

24th International Pig Veterinary Society Congress



8th European Symposium of Porcine Health Management

# Abstracts Book



Royal Dublin Society, Dublin, Ireland  
7th - 10th June 2016

[www.ipvs2016.com](http://www.ipvs2016.com)

## Poster Abstracts

### Miscellaneous

#### PO-PW1-010

##### Improving pathology based disease surveillance in pigs by re-establishing links with the industry

S. McGettrick<sup>1,\*</sup>, A. O'Doherty<sup>1</sup>, M. Hill<sup>1</sup>, D. Hand<sup>1</sup>, O. Flynn<sup>1</sup>, J. Mooney<sup>1</sup>, C. Irvine<sup>1</sup>, E. Garcia Manzanilla<sup>2</sup>, J. M. Lozano<sup>1</sup>, E. Ryan<sup>1</sup>, J. Moriarty<sup>1</sup>, M. McElroy<sup>1</sup>

<sup>1</sup>Central Veterinary Research Laboratory, Department of Agriculture Food and Marine, Celbridge, Co. Kildare, <sup>2</sup>Pig Development Department, Teagasc, Fermoy, Co. Cork, Ireland

**Introduction:** The commercial pig industry in Ireland is the third largest agriculture sector in Ireland, representing 8% of gross agricultural output. It is comprised of 1.5 million pigs based in approximately 329 large integrated farms. The Irish commercial pig industry is highly intensive and while locally concentrated has numerous commercial links abroad. In 2013 the Veterinary Laboratory Service (VLS) of the Department of Agriculture Food and Marine (DAFM) coordinated by Pathology division embarked on an initiative to strengthen links with the pig industry with a view to offsetting risk from endemic and emerging disease threats, arising at farm level and transnationally.

**Materials and Methods:** VLS have engaged with the main stakeholders in the industry, pig veterinary practitioners, farmers and farming organisations to identify areas where involvement and application of specific expertise could mitigate risk of disease, improve animal health/ welfare and increase farm efficiency.

**Results:** The provision and development of expertise in anatomical pathology and veterinary laboratory diagnostics for pig diseases was identified as essential to establishing and maintaining durable engagement with pig practitioners and the wider industry, thus forming the cornerstone of effective disease surveillance. Improved communication with private veterinary practitioners allowed gaps in diagnostic capabilities to be identified and steps taken to address these. Applied research projects and targeted surveillance on respiratory disease and neonatal diarrhoea serve to provide important surveillance and biosecurity data on endemic diseases and to demonstrate absence of evidence of diseases which threaten the international pig industry such as porcine epidemic diarrhoea.

**Conclusion:** Since 2013, the strategy adopted by VLS has evolved into productive surveillance collaborations resulting in increased pig carcass submissions to the VLS from at risk animal groupings which is highly significant especially in light of increased disease threats to the pig industry worldwide. Emphasis on applied research, particularly to enhance surveillance and diagnostic capabilities, has forged productive relationships among stakeholders and increased the relevance of the VLS to the pig industry. Such cooperation has enhanced the quality and value of surveillance activities for the industry that will assist the industry to respond to disease threats as they arise.

**Disclosure of Interest:** None Declared

**Keywords:** Ireland, Pigs, Surveillance

### Miscellaneous

#### PO-PW1-011

##### Genome-Wide Association Study of Periweaning Failure-to-Thrive Syndrome (PFTS) in Swine Suggests Genes Involved with Depression

R. Zanella<sup>1</sup>, N. Morés<sup>2</sup>, M. A. Z. Morés<sup>2</sup>, J. O. Peixoto<sup>2</sup>, E. L. Zanella<sup>1,\*</sup>, J. R. Ciacci-Zanella<sup>2</sup>, A. M. G. Ibelli<sup>2</sup>, D. Gava<sup>2</sup>, M. E. Cantão<sup>2</sup>, M. C. Ledur<sup>2</sup>

<sup>1</sup>Agronomic and Veterinary College, University of Passo Fundo, Passo Fundo, <sup>2</sup>Embrapa Swine and Poultry, Concórdia, Brazil

**Introduction:** Porcine periweaning-failure-to-thrive syndrome (PFTS) is a worldwide spread condition with unknown etiology that affects newly weaned piglets. The morbidity and mortality rates associated with PFTS range from 1 to 20% in nursery piglets indicating the importance of this emergent swine disease. No direct transmission of this condition has been observed among piglets. In addition, no relationship has been identified with the most common infectious agents occurring in the swine industry and PFTS, and the disease has not been reproduced experimentally yet. Some studies have indicated the importance of genetics on the appearance of PFTS, and proposed the existence of genetic predisposition. In this study, we present the first report of PFTS in South America and the identification of genetic markers associated with PFTS using a Genome-Wide Association Study (GWAS).

**Materials and Methods:** Piglets used in this study were originated from a terminal cross (AGPIC-337 x DB-25), raised in the State of Santa Catarina, Brazil. Sixty-four piglets (34 healthy and 30 with suggestive clinical signs of PFTS) with 35 days of age were selected to have at least one affected and one healthy animal from the same pen. DNA was extracted from blood samples and genotyped at Deoxi Biotecnologia, Brazil, using the Illumina PorcineSNP60V2 BeadChip, which contains 61,565 SNPs across the swine genome. SNPs and samples were tested for their quality prior to the analysis using standard parameters. Tests for population stratification and substructure followed by a GWAS using an allelic test to identify SNPs associated with PFTS were conducted.

**Results:** After quality control, 49,586 SNPs and 53 piglets remained for the association test (24 cases and 29 controls). Using an allelic test, three regions showed association with the appearance of PFTS: one located on *SSCX* ( $p=5 \times 10^{-5}$ ), and two other regions on *SSC14* (59,414,987 to 79,124,234 bp) ( $p=2 \times 10^{-4}$ ). The first region on *SSC14* was composed of one marker located at 59,414,987 bp. The second region on *SSC14* was composed of 12 SNPs in high LD ( $r^2 > 0.89$ ), from 69,709,443 bp to 79,124,234 bp. These regions harbor important functional candidate genes associated with personality behaviors in humans, especially with depression.

**Conclusion:** The results indicate that PFTS might be involved in neurological disorders affecting susceptible piglets when challenged to a stressful event as weaning. Therefore, our findings could help on the identification of susceptible piglets, becoming an important tool to be used in piglet selection to reduce the prevalence of this illness.

**Disclosure of Interest:** None Declared

**Keywords:** Depression, GWAS, PFTS