

HHM-PP-31

TITLE

ENVIRONMENTAL-, PERFORMANCE-, HEALTH- AND WELFARE-RELATED PARAMETERS IN PIG BARNES WITH NATURAL AND MECHANICAL VENTILATION

Ilias Chantziaras¹, Tommy Van Limbergen^{1,2}, Dimitri De Meyer³, Carlos Pineiro⁴, Marlijn Klinkenberg¹, Ilias Kyriazakis⁵, Dominiek Maes¹

¹ Ghent University, Faculty of Veterinary medicine, Porcine Health Management Unit

² Pehestat bvba

³ Vedanko bvba

⁴ Pig Champ Pro Europa S.L.

⁵ Agriculture, school of natural and environmental sciences, Newcastle University

CONTENT

Objectives

A multifactorial approach using environmental, performance, health and welfare parameters was used to investigate the numerous effects of ventilation throughout three consecutive fattening batches (08/2015 to 12/2016) in a farrow-to-finish commercial pig farm in Belgium. Apart from this, this study investigated how season and age associated with the respiratory disease daily prevalence.

Material and methods

Two fattening pig units were used, unit A (1256 pigs) with mechanical ventilation and unit B (1264 pigs) with natural ventilation. Animal genetics, nutrition, stocking density and health management were the same for both units. Key environmental indicators were monitored in real-time (temperature, humidity, CO₂ and NH₃) and the daily prevalence of respiratory disease cases was recorded. The welfare status of the animals was assessed twice per production round (revised Welfare quality® protocol). Finally, performance parameters were calculated (average daily growth and feed conversion ratio) and upon slaughter lungs from pigs from unit A (n: 782) and unit B (n: 544) were assessed for the presence of lung lesions, pleurisy and fissures. Depending on the parameters tested, parametric (paired t-tests) and non-parametric (Wilcoxon-signed rank-sum, Mann-Whitney) tests were used.

Results

Overall, the use of mechanic ventilation resulted in a more optimal environment with regards to temperature ($p < 0.001$), CO₂ ($p < 0.001$) and NH₃ ($p < 0.001$). Moreover, the number of respiratory disease cases was negatively associated with the use of mechanic ventilation ($p < 0.001$), positively associated with spring season ($p < 0.001$) and with animals aged between 117-162 days old ($p < 0.001$). The visual assessment of the lungs revealed that the odds were 53.2% higher to have fissures in the naturally-ventilated unit. Finally, a better welfare score was seen in the mechanically-ventilated unit in all three production batches.

Conclusion

The mechanical ventilation led to better environmental conditions for the fattening pigs and improved most health, performance and welfare parameters.