Legislative Services Agency

MINUTES

Livestock Odor Study Committee

November 28, 2007

MEMBERS PRESENT:

Senator Frank Wood, Co-chairperson
Senator William Heckroth
Senator David Johnson
Senator John Kibbie
Senator Paul McKinley

Representative Wes Whitead, Co-chairperson
Representative Jack Drake
Representative Mark Kuhn
Representative Michael May
Representative Delores Mertz

MEETING IN BRIEF

Organizational staffing provided by: Doug Adkisson, Senior Legal Counsel, (515) 281-3884

Minutes prepared by: Michael Duster, Legal Counsel, (515) 281-4800

I. Procedural Business

Call to Order. Co-chairperson Whitead called the second and final meeting of the Livestock Odor Study Committee was called to order at 10:05 a.m. on November 28, 2007, in the Supreme Court Chamber, Room 103 of the State Capitol. The attendance of all Committee members was determined by roll call.

Minutes. Upon a motion by Senator Heckroth, seconded by Representative May, the Committee approved the minutes of the October 24, 2007, meeting as distributed.

Lunch Recess. Co-chairperson Whitead recessed the meeting for lunch at 11:53 a.m. and reconvened the meeting at 1:14 p.m.

Adjournment. Upon conclusion of the presentations and discussion by the Committee, the meeting was adjourned at 3:25 p.m.

II. Proposal by Agency Heads

Mr. Richard Leopold, Director, Department of Natural Resources. Co-chairperson Whitead recognized Director Leopold who discussed the cooperation between the Department of Natural Resources, Department of Agriculture and Land Stewardship, and Iowa State University in developing a comprehensive plan for mitigating livestock odor referred to as "Taking Odor Mitigation to the Next Level: A Priority for Iowa Agriculture". Director Leopold noted that livestock odor concerns have existed for a long time and complaints come from people other than overly sensitive members of the public. He contends that although the perceived problem may be larger than the real problem, policy makers have a responsibility to start proposing solutions.

Director Leopold acknowledged education efforts that have occurred, but he believes implementation of practical mitigation efforts and continued research should be the next step. According to Director Leopold, the industry and researchers know enough about some of the mitigation methods to put them into practice. Director Leopold urged continuation of the experimental practices and research; however, he indicated that proven practices should be the focus of attention. He described the proposal as a method that will lead to better environmental performance. Director Leopold recognized that cost-share programs may be important for implementing many of the odor control methods. Director Leopold also noted that accountability and ongoing monitoring must be maintained throughout the development process.

Mr. Bill Northey, Secretary of Agriculture. Co-chairperson Whitead recognized Secretary Northey who commented on the difficulty in making improvements in the area of livestock odor mitigation. He believes that the proposal is the appropriate framework to develop better odor control methods and promote adoption of those methods by producers. Secretary Northey described the proposal as aggressive and acknowledged that funding would be required to fully implement it. Secretary Northey assured his continued support for the proposal if it is considered during the next legislative session.

Dr. Wendy Wintersteen, Dean, College of Agriculture and Life Sciences, Iowa State University. Co-chairperson Whitead recognized Dean Wintersteen who introduced a number of

persons attending the meeting with her, including Dr. Steven Hoff, Dr. Jay Harmon, and Dr. Jacek Koziel, professors who are also associated with the College of Agriculture and Life Sciences. Dean Wintersteen described the specifics of the proposal. The proposal includes a five-year project of applied odor research involving Iowa livestock producers and facilities, and additional research to evaluate emerging technologies. Objectives of the proposal include:

- Establishment of on-farm applied research projects of odor mitigation strategies and technologies.
- Investigation of emerging technologies that show promise but require more laboratory research or pilot-scale evaluations before they can be included in on-farm research.
- Collection of data from on-farm applied research sites for all livestock species so that the information may be incorporated into a planning analysis to determine the most favorable locations for new facilities.
- Development and distribution of extension educational programs and materials based on the on-farm applied research projects.

Research Proposal Outline. The proposal focuses on both new and existing agricultural operators involving swine, beef cattle, dairy cattle, layers, and turkeys. Iowa State University will work with producer groups and local organizations to promote producer participation in the projects. Applied on-farm research will include two tiers of projects.

- **Tier 1 Projects.** Tier 1 projects are technologies or strategies that have a firm foundation in research and application, but which would benefit from statewide application to strengthen the information and suitability for adoption by producers. Those technologies include biofilters for swine facilities, animal diet manipulation, vegetative environmental buffers, Community Air Modeling (CAM) siting model for swine facilities, and permeable and impermeable covers for manure storage.
- **Tier 2 Projects.** Tier 2 projects are technologies that may not be completely understood, have an incomplete research and application record, or are Tier 1 technologies that need specific research questions answered before they can be adopted. Tier 2 technologies include advanced biofilters for swine facilities, vegetative environmental buffers for beef and dairy facilities, biofilters for layer facilities, wet scrubbers for layer and swine facilities, electrostatic particulate ionization for layer and swine facilities, biocurtains for layer and swine facilities, topical treatments for layer and turkey facilities, and adapting the CAM siting model for livestock other than swine.

Dean Wintersteen also described emerging technology research such as ultraviolet treatment of ventilation air, solid manure injection systems, and floating oil cover on liquid manure. The proposal includes mechanisms for the collection of data and the development and distribution of educational programs and materials to assist producers.

According to Dean Wintersteen, the estimated total cost for the proposal over five years is $22,783,479. According to Dean Wintersteen, implementation of the proposal will accelerate producer adoption of the technologies and techniques, expand the menu of effective odor mitigation technologies, eliminate techniques that prove to be ineffective or cost prohibitive, and expand the CAM siting model to include other species of livestock other than swine. Dean

Wintersteen provided the Committee with an overview of the proposal's budget and described new mitigation techniques that would be funded under the proposal.

Committee Questions. Co-chairperson Whitead recognized members for questions. Representative Kuhn considered Tier 1 funding, and noted that only $45,017 is dedicated to providing siting assistance to swine producers. He stated that siting remains the most critical component in mitigating odor. Dean Wintersteen reassured the Committee that the CAM siting model is based on sound science. However, she acknowledged that siting is subject to a number of variables. Dean Wintersteen and Dr. Hoff explained funding for CAM siting modeling for Tier 1 and Tier 2 projects. The Tier 2 funding for the CAM siting model would expand the applicability of the model to other livestock species. According to Dr. Hoff, siting model research up to this point has been exclusively concentrated on swine facilities. Developing site modeling for multiple species will cost $928,973 under the proposal. Committee members also discussed whether all new facilities should utilize the CAM siting model, and if money spent during the critical construction phase would lower mitigation costs later.

In response to Committee member questions, Dean Wintersteen explained how the budget was formulated and expressed confidence in the adequacy of requested funds in carrying out the initiatives of the proposal. The budget estimates were calculated based on the assumption that the appropriated moneys would fund the entirety of certain projects. The panelists explained that if funding is on a cost-share basis, those projects could be expanded. Dean Wintersteen also noted that public-private partnerships have been successful in the past and may be an option to carry out the proposal.

Members of the Committee agreed that producers are seeking solutions, but currently there are too many unknowns about the cost and implementation of mitigation strategies. Secretary Northey explained that the proposal would help educate producers and real changes would eventually be seen in the industry based on the results of the various projects. The increase in research and dissemination of information will create interest in adopting those practices. In response to Committee concerns, it was noted that participation by producers in these various projects will not insulate them from nuisance lawsuits.

Committee members questioned how the proposal will be applied to mitigate odor by livestock operations other than swine operations. Iowa is experiencing growth in cattle and turkey production. Dean Wintersteen described the proposal as a dynamic project that will have the ability to address the changing livestock industry. Members expressed support for the proposal due to its potential benefits to a livestock industry that contributes $8 billion and 86,000 jobs to the Iowa economy.

Committee members inquired about why there are not moneys allocated for research to design improved confinement buildings. Dean Wintersteen explained that while the livestock industry has moved forward to develop new design techniques, Iowa State University and the research community have not significantly explored that issue.

III. Transmission of Animal Diseases

General. Co-chairperson Whitead recognized Dr. Patrick G. Halbur and Dr. Jeff Zimmerman, professors associated with the College of Veterinary Medicine at Iowa State University. Accompanying Dr. Halbur and Dr. Zimmerman were Dr. Rodney "Butch" Becker, Dr. Lorraine Hoffman, Dr. Dan Reynolds, Dr. John Thomson, Dr. Christina Irwin, and Mr. John Prickett.

Research Objectives. Dr. Halbur and Dr. Zimmerman discussed airborne infectious agents affecting swine populations including the viral diseases commonly known as Porcine Reproductive and Respiratory Syndrome (PRRS) and swine influenza. Dr. Zimmerman discussed the objectives of Iowa State University's aerosol research efforts to: (1) develop a body of knowledge regarding transmission of airborne disease, (2) predict events relating to how airborne diseases may be transmitted, and (3) develop intervention or remediation strategies including the removal of threatened animals and the development of technological solutions (e.g., filtration, ultraviolet inactivation, and site placement).

Existing Research. According to Dr. Halbur and Dr. Zimmerman, the 1981 outbreak of foot-and-mouth disease virus in European swine operations was cited as an example of how knowledge, prediction, and intervention can be used to control airborne diseases. Dr. Zimmerman noted that there is a minimal understanding of the dynamics of virus carrying aerosols, but that the airborne transmission of animal disease appears to share many characteristics with the airborne transmission of odor. Dr. Zimmerman explained that the CAM siting model has assisted research in airborne disease transmission. He described the detection of respiratory pathogens, the effect of temperature, relative humidity, and distance on the stability of airborne infectious agents, infectious diseases, and transmission (shedding and dosing) rates.

Current and Proposed Research. Dr. Halbur and Dr. Zimmerman explained that current research efforts focus on measuring virus excretion. Dr. Zimmerman explained that early research suggests that there is a low correlation with what is inside an animal's mouth and the level of virus in the aerosol emitted from its body. Overall, there are many gaps in research. Dr. Halbur stated that it is a matter of choosing priorities. Dr. Halbur indicated that as a starting point for further research, he would like to have more baseline data with which to work. He recommended a budget of $277,000 dedicated to PRRS research.

Committee Questions. Co-chairperson Whitead invited members to ask Dr. Halbur and Dr. Zimmerman questions. Committee members discussed the importation of feeder pigs into the state and the state's loss of swine farrowing operations due to concerns regarding the transmission of airborne diseases from swine finishing operations. There is not a complete understanding of disease transmission and there is a tendency to attribute infection by respirator inhalation. Dr. Baker stressed the importance of adopting simple and sound management practices by producers (e.g., changing clothing prior to entering a facility). Members also discussed causes of disease transmission including the design and cleanliness of truck trailers. Heat treatment of truck trailers was cited as one possible method of reducing transmission. In response to Committee questions, Dr. Zimmerman described the lack of solid data to indicate how far new facilities should be located from existing facilities to prevent airborne disease transmission.

IV. Use of Dietary Supplements

Co-chairperson Whitead recognized persons associated with Agra-Scent GOLD, LLC, including Mr. Hal Higgs, an investor, Mr. Dean Kleckner, its President, and Dr. Henry Bonnes, its Vice President. Mr. Higgs described their business and efforts to eliminate odor by using a dietary supplement referred to as Agra-Scent GOLD™, which is a form of the compound Zeolite. According to Mr. Higgs, a similar product has been used effectively in the California dairy industry for many years. Dr. Bonnes explained that the product acts at the molecular level to trap ammonia, nitrogen, and other gasses produced inside an animal's digestive tract, and converts its aerosol forms into solids which is accessible by crops. Dr. Bonnes also indicated that the product absorbs gasses which have penetrated structures where swine have been kept and appears to improve animal heath (increasing performance and decreasing mortality rates) and the respiratory condition of producers. Mr. Kleckner noted that its use may indirectly reduce the need for commercial fertilizers because it increases the uptake of nutrients.

Dr. Bonnes stressed that Agra-Scent GOLD™ is a proactive approach rather than a reactive mitigation technique. According to Mr. Kleckner, the product is initially fed at a rate of 15 pounds per ton of feed and then reduced to five pounds per ton of feed. The panelists stated that tests from several farms indicate that levels of ammonia have been reduced up to 90 percent with continued use. They estimated the cost of the product would range between 70 to 75 cents per head of swine. The panelists suggested that the cost to the producer may, in fact, be offset by the increased rate of gain in the livestock. All panelists explained that they were not directly requesting any funding from the General Assembly, but only providing the Committee information about what can be accomplished at a reasonable cost to the producer. Committee members were provided a demonstration of the effects Agra-Scent GOLD™ has on ammonia odors.

Committee Questions. Co-chairperson Whitead recognized members for questions. Members noted that the product appears promising and might replace the need for more costly mitigation techniques. Panelists stressed that this product, unlike expensive mitigation technologies, would be accessible to all producers. Committee members acknowledged, however, that while the cost of 75 cents per head is low, for large producers it could significantly affect their overall profits. The Committee also discussed panelists' business marketing strategy. Mr. Kleckner noted that they struggle to convince skeptical producers of the product's effectiveness. In response to questions by Committee members, the panel stated that they held initial discussion with the faculty at Iowa State University and hoped that the university would conduct a study to determine the product's costs and benefits. Several Committee members agreed that Agra-Scent GOLD™ should be included in research conducted by the university.

V. Current Status of Manure Anaerobic Digesters

Co-chairperson Whitead recognized Dr. Robert Burns, a professor associated with the College of Agriculture and Life Sciences at Iowa State University. "Anaerobic digestion" is a process utilizing microorganisms to break down biodegradable material in the absence of oxygen. Dr. Burns discussed the use of manure anaerobic digesters on farms, noting that 73 percent of digesters are associated with dairy operations. Dr. Burns stated that digesters are widely used in Europe on a

subsidized basis, but not in the United States historically due to the below-market return from electricity generation (which is equal to or greater than the retail rate and greater than the wholesale rate), management requirements, and the lack of technical support. He also noted that the profitable use of biogas on farms is contingent on its use and processing (cleaning), requiring that it be burned uncleaned for limited uses, or partially cleaned using low-cost methods.

Committee Questions. Co-chairperson Whitead recognized members for questions. In response to questions, Dr. Burns discussed the economies of scale required for achieve a profitability. He noted that a large operation which combines a feedlot, a digester which converts manure into natural gas for use by an ethanol production facility, may be commercially viable (see testimony by Mr. Don Nelson, Manager and Project Finance Director, Bison Renewable Energy LLC, and Mr. Ted Mathews, Anaerobic Digester/Nutrient Recovery Manager of E3Biofuels, LLC, presented during the October 24th meeting).

VI. Committee Discussion

Co-chairperson Whitead invited members to discuss recommendations for the Committee's final report.

Site Selection Requirement. Co-chairperson Kuhn made a motion, seconded by Senator Kibbie, that would apply to persons applying to the Department of Natural Resources for a permit to construct a building associated with a swine confinement feeding operation under Code chapter 459. The applicant would be required to complete a CAM siting study by Iowa State University. The results of that study would have to be submitted in a report which would accompany the application and include the location of a proposed building, the configuration of the building and landscape, and other odor mitigation measures to produce the best possible reduction of odors from the confinement feeding operation. The study and report would be nonbinding upon the producer. The state would appropriate up to $1,000 per study to Iowa State University to cover the costs of performing the study and issuing the report. Committee discussion on Representative Kuhn's motion referenced the presentations of Iowa State University researchers, who indicated that siting is most important odor control method. Several members expressed concern about the motion, including whether the proposal was beyond the scope of the Committee's charge, whether the proposal is feasible to implement, and that swine producers should not be targeted for special treatment. Other members supported the motion, stated that it is based on a proven scientific analysis, siting is a critical factor in mitigating odor, and that it represents a good neighbor policy. Following discussion, Representative Kuhn's motion was adopted by the Committee.

Research. Senator Kibbie made a motion, seconded by Representative Mertz, that the General Assembly support the research proposal developed by Iowa State University, the Department of Natural Resources, and the Department of Agriculture and Land Stewardship. The proposal outlines a five-year comprehensive research plan. Senator Johnson moved and the Committee approved an amendment as part of the comprehensive plan, Iowa State University must research the use of affordable and benign odor-controlling feed additives, including but not limited to the product referred to as Agra-Scent GOLD™. Committee members expressed support for the

motion. Committee members discussed the possibility of funding the proposal through the Iowa Values Fund. Senator Kibbie's motion was adopted by the Committee.

VII. Materials Filed With the Legislative Services Agency

The following materials listed were distributed at or in connection with the meeting and are filed with the Legislative Services Agency. The materials may be accessed from the <Additional Information> link on the Committee's Internet web page: http://www.legis.state.ia.us/aspx/Committees/Committee.aspx?id=213.

1. Tentative Agenda.
2. Rules Approved.
3. Joint Presentation by Agency Heads (Dean Wintersteen, Director Leopold, and Secretary Northey): Press Release — Voluntary Incentive Program.
4. Joint Presentation by Agency Heads: Taking Odor Mitigation to Next Level: A Priority for Iowa Agriculture (Outline).
5. Joint Presentation by Agency Heads: Taking Odor Mitigation to Next Level: A Priority for Iowa Agriculture Overview of Projects.
6. Joint Presentation by Agency Heads: Taking Odor Mitigation to the Next Level: A Priority for Iowa Agriculture Budget (Revised).
7. Presentation by Dr. Halbur and Dr. Zimmerman: A Review of Airborne Transmission of Pig Diseases.
8. Presentation by Agra-Scent GOLD™ Panel (Mr. Higgs, Mr. Kleckner, and Dr. Bonnes): Business Card.
9. Presentation by Agra-Scent GOLD™ Panel: Turning Good Scents Into Dollars (Brochure).
10. Presentation by Agra-Scent GOLD™ Panel: Promotional DVD (Available at the Office of the Legislative Services Agency).
11. Presentation by Agra-Scent GOLD™ Panel: Ed Wederstein Test Results.
12. Presentation by Agra-Scent GOLD™ Panel: Bob Lilienthal Test Results.
13. Presentation by Agra-Scent GOLD™ Panel: Tim Bierman Test Results.
14. Presentation by Agra-Scent GOLD™ Panel: Max Schmidt Test Results
15. Presentation by Agra-Scent GOLD™ Panel: Burt Brothers Test Results.
16. Presentation by Dr. Burns.
17. An Analysis of Energy Production Costs from Anaerobic Digestion Systems on U.S. Livestock Production Facilities.

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