAmmonia101.pdf>
- \*US EPA ammonia information <http://www.epa.gov/agriculture/ag101/impactammonia.html>
- \*Ammonia Volatilization from Poultry and Dairy Manure (Cornell University) <http://www.dairyn.cornell.edu/pages/20cropsoil/documents/MeisingerandJokela-NRAES130-2000.pdf>
- \*US EPA nitrous oxide information <http://www.epa.gov/nitrousoxide/index.html>
- \*Managing Manure to Improve Air and Water Quality (USDA ERS) <http://www.ers.usda.gov/Publications/ERR9/>

The LPE Learning Center is a project dedicated to the vision that individuals involved in public policy issues, animal production, and delivery of technical services for confined animal systems should have on-demand access to the nation's best science-based resources. See our website at: <http://www.extension.org/animal+manure+management>.

The Air Quality Education in Animal Agriculture project is collaboration of national experts from across the U.S. working to enhance learning opportunities in air quality issues related to animal agriculture. In addition to educational webcasts, the project will develop an air quality curriculum that will be made available for classroom or extension use and conduct regional workshops.