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TITLE

MEASURING THE RESPIRATORY PATHOGEN BURDEN IN GROWING PIGS TO ESTIMATE THE IMPACT OF DISEASE

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CONTENT

Introduction. Efforts to estimate the production and economic impact of concurrent respiratory pathogens are complicated by the multitude of factors that impact productivity and the inability to attribute losses specifically to disease. The objective of this study was to develop a way to measure and characterize respiratory pathogen burden to better estimate the impact of disease on the productivity of growing pigs.

Methods. Eleven biweekly, pen-based, oral fluids (OF) were collected from placement to marketing per lot of pigs. Each sampling had 6 ropes tested per lot by PCR for PRRSV, PCV2, Mhp and IAV-S. Close out data, biweekly mortality, and vaccination history were collected and analyzed. K-means clustering analysis was applied to partition the lots into “K” clusters based on the PCR results. Data was placed into a wean-to-finish economic model to determine net profit.

Results. There were 45 lots of pigs from 8 production systems enrolled in this study. Three distinct clusters of pathogen burden were estimated for each pathogen. Pathogen clusters were ranked according to mortality, as high (3), medium (2), and low (1). Differences between IAV-S cluster 1 and IAV-S cluster 3 was 0.12 Kg ADG decrease, 5.2% mortality increase and profit loss of .51/pig placed. Detrimental impact to productivity was greater when pathogens were combined: Lots of pigs in cluster 3 for both IAV-S and PRRSV compared to lots in IAV-S cluster 1 had 0.18 Kg ADG decrease, 13.3% mortality increase and profit loss of .53/pig placed.

Conclusions. Pen based, bi-weekly OF collections can be used to identify patterns of respiratory pathogen burden in groups of growing pigs that are associated with production. Measuring pathogen burden to estimate the production and economic impact of respiratory disease in growing pigs will help veterinarians and producers allocate resources better to improve animal health and maximize profits.