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Iowa Odor Control Demonstration Project: Aeration

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IOWA odor CONTROL

DEMONSTRATION PROJECT

Aeration

TECHNOLOGY DESCRIPTION

Aeration has been used by municipalities and industries for years to stabilize waste solids, as well as control odors. The technology also dramatically reduces odor emissions from livestock operations. Aeration has not been used extensively in agriculture, however, because of the added utility costs. Two cooperators are demonstrating aeration in the Odor Control Demonstration Project.

To provide aeration, a mechanical device typically forces air into the liquid being treated such as lagoon liquid. Traditionally, for complete waste stabilization enough air has been added to equal twice the daily biological oxygen demand (BOD) produced. However, less air may be needed to simply control odor.

EFFECTIVENESS

In aerobic systems the resulting gaseous products are carbon dioxide, water, and sulfates, rather than methane, hydrogen sulfide, ammonia, and volatile acids. The products of properly designed and operated aerobic systems are not odorous.



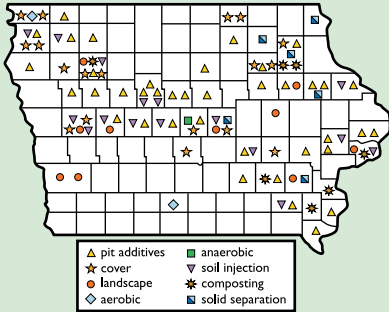
Floating aerator on small swine lagoon.



One cooperator with the Odor Control Demonstration Project is using a complete aeration system in a large (3,400 sow farrow-to-wean) swine operation.



ODOR CONTROL
DEMONSTRATION PROJECT



In 1997, 80 Iowa livestock producers began demonstrating technologies to control odor from animal production. The Odor Control Demonstration Project is administered by Iowa State University and funded by the Iowa Legislature. Participants received up to half of their expenses for the odor-control technologies used on their operations.

Producers with all sizes of operations and all species of livestock were eligible to participate. They could demonstrate one or a combination of the following technologies: aeration, biocovers, composting, landscaping, pit additives, anaerobic digestion, synthetic covers, soil injection, and solids separation.

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FOR MORE INFORMATION

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SERIES AVAILABLE:

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- Biocovers Pm-1754c
- Pit Additives Pm-1754d
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COST

In operations in which just enough air is added to control odors, the average annual cost of utilities is estimated to be \$3.00 per pig capacity (based on a rate of 6 cents per kilowatt hour). Floating aerators range in price from \$3,000 to \$6,000, and more than one device may be needed for large pits and lagoons. In a large sow facility the per-head cost for the complete system and utilities ranges from \$4 to more than \$6 per sow annually.