

Evaluating the Impact of Selected Management Practices on Odour Emissions from Swine Barns

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Finding cost-effective ways to reduce and assess odours from swine barns is a continuing need for the industry. The goal of this work was to evaluate the intensity and offensiveness of odour emitted from three swine grow-finish rooms with different management practices applied (conventional, intensive cleaning, and manure pit treatment) using an in-house panel of assessors. The conventional room served as the control, while all surfaces (including the pits) in the intensively cleaned room were washed thoroughly to simulate the highest level of cleanliness practically possible. Pit treatment involved weekly spraying of a commercial additive at a rate of 500 ppm. Two air samples were collected from each room weekly. The bagged samples were assessed by a panel of 8 assessors composed of staff and students, trained to rate the intensity of samples according to a 6-point scale using a set of n-butanol solutions as reference (5 - very strong odour). Results from the 9-week trial showed that intensive cleaning had the least odour intensity rating of 2.30, followed by conventional room and pit treatment at 2.33 and 2.90, respectively. Offensiveness scores using a 9-point scale (9 - like extremely) showed the same trend (intensive cleaning - 3.90, conventional - 3.96, pit treatment - 3.58). Analysis of variance (with repeated measures) showed that the treatments have significant effect on odour intensity and offensiveness ($P < 0.05$). Pit treatment differed significantly from the other treatments, indicating no positive improvement in odour intensity from the use of the additive. No significant difference was observed between intensive cleaning and the conventional room. As expected, odour intensity was significantly affected ($P < 0.05$) by the age of the pigs; odour offensiveness was not affected.

Implications: A properly trained in-house panel of assessors seemed to be a useful and cost-effective way to conduct a preliminary on-site assessment of various barn odour control strategies. High level of cleanliness and appropriate housekeeping noticeably reduced odour intensity in swine barns, although this did not appear to be statistically significant in this work.