

# Livestock Odor Reduction Demonstration Project

ISU Extension to Agriculture and Natural Resources  
College of Agriculture

## Objectives

The 1996 and 1997 Iowa General Assembly appropriated FY1997 and FY1998 funds to Iowa State University for support of on-farm demonstrations of odor control technologies for animal feeding operations. Financial incentives were available up to a 50/50 cost-share basis to livestock producers and operators selected to carry out various demonstration projects.

## Organization

The Livestock Odor Reduction Demonstration Project was administered by ISU Extension. Stewart Melvin, chair of the ISU Department of Agricultural and Biosystems Engineering, oversaw project activities along with Jeffrey Lorimor, professor, under the direction of Wendy Wintersteen, director of Extension to Agriculture and Natural Resources; Jim Johnson, interim assistant director of Extension to Agriculture and Natural Resources; Stanley R. Johnson, vice provost to extension; and David Topel, dean of the College of Agriculture.

ISU Extension field specialists in agricultural engineering and livestock production were the primary point of contact between livestock producers and the university during this project. Extension specialists provided necessary technical assistance, assisted in odor evaluation, and planned field days to share information about the demonstration.

## Major activities

A number of activities were conducted to ensure success of the demonstrations. They included:

- selection and description of the 10 different odor technologies demonstrated in the project;
- development of a producer application packet that described the project;
- completion of a public awareness campaign about the availability of cost-share funds (this effort included advertisements and articles in *The Des Moines Register*, *Iowa Farm Bureau Spokesman*, *Iowa Farmer Today*, *Messenger Farm News*, *Midwest*

*Marketer*, the Data Transmission Network (DTN), Iowa radio stations and the World Wide Web;

- establishment of an external advisory committee that reviewed producer applications and made recommendations about possible participants for cost-share demonstrations (the committee received and reviewed 104 proposals for demonstrations), and
- development of written contracts for each accepted project. Extension field specialists assisted producers who made successful applications and obtained signed contracts for their demonstrations.

## Accomplishments

- Cost-share applications were submitted by 104 producers (several producers submitted applications to demonstrate more than one technology). The applications were equally split between small operations with less than 2,000 head, one-time capacity swine finishing units or less than 500 sow farrow-to-finish units and larger operations.
- Eighty applications were approved as submitted or with minor changes; 34 applications were rejected.
- Approximately \$310,000 in cost-share funding was committed to the 80 approved applications. Awards ranged from \$163 to \$25,000 (the upper limit available). The average amount awarded was \$4,214.
- Demonstrations were funded in 49 counties.
- Each applicant demonstrated one or more of the following technologies:
  - Pit additives—39 demonstrations
  - Artificial covers—17 demonstrations
  - Aeration—2 demonstrations
  - Anaerobic digester—1 demonstration
  - Composting—7 demonstrations
  - Solids separation—6 demonstrations
  - Landscaping—10 demonstrations
  - Soil injection—16 demonstrations
- Extension Field Specialists monitored the odor reduction at each demonstration site using

- scentometers, particle counters and citizen odor panels. The results were presented in a video and a series of fact sheets on each odor reduction technology (ISU Extension publications Pm-1754a-i). Each fact sheet had a distribution of 10,000. Results have also been shared through the Odor and Manure Newsletter (distributed quarterly to 7,000 individuals) and in many newspaper and magazine articles.
- Project results were presented to other scientists at the National Ag Engineering meeting and the “Animal Production Systems and the Environment” conference in Des Moines.
  - Field days were held at many of the demonstration sites, generating media interest in the project, and excellent coverage was obtained in newspapers and on television channels through Iowa.

- Commercial pit additives were pretested in the laboratory for manure odor reduction effectiveness. Additives that had not been pretested were not approved for use in the demonstrations. Testing results are available at <http://www.ae.iastate.edu/Odor/pitadd.htm>, along with other project information.
- A series of special demonstrations were conducted at the Southwest Swine Farm in Atlantic, Iowa. These demonstrations included lagoon closing process, Leka rock manure tank cover, aerobic manure tank, manure composting, landscaping and deep pit manure injection and utilization. In addition, the Leka rock manure tank cover is also being demonstrated at the Rhodes Research and Demonstration Farm.

## Next steps

The video and publications will be distributed statewide to help producers manage odor. The fact sheets will be available on Extension’s website. Producers involved in the demonstrations will be surveyed in the coming year to determine if they will continue to use the odor technology that they demonstrated on their farms. Results from the demonstrations project are being combined with research information from the University of Minnesota to produce a regional publication.

## External Review Committee

ISU Extension expresses sincere appreciation to the members of the Livestock Odor Reduction External Review Committee. These citizens represent many organizations and include:

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>• □ Dan Buene, Gladbrook Soil Conservation Service (district commissioner)</li> <li>• □ Reg Clause, Jefferson Iowa Cattlemen’s Association</li> <li>• □ Lynn Elm, Williams Iowa Farm Bureau</li> <li>• Jim Gulliford, Des Moines Soil Conservation Division</li> </ul> | <ul style="list-style-type: none"> <li>• Brent Halling, Perry National Pork Producers Council</li> <li>• John Heisdorffer, Keota Iowa Soybean Growers Association</li> <li>• Richard Hocraffer, Clarion Soil Conservation Service (district commissioner)</li> <li>• Joe Laffoon, Villisca</li> </ul> | <ul style="list-style-type: none"> <li>Iowa Poultry Association</li> <li>• □ Dennis McLaughlin, Cumming Iowa Environmental Council</li> <li>• □ Kent Paustian, Wiltcott Iowa Pork Producers Association</li> <li>• Pete Petersen, Spencer Iowa Corn Growers Association</li> <li>• □ Helen Pollock, Malvern Wallace Foundation</li> </ul> |
|---|---|---|

## Additional information

More information about projects awarded and project results is available from your ISU county extension office or extension field specialist.

You can reach Jeffrey Lorimor, project coordinator, at 203 Davidson Hall, Iowa State University, Ames, IA 50011-3080; (515) 294-9806; fax: (515) 294-9973; or email: [jlcorimo@iastate.edu](mailto:jlcorimo@iastate.edu). The project director is Stewart Melvin, chair of the ISU Department of Agricultural and Biosystems Engineering, (515) 294-1434.

The web page is located at: [http://www.exnet.iastate.edu/Pages/communications/odor\\_control/](http://www.exnet.iastate.edu/Pages/communications/odor_control/)

### ... and justice for all

The Iowa Cooperative Extension Service’s programs and policies are consistent with pertinent federal and state laws and regulations on nondiscrimination. Many materials can be made available in alternative formats for ADA clients.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Stanley R. Johnson, director, Cooperative Extension Service, Iowa State University of Science and Technology, Ames, Iowa.