

Controlling Odour and Dust Emissions in Swine Barns

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SUMMARY

Odour from intensive swine operations are a significant limiting factor in the expansion of the pork production industry, and dust in pig housing is suspected to be the cause of work-related respiratory symptoms in pig farmers. The impact of canola oil sprinkling and a low protein diet on dust and odor emissions of grower-finisher rooms was examined. Sprinkling oil reduced total dust emissions by 76% but the effect of oil sprinkling and/or low protein diets on odor was unclear.

INTRODUCTION

A dust control strategy shown to be promising in reducing dust in pig housing is oil sprinkling. Oil sprinkling has also been shown to reduce gas emissions, possibly affecting the odours emitted from the barn. The objective of this study was to investigate the effect of a low protein diet with fermentable carbohydrates (FC) and oil sprinkling on dust and odor emissions of grower-finisher rooms, and to determine the relationship between the two parameters.



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EXPERIMENTAL PROCEDURES

Four commercial rooms at PSCI were used to measure the impact of the different treatment combinations on dust and odour emissions over three different grower-finisher cycles. Two raw canola oil application rates (0 and 10 mL·m⁻²·day⁻¹) and two feed formulations (normal protein diet and low protein diet with FC) were used. During the experiment, the dust and odour concentrations were monitored in the four rooms.

RESULTS

Figure 1 shows the dust emission from the rooms over the experimental cycle. The oil application significantly reduced total dust emissions by 76% ($p < 0.05$) and pig performances were not affected by the treatments ($p > 0.05$). The experimental diet did not significantly affect dust emissions ($p > 0.05$). Figure 2 presents the results from the odour evaluations. Because of the high variability of the results for odours, neither the oil sprinkling nor the experimental diet affected odour emissions and the hedonic tone ($p > 0.05$). In this experiment, there was no relationship between dust and odour emissions.

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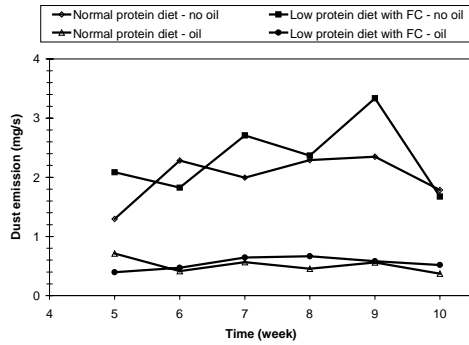


Figure 1 Evolution of total dust emissions for the different treatment combinations.

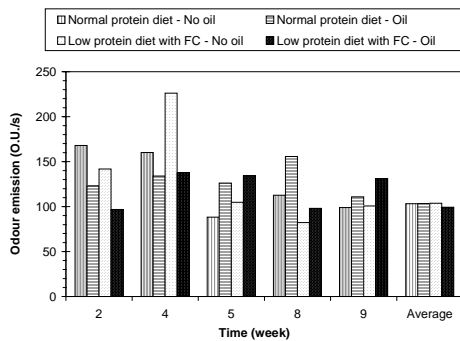


Figure 2 Odour emissions for the different treatment combinations.

IMPLICATIONS

Sprinkling of canola oil was effective at reducing the dust emissions in grower/finisher rooms, but the low protein diet with FC did not reduce dust emissions. The results from the odour measurements were so variable that future research will be done to ensure the odour is characterized in a more effective manner.

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