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SDEC Partners Research Update

Quantification of the impact of swine diseases in growing pig production: influenza, PRRS and PED

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Background

- Impact of emerging (porcine epidemic diarrhea virus (PEDv)) and endemic influenza A virus (IAV), porcine reproductive and respiratory syndrome virus (PRRSv)) pathogens in growing pigs may go beyond acute phases of infection and thus can be more difficult to quantify.
- Even though the most important impact of PEDv infection is the high mortality in suckling pigs, consequences of infection in the performance of growing surviving pigs have not been evaluated
- Similarly, the effect of early infection with IAV in piglets on their performance as growing pigs is not fully understood, as well as the possible interaction with PRRSv

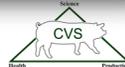
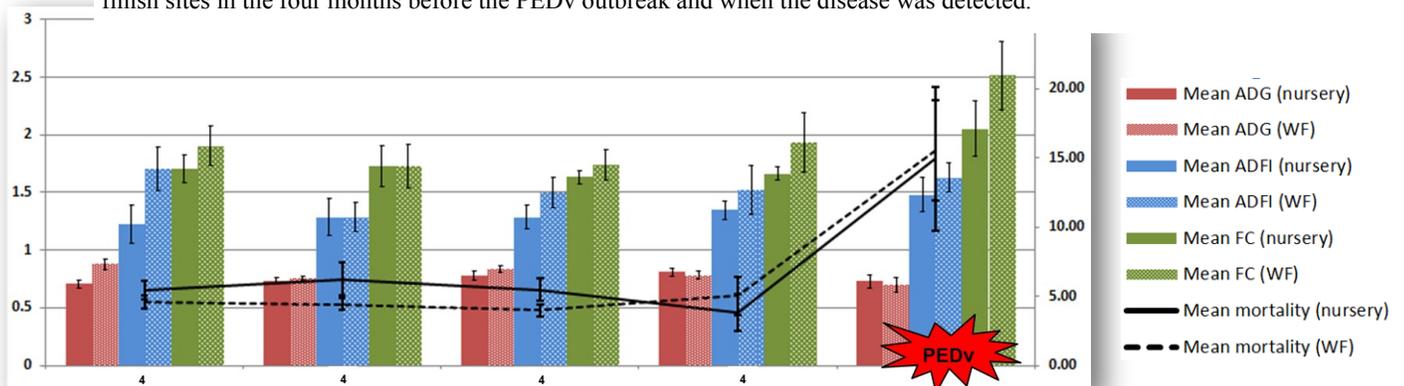
Objective

To measure the association between presence of PEDv, IAV and PRRSv in sow farms and the performance (mortality, average daily gain (ADG), feed conversion ratio(FCR)) of weaned pigs from these farms

Results

1. PEDv

Figure 1 ADG, ADFI, FCR and mortality in weaned pigs from 18 flows for nursery and wean-to-finish sites in the four months before the PEDv outbreak and when the disease was detected.

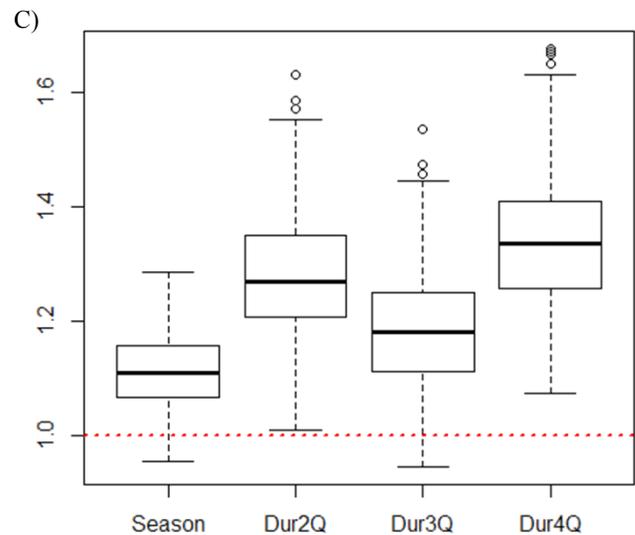
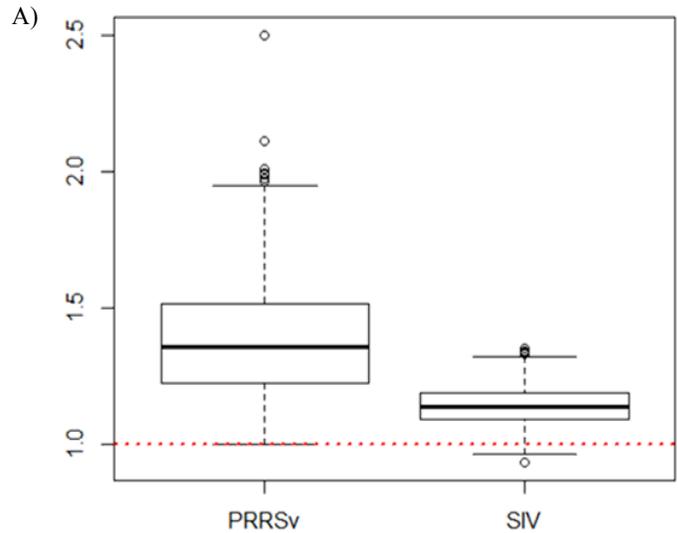
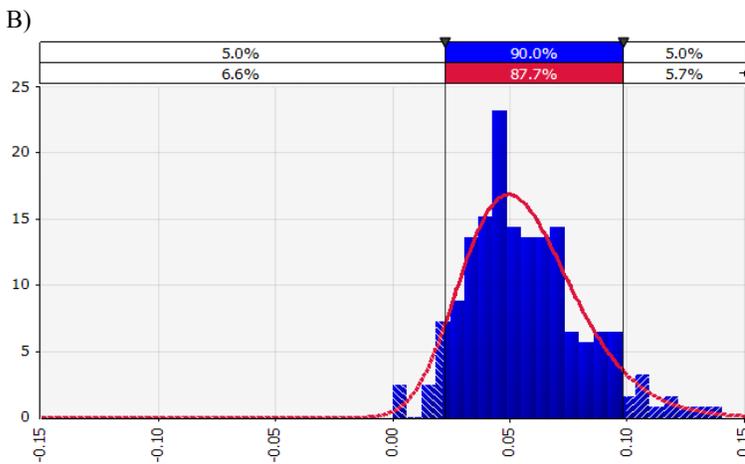


Results

2. IAV/PRRSv

Figure 2

- A) Mortality observed in 177 batches of wean-to-finish (WF) pigs produced by eight flows, ranged from 0% to 15% (four outliers were removed)
- B) Estimates of the incidence ratio observed in batches of WF pigs weaned when IAV or PRRSv were detected in the sow farms with respect to the baseline mortality observed throughout the batches obtained by a negative binomial Bayesian model: a median increase of 14% (95% CI 1-28) and 36% (95% CI 6-84) over the expected mean mortality was estimated for pigs weaned when influenza virus and PRRSv were circulating, respectively
- C) Estimates of the effect of other covariates affecting the mortality in growing pigs: season (median increase of 11% (95% CI 0-24%) in pigs weaned from September to February) and days on feed (categorized in quartiles: median increase between 17-34% in batches of pigs on feed for more than 174 days).



Conclusions

- Pigs infected with PEDv as piglets that survive the infection have impaired performance as growing pigs, with an increased mortality, lower ADG and poorer FCR.
- Batches of pigs weaned when IAV or PRRSv were circulating in the sow farm had increased mortality that ranged from 1 - 28% for IAV and 6 - 85% for PRRSv

Implications

- The presence of certain emerging or endemic pathogens in the sow farm may have a significant impact on the piglets' performance as growing pigs.
- We should also consider the implication that early infection with PEDv, IAV or PRRSv has in growing pigs in addition to the direct effect of these pathogens in the sow farm.