# The prevalence and trends of economically important production diseases in Northern Ireland

Natalie Brush[1,2], Jesús Borobia Belsue[3], Dermot Sparrow[3], Ultan Power[2] and John McKillen[1]

[1] Agri-Food and Biosciences Institute, Veterinary Science Division, Stormont, Belfast, BT43SD

[2] The Queens University of Belfast, Centre for Infection and Immunity, Health Sciences Building, Belfast, BT97BL

[3]Mossvet Ltd, 34 Seagoe Industrial Estate, Portadown, Craigavon, Armagh, BT635QD

## Introduction

Abattoir surveillance data is an important tool for disease monitoring and the detection of animal welfare conditions. The Northern Ireland voluntary pig health scheme, co-ordinated by Pig Regen, has recorded the presence of macroscopic lesions detected in the pluck and on the skin of slaughter pigs since 2005. Eight lesions are assessed by veterinary inspection as part of the scheme and include enzootic pneumonia-like lesions, pleurisy, pleuropneumonia, lung abscess, milk spot livers, papular dermatitis, pericarditis and tail bite. These pathologies are associated with performance indicators and often result significant in financial losses to the pig industry. Meat inspection post-slaughter provides an ideal opportunity for overall pig herd health to be assessed.

## Methods and materials

Over a 6 year period from 2009-2014, a total of 207,994 pigs from 2711 herds were examined for the presence of lesions at slaughter. A descriptive analysis of the data set was compiled and used to calculate the observed prevalences, correlations and trends associated with each lesion. All data was statistically analysed using the programme Genstat (Release 16.2), VSN International Ltd., Hemel Hempstead, UK.

## Results

Milk spot lesions were found to be the most common condition with an average prevalence of 16.1% amongst slaughter pigs, enzootic pneumonia-like lesions were found in an average of 10.34% of pigs, followed closely by pleurisy with 9.91% of pigs with lesions. All other lesions were observed in <5% of pigs. The most prevalent herd-level lesion was pleurisy, which was an average of 73.6%. Enzootic pneumonia was found to be the second most prevalent herd-level condition at 66.93%, followed by milk spot lesions at 61.98% and pericarditis at 61.76%. All other lesions were observed in <16% of herds. Correlations between lesions at slaughter were observed. Pleurisy was found to be correlated with the presence of enzootic pneumonia-like lesions ($r=0.2584$, $p=<0.001$) and pericarditis ($r=0.3716$, $p=<0.001$), and pleuropneumonia was found to be associated with lung abscesses ($r=0.287$, $p=<0.001$). Time trend analysis revealed a negative trend in the prevalence of enzootic pneumonia-like lesions ($p<0.001$) and in the prevalence of lung abscesses

(*p=0.007*) over time, whereas a positive trend was found for pericarditis lesions with an increase in prevalence observed over time (*p=0.003*).

**Discussion**

The prevalences of respiratory lesions amongst pigs in NI are similar to those observed for the rest of the UK, with the exception of enzootic pneumonia, which is significantly lower in prevalence. The high prevalence of milk spot lesions indicates that parasitic infection remains a problem within the pig sector in NI. An observed association between respiratory lesions was expected due to their likely shared causal factors. A decrease in enzootic-pneumonia-like lesions and lung abscesses has been observed over time, which may be attributed to a greater uptake in vaccination against *Mycoplasma hyopneumoniae*. This data can be used to provide pig processers and producers with detailed herd health information that can potentially contribute to reduced economic losses and lead to higher animal welfare standards.