



Presentation: PEDV shedding patterns and antibody kinetics in commercial growing pigs

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Abstract: **Purpose:**

Longitudinal samples collected from two production sites (one PEDV positive; one PEDV negative) were used to 1) describe the pattern of PEDV shedding (RT-PCR) in individual pig fecal swabs, pen fecal samples, and pen oral fluids (OF); 2) describe the kinetics of PEDV antibody by ELISA (IgA, IgG) testing of pig serum and pen OF samples; and 3) establish cutoffs and performance estimates for PEDV "whole virus" IgA and IgG ELISAs (PEDV WV ELISA).

Methods:

Farm 1 was a 52-pen WTF barn stocked with 800 pigs. Pen samples (feces and OFs) and pig samples (fecal swabs and serum) were collected from the same 6 pens and a convenience sample of 5 pigs in each of the 6 pens at placement and at 2-week intervals for 27 weeks. At 13 weeks of age, this PEDV-negative population was exposed to PEDV using standard field exposure methods.

Farm 2 consisted of 3 identical 40-pen WTF barns, each stocked with 900 pigs. Pen OF samples were collected from 36 pens in each of the 3 barns and serum samples were collected from a convenience sample of 20 pigs in 2 pens (10 pigs per pen) in each barn. Sampling began at placement and was done weekly for a total of 9 samplings.

Pen feces, OFs and fecal swabs were tested by PEDV RT-PCR; OF and sera were tested by PEDV WV ELISA (IgG, IgA) at the ISU VDL.

Results:

On Farm 1, PEDV was detected by RT-PCR at the first sampling post inoculation (DPI 6) in individual fecal swabs, pen fecal samples and pen OF. The last RT-PCR positives were detected in fecal swabs and OFs on 69 DPI. Overall, the highest percent of positive samples was observed in OF. Anti-PEDV IgG and IgA was detected in OF and serum samples collected at 13 DPI. The OF IgA response increased through 97 DPI, while serum IgA responses peaked at 27 DPI.

Farm 2 remained RT-PCR negative throughout the monitoring period. These samples provide a source of negative samples for calculating cutoffs and performance estimates for the WV IgA and IgG ELISAs (analysis in progress).

Conclusions:

PEDV antibody (IgG and IgA) kinetics in OFs and comparison with the serum antibody responses has not previously been reported. Future work will focus on establishing antibody levels associated with cessation of PEDV shedding and/or protection against infection.