

IOWA Odor CONTROL

DEMONSTRATION PROJECT

Pit Additives

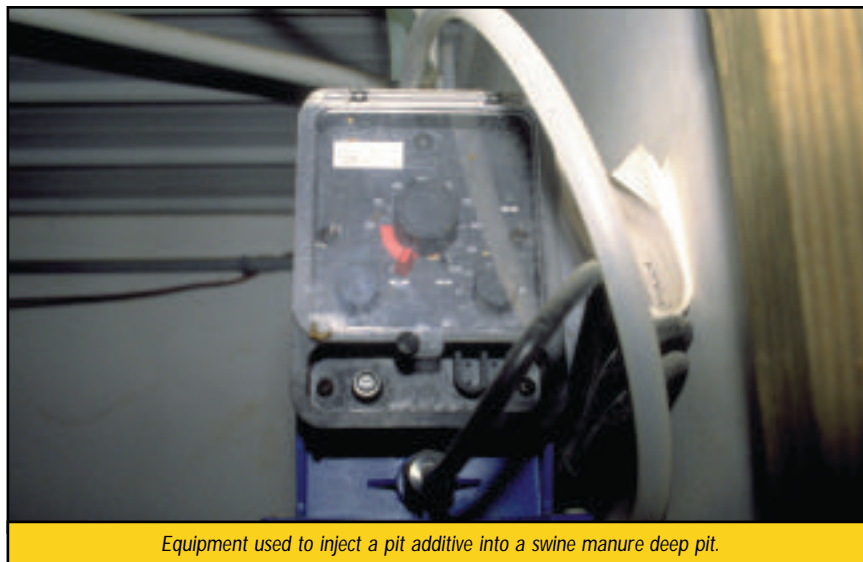
TECHNOLOGY DESCRIPTION

Pit additives have been used for years to reduce odor emissions from livestock operations. Forty-one cooperators are demonstrating pit additives as part of the Iowa Odor Control Demonstration Project.

A number of different pit additives are available to producers. They include microbes, microbial enhancers, microbial inhibitors, enzymes, deodorants and perfumes, pH adjusters, aeration chemicals, and others. Management requirements can vary widely from one product to another. Some products must be applied several times a day, while others need to be applied only once or twice a year. Iowa State University researchers tested several pit additives in the laboratory and found that many did suppress odor production. The products approved for the Odor Control Demonstration Project were primarily those tested by ISU.

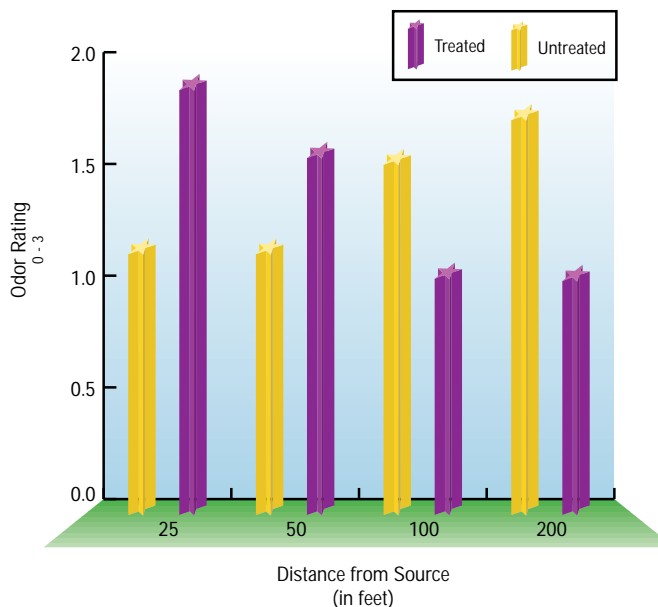
EFFECTIVENESS

Before-and-after odor evaluations were performed on several pits treated with additives. Panels of 3-to-7 individuals and scentometers evaluated the pit additives.



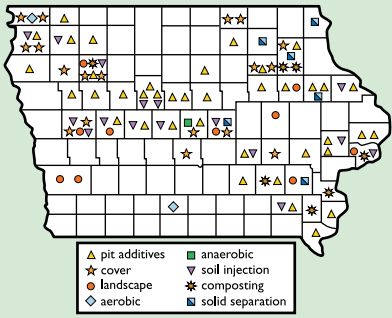
Equipment used to inject a pit additive into a swine manure deep pit.

Combined Shac Evaluations, Summer 1997



Odor panel ratings of manure pits with Shac pit additive (Scale: 0 = no odor, 1 = slight odor, 2 = noticeable odor, 3 = strong odor), and scentometer rating of pits with Kane MPC and Septicol pit additives.

ODOR CONTROL DEMONSTRATION PROJECT



- ▲ pit additives
- ★ cover
- landscape
- ◇ aerobic
- anaerobic
- ▽ soil injection
- ✱ composting
- solid separation

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.

PREPARED BY
Jeff Lorimor, ISU Extension agricultural and biosystems engineer and Elaine Edwards, Extension communications specialist. Written by Tracy Peterson, Extension communications. Reviewed by Jay Harmon, ISU Extension agricultural and biosystems engineer and Kris Kohl and Daniel Meyer, ISU Extension agricultural engineer field specialists. Designed by Juls Design.

FOR MORE INFORMATION
Agriculture and Biosystems Engineering
Iowa State University
www.ae.iastate.edu

OTHER FACT SHEETS IN THIS SERIES AVAILABLE:

Synthetic Covers	Pm-1754a
Aeration	Pm-1754b
Biocovers	Pm-1754c
Soil Injection	Pm-1754e
Anaerobic Digestion	Pm-1754f
Composting	Pm-1754g
Landscaping	Pm-1754h
Solids Separation	Pm-1754i

...and justice for all

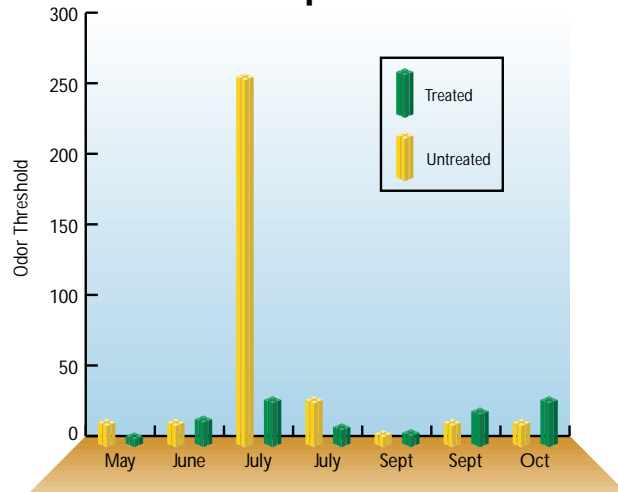
The Iowa Cooperative Extension Service's programs and policies are consistent with pertinent federal and state laws and regulations on nondiscrimination. Many materials can be made available in alternative formats for ADA clients.

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.

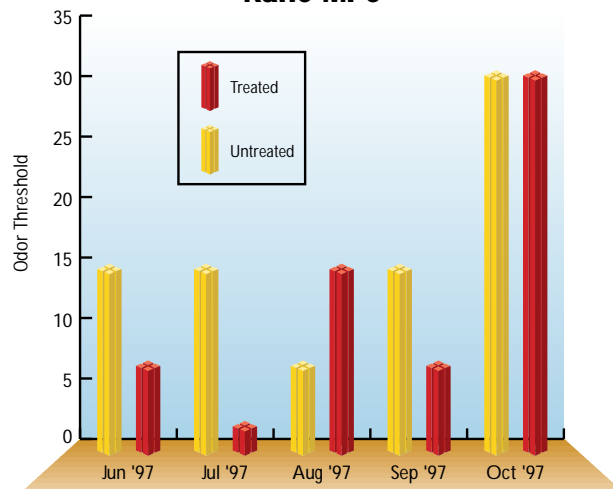
© 1998, Iowa State University

Pit Additive Effectiveness

Septisol



Kane MPC



COST

Pit additive costs include the materials and any equipment needed to apply them. Based on requests for reimbursement for the odor control demonstration project, pit additives range in cost from 30 cents to more than \$1 per pig marketed (60 cents to more than \$3 per head capacity).