



HERD HEALTH MANAGEMENT & ECONOMY

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CONSIDERATIONS FOR ASSESSING THE IMPACT OF INFLUENZA IN GROWING PIGS

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Introduction

Observational studies have reported the cost of IAV-S in swine production systems to range from approximately US\$3-10 per growing pig. At this time there is no standard method to assess the impact of interventions targeted against IAV-S. Here we propose key parameters which, when collected in the growing phase, provide insight into the association of pathogens and disease presence with key performance indicators (KPI).

Materials and Methods

The measurable unit of growing pigs is defined as a group of pigs that starts and markets together, resulting in a single closeout. Collecting routine measurements in multiple groups, over time is necessary for assessment. At group start, document source farm descriptive data including any relevant health history. In each group, routinely collect oral fluids throughout the growth period, testing for the pathogens of interest by PCR. Perform additional diagnostic investigations with evidence of clinical disease to confirm the presence of pathogens of interest and associate the diagnostic results with the clinical picture in the barn. Additional objective clinical data collection includes monitoring cough routinely with app based tools or other sound technology. Individual pig treatments for secondary infections may also be recorded, although they will likely lag behind the influenza infection. Individual mortality records should also be recorded, although a longer lag exists. Each group will also have final closeout reports including daily gain, culls, and other system KPIs that may be used in an assessment.

Results

In process data should be collated and charted. An example of biweekly oral fluid (OF) monitoring for key respiratory pathogen detection over time in a growing pig population using commercial screening PCR assays is reported in Figure 1. Consistent and prospective data can be aggregated over multiple groups of animals for in depth analysis. Recently, Stika et al., using K-Means Clustering for pathogen burden by grow-out time point in routine OF diagnostics from 45 independent groups of pigs, found associations with pathogen pattern (defined as Clusters) and mortality.¹ The analysis demonstrated average total mortality was highest when pathogen burden increased through the nursery phase and decreased slowly in the finishing phase (Cluster 2, Figure 2), and it became significantly worse when multiple pathogens were observed in a similar pattern.¹

Discussion & Conclusions

Systematic methods for measuring, reporting and associating the presence of pathogen with clinical disease and performance parameters, will provide a more objective assessment of the success of intervention strategies targeted against influenza.