



## RESIDENT SESSION

RES-003

### **PATTERNS IN BIOSECURITY PRACTICES AND THEIR ASSOCIATIONS WITH PRODUCTIVE PERFORMANCE IN IRISH PIG FARMS**

M. Rodrigues Da Costa<sup>1</sup>, J.A. Calderón Díaz<sup>2</sup>, G. Mccutcheon<sup>3</sup>, M. Postma<sup>4</sup>, J. Dewulf<sup>4</sup>, J. Gasà Gasó<sup>5</sup>, E. García Manzanilla<sup>1</sup>.

<sup>1</sup> Teagasc - Pig Development Department, Fermoy, Co. Cork, Ireland; <sup>2</sup> Teagasc - Pig Development Department, Fermoy, Ireland; <sup>3</sup> Teagasc - Pig Development Department, Carlow, Ireland; <sup>4</sup> Department of Reproduction, Obstetrics and Herd Health, Veterinary Epidemiology Unit, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium; <sup>5</sup> Departament de Ciència Animal i dels Aliments, Facultat de Veterinària, Universitat Autònoma de Barcelona, Barcelona, Spain.

Biosecurity is associated with performance in pig production. However, the importance of specific measures could vary depending on the (national) context. We analysed the different sections of the biocheck.ugent scoring system to understand which aspects are more variable in Irish farms and how different types of farms differ on productive performance.

The biocheck.ugent was applied to 56 farrow-to-finish Irish pig farms (Feb to Nov 2016) and their 2015 performance parameters were retrieved from the Teagasc national herd monitoring database. Principal Components Analysis (PCA) was performed to identify the main biosecurity sections describing Irish farms, followed by hierarchical clustering (FactoMineR package, version:1.36). Farm performance across clusters was tested using ANOVA (Base-R, version:3.4.1).

The PCA's first two dimensions accounted for 42.5% of variation. In dimension 1 (30.2%), two opposite clusters (clusters 1 and 2) were identified by their scores in compartmentalizing, working lines and equipment; cleaning and disinfection; removing of animals, manure and carcasses; and in disease management. In dimension 2 (12.3%), the scores in the farrowing and nursery period and in the feed and water supply described a third cluster (cluster 3). Piglet mortality, No. of pigs produced per sow-year, and ADG differed between clusters ( $P < 0.05$ ,  $P < 0.01$  and  $P < 0.001$ ) whereas finisher mortality and FCR did not ( $P > 0.05$ ). Cluster 2 and 3 represented the best and worst performing clusters with 9.0% vs 11.5% piglet mortality, 26.5 vs 24.4 pigs/sow/year and 728 vs 666 g/d, respectively.

Although biosecurity's power lies in its full implementation, the characterization of a set of farms may allow the identification of practices deemed to impact on performance the most. Results suggest that internal biosecurity's sections are the main issues limiting Irish farms' performance. Practices such as cleaning and disinfection, compartmentalizing and management of the different stages need to be particularly addressed in low performing farms to improve productivity.