

# IOWA odor CONTROL

## DEMONSTRATION PROJECT

### Synthetic Covers

#### TECHNOLOGY DESCRIPTION

Synthetic covers on top of liquid storage units provide a physical barrier between liquid manure and the air. They work well when properly installed. To be effective at reducing odors, the covers must be attached to prevent the wind from catching and whipping them, and they must cover as much of the storage structure as possible. Floating covers are most popular, although one of the demonstration sites used a cover supported by cables above the stored liquid. Three cooperators are demonstrating synthetic covers in the Odor Control Demonstration Project.

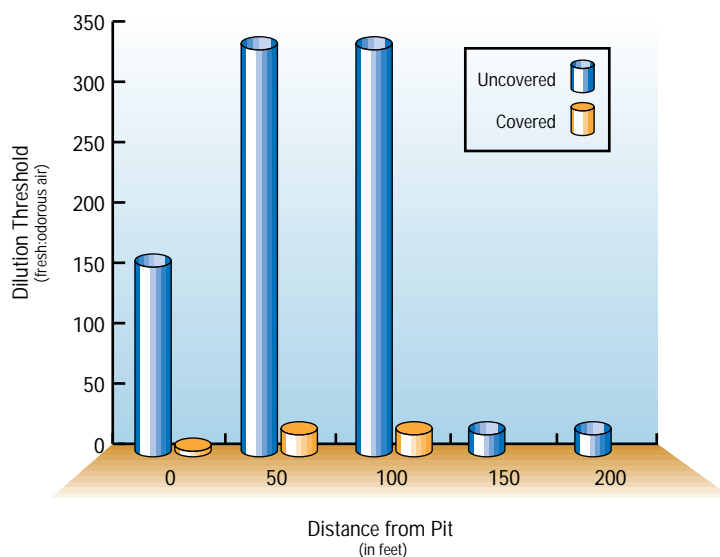


Synthetic cover over a round concrete swine manure pit.

#### EFFECTIVENESS

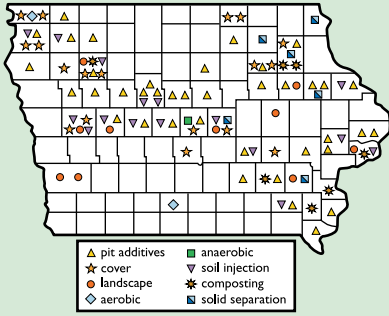
Before-and-after scentometer evaluations were performed on one pit with a synthetic cover. In that evaluation, the cover greatly reduced the odor from the pit.

#### Synthetic Pit Covers Affect Odor



Scentometer ratings of a manure pit with, and without, a synthetic cover installed. Numbers indicate dilution threshold values at which odor can just be detected (higher = more odor).

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

Agriculture and Biosystems Engineering  
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OTHER FACT SHEETS IN THIS

SERIES AVAILABLE:

- Aeration . . . . . Pm-1754b
- Biocovers . . . . . Pm-1754c
- Pit Additives . . . . . Pm-1754d
- Soil Injection . . . . . Pm-1754e
- Anaerobic Digestion . . . . . Pm-1754f
- Composting . . . . . Pm-1754g
- Landscaping . . . . . Pm-1754h
- Solids Separation . . . . . Pm-1754i

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Floating synthetic cover in Slurrystore during the winter.

COST

The cost of synthetic covers includes the covers and the expense of installing them. Unlike biocovers, synthetic covers should last for several years and therefore do not include recurring replacement costs. Based on requests for reimbursement for the odor control demonstration project, synthetic covers cost about \$1 per square foot (40 cents for materials and 60 cents for installation) of pit surface. Based on a 10- to 12-foot deep pit for finishing hogs, the cost should be about \$4.00 per head capacity.