

Odor Control Strategies Sought Through Swine Diet

DENVER, Colo. — Changing what a hog eats might reduce the odor of what it excretes.

That's why an Iowa State University researcher is studying a possible link between odor

and swine rations. At the annual meeting of the American Society of Animal

Science (ASAS) in Denver July 27-Aug. 1, Wendy Powers, an ISU assistant professor of animal science, outlined a feeding trial that studied the effects of bloodmeal in swine rations on manure composition and odor. Bloodmeal is a common ingredient in swine feed.

Fifteen five-week-old pigs were fed for each of two, four-week periods. The rations included either 3 percent bloodmeal, 1.5 percent bloodmeal or no bloodmeal. The pigs were housed separately depending on their ration, and manure was cleaned from each room once each week.

Manure and air samples were collected twice weekly, on days four and six, for the last three weeks of each feeding period. Manure samples were sent to a commercial laboratory for compositional analysis. Air samples were analyzed by a trained human panel and by an electronic nose, which is a machine designed to measure odors.

Powers said she found a strong trend for increased odor as the amount of bloodmeal was increased in the hogs' diets. Odor also increased as the length of time the manure was stored increased from four to six days. No performance differences were found with any of the feeding regimens.

The project was conducted in late 1997. Powers plans to repeat the feeding trials this year. "We've shown odor intensity increases with greater amounts of bloodmeal in swine rations. This means we might someday be able to make dietary

recommendations to reduce odor potential," she said.

Beyond studying the impact of bloodmeal on manure odor, Powers said she also wanted to compare the two methods of measuring odor intensity — the electronic nose versus a human panel. "The electronic nose did not mimic the results of the human panel as well as we'd hoped," Powers said. "On the other hand, the human panel showed wide daily variation in treatment response where the electric nose was more consistent."

Powers said the results show more work is needed to "train" the electronic nose to better match human noses. "When testing odors, the human panel ranks the odor and the electronic nose is trained to accept this ranking. But this showed the electronic nose does not always accurately reflect what a human smells. Since humans can be influenced by psychological factors and instruments can't, this may account for differing results between the two methods."

Also at the ASA meeting, Powers presented a seminar on the steps producers can take to control odors "We're putting together a number of strategies that are cost-acceptable for controlling downwind odor," she said. Powers discussed odor control measures that included dietary manipulation and housing alternatives, plus storage and land application of manure.

Many of the strategies Powers outlined are being tested on private Iowa farms as part of the state's odor control demonstration project.

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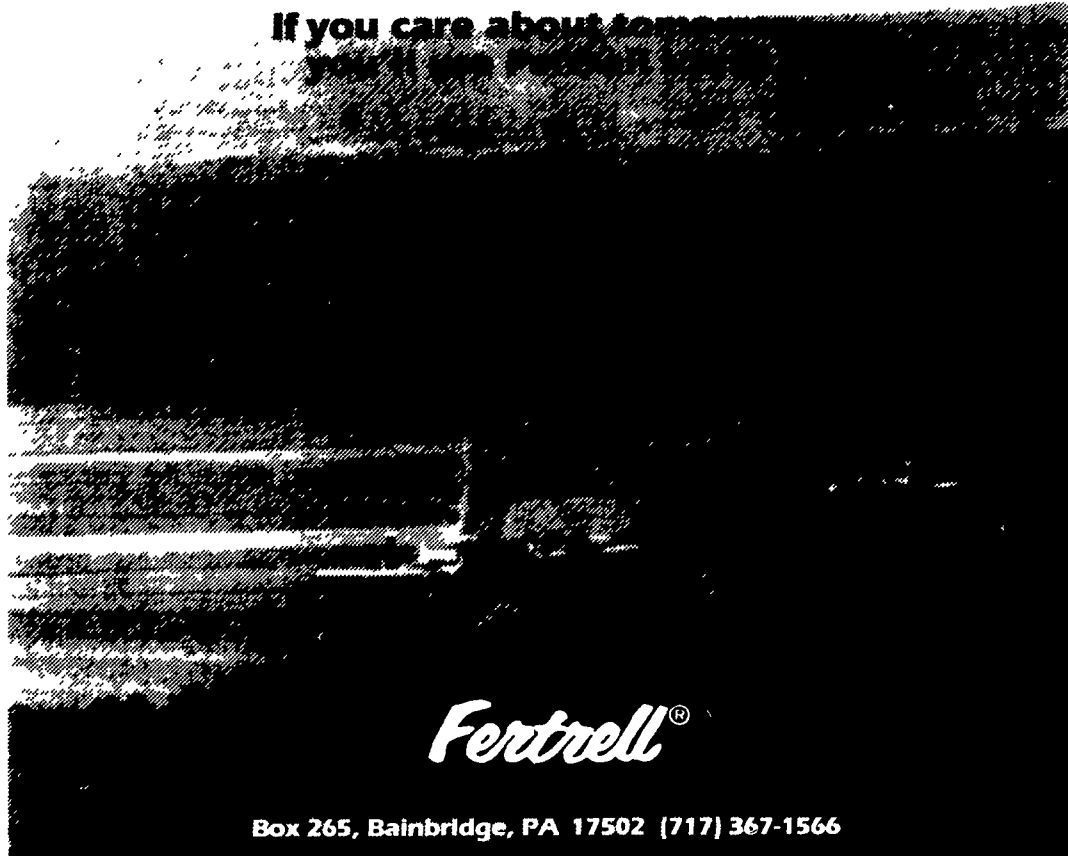
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