

EHSRC Update

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EHSRC Hosts Town Meeting

The EHSRC held a Town Meeting in Des Moines on November 16 entitled *Concentrated Animal Feeding Operations: Airing the Environmental Health Issues*.

CAFOs have emerged as a central environmental health concern among rural residents in Iowa. This meeting offered a slate of experts to address the scientific foundation of the topic, and a panel of rural residents and pork producers to discuss community concerns. More than 200 farmers, rural residents, scientists, and policymakers attended the all-day meeting. The morning focused on scientific issues, including changes in the structure of agriculture and rural life, occupational and community health, environmental contaminants from CAFOs, engineering control
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EHSRC Heads IDNR Study Group

Last summer, Iowa Governor Tom Vilsack requested that a study group comprised of faculty from The University of Iowa and Iowa State University address the environmental and public health effects of concentrated animal feeding operations (CAFOs). This six-month effort was spearheaded by the Environmental Health Sciences Research Center under the leadership of James Merchant and Peter Thorne.



Emissions from large-scale hog lots and other livestock operations are raising environmental and public health concerns.

Department of Natural Resources Director Jeffrey Vonk asked the study group to provide guidance on five specific questions on scientific evidence related to CAFO emissions, and whether these facilities should be regulated. On February 8, the study group submitted to Director Vonk a ten-chapter report recommending that the DNR develop ambient air quality standards to regulate emissions from CAFOs. While asserting that no specific diseases among community residents can be linked to air emissions from CAFOs, the report states that "emissions may constitute a public health hazard and that precautions should be taken to minimize . . . exposures arising from CAFOs." The study group recommended standards for hydrogen sulfide, ammonia, and odors (see table below).
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Standard	CAFO Property Line	Nearest residence or public use area
Hydrogen Sulfide	70 ppb (1 hr)*	15 ppb (1 hr)
Ammonia	500 ppb (1 hr)	150 ppb (1 hr)
Odor	15:1 dilutions (2 hr)	7:1 dilutions (4 hr)

**A time-weighted average is shown. Seven exceedences are allowed each year so long as the DNR and neighbors are notified in advance.*



Town Meeting (continued)

approaches, and the emerging issue of antibiotic resistant organisms. NIEHS head Ken Olden described the role of this agency in the development of research to elucidate the relationship between environmental exposures and susceptibility factors leading to environmentally induced disease.

A luncheon keynote address was given by Jeff Vonk, the Director of the Iowa Department of Natural Resources. Director Vonk described the important role of the State's two major universities in providing rigorous science for addressing the problem of environmental pollution from CAFOs. He indicated that the IDNR needs stronger regulations governing the siting and operation of CAFOs so that his office can carry out enforcement actions.

The afternoon included a panel discussion, consisting of six producers and rural residents representing divergent viewpoints, and an extended open question and answer period. There was discussion of the hardships faced by the small and medium-sized producers and a general sense that the nation's four largest hog producers have an unfair advantage.

Several questioners from the floor spoke of their damaged health and economic ruin that they attributed to large hog facilities moving into their communities. Others expressed concern that in some cases, state and local government officials had conflicts of interest in their relationships with large pork producers. Another topic of discussion was the concern that young people who want to go into farming can't do so. Several attendees noted that poor environmental quality and terrible odors make it difficult for Iowa to attract tourists and new businesses to the state.

At the end of the day, the majority of those in attendance felt that there had been excellent discussions on a wide array of issues. An article summarizing the Town Meeting, with all the presentations, will appear in Environmental Health Perspectives and on the EHSRC website (www.public-health.uiowa.edu/townmeeting).



Dean Merchant

CAFO Report (continued)

A cover letter to the report states, "The report is based upon the best science available to ensure that rural ambient air is as free of risk as possible in order to protect health and the quality of life at the highest possible level." The report also states that hydrogen sulfide and ammonia have been measured near livestock operations in concentrations that could be harmful to humans. Both substances are pulmonary irritants. Odors arising from CAFOs were associated with increased eye and respiratory symptoms by rural residents living near the facilities.

Besides air quality, the study group also was asked to address other emerging issues related to CAFOs. The report identified water quality, worker health, antibiotic resistance, greenhouse gas emissions, socioeconomic impacts on rural communities, and livestock epidemic and carcass disposal issues. The study group also outlined policy strategies to improve siting of new confinement facilities. The study group reported on technologies and management strategies that are currently available to producers to reduce emissions. These included strategies related to housing ventilation, manure handling and storage.



Dr. Thorne

News of the report was carried on the front pages of the major Iowa newspapers and in statewide radio broadcasts on February 9th and beyond. The report was presented to the Environmental Protection Commission by Merchant, Thorne and others on February 18th. The legislature is expected to debate regulations for CAFOs in the current legislative session. According to Thorne, this document “is proving to be a report that will not sit on the self and collect dust. It has already moved the debate forward by providing science-based evidence documenting the need to take steps to protect the health of the public.”

Other EHSRC members who participated as co-authors of the report were Kelley Donham, David Osterberg, Jerry Schnoor, Keri Hornbuckle, Patricia Winokur, Shannon Marquez, Patrick O’Shaughnessy, Craig Just, and Carol Hodne. The full report and an executive summary are available on the EHSRC website at www.public-health.uiowa.edu/ehsrc.

EHSI Reaches Rural High School Students

In 1997 the Community Outreach and Education Core created the Environmental Health Sciences Institute for Rural Youth (EHSI). Originally developed by Chris Brus, then Center Coordinator, it was designed to provide ninth-graders living in Iowa communities of less than 2500 inhabitants with an opportunity to increase their awareness of environmental health research. Since that first year, fifteen students annually have participated in the weeklong residential summer program at The University of Iowa. During that week, students are exposed to the most current, cutting-edge research being done in the laboratories of EHSRC investigators, such as Jerry Schnoor, Jeff Murray, Gary Hunninghake, Peter Thorne, and the Health Registry Facility of Chuck Lynch. Other projects include: learning about water quality issues at the State Hygienic Laboratory; learning basic literature search techniques at the Hardin Library of Health Sciences; and preparing and giving a successful presentation with the help of talented IREH staff.

A key element of the program is the requirement that each student make two presentations (one to a class and one to a community group) based on information received and researched during the summer institute. This expands the reach of EHSI to include the student’s home town. The Center Coordinator visits each participating community to hear one presentation from each student, helping to reinforce university and community ties.



Dr. Márquez

This year’s EHSI will take place from July 14-19, and will mark the first year that the new director of the EHSRC Community Outreach and Education Core, Dr. Shannon Márquez, will direct the program from start to finish. Dr. Márquez will revitalize the student and faculty experience with web-based materials, and a CD-ROM version containing educational materials, for easy sharing with schoolmates at home. To assist Dr. Márquez with planning, coordination and continuity of program objectives, the COEC is collaborating with the Department of Science Education, as well as the Belin-Blank International Center for Gifted Education and Talent Development.

Hornbuckle Named Director of EAF



Dr. Hornbuckle

Keri Hornbuckle, Associate Professor of Civil and Environmental Engineering, recently assumed the directorship of the Exposure Assessment Facility. Dr. Hornbuckle replaces Steve Reynolds, who left in October for a position at Colorado State University. Dr. Hornbuckle, a member of the Environmental Assessment and Control Research Core, brings great strength in the field of exposure assessment. She has developed an extramurally funded research program studying the environmental fate and transport of persistent organic pollutants (POPs), which includes field expeditions, laboratory experiments, and predictive modeling. She serves on the International Joint Commission's advisory board which oversees science issues concerning the Canada-United States border area. In 1997, Dr. Hornbuckle received a career award from the National Science Foundation.

The Exposure Assessment Facility provides the EHSRC with expert analysis of an array of environmental chemical contaminants from air, water, and soil. The EAF also advises investigators on sampling and analysis methodology in support of epidemiologic or toxicologic research. Specific laboratories that are incorporated into the EAF include the Engineering Research Laboratory, the University Hygienic Laboratory, and the Occupational and Environmental Health Laboratory.

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