

Cost of Post-weaning multi-systemic wasting syndrome and PCV2 subclinical infection

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The present study aimed to assess the economic impact of Post-weaning multi-systemic wasting syndrome (PMWS) and porcine circovirus type 2 (PCV2) subclinical infections (PCV2SI) at farm and industry level. A disease model simulated the varying proportions of pigs in a batch that will get infected with PCV2 and develop either PMWS or subclinical infection, depending on the farm PMWS severity level. The model, fitted with empirical data, generated six outcomes: infected pigs with clinical PMWS that die (PMWS-D); infected pigs with clinical PMWS that recover (PMWS-R); PCV2SI that die (PCV2-D); PCV2SI that reach slaughter age (PCV2-S); healthy pigs (H-S); and healthy pigs, infected or non-infected by PCV2, that die due to non-PCV2 related causes (H-D). Enterprise and partial budget analyses were used to assess the deficit/profits and the extra costs/extra benefits of a change in disease status of a pig, respectively. Results from the individual animal economic analysis were combined with the disease model's estimates of the proportion of different pigs produced at different severity scores to assess the cost of PMWS/PCV2SI and the overall profit at farm level. Stochastic simulations were carried out to account for variability and uncertainty. The economic impact of a PMWS-D pig was estimated to be £82.7 (80.0 to 84.4), £27.2 (16.2 to 23.4) for a PMWS-R pig, £84.85 (80.0 to 89.7) for a PCV2-D pig and £13.9 (3.72 to 25.8) for a PCV2-S pigs. At farm level, the greatest proportion of negative economic impact was due to subclinical pigs. The economic impact of PMWS for the English pig industry, prior to the introduction of PCV2 vaccines, was estimated to be £61.4 million per year (38.2 to 88.2). This is the first study to model the cost of PMWS and PCV2SI at different farm severity levels. The model showed the high cost of PMWS for the English pig industry in 2008 and highlights the importance of subclinical infection. Results from this model provide the basis to assess the cost-efficiency of different control measures.