

SWINE HEALTH

Title: Assessment of sample dilution and number of ropes used for detection of swine pens infected with PRRS early in the course of infection: a pilot study –
NPB #21-121

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Date Submitted: February 11, 2022

Scientific Abstract:

This pilot study compared diagnostic results for the detection of PRRSV between pens using pen-level oral fluids samples and individual animal samples in order to determine if shared samples between infected and uninfected pens limited detection of a pathogen in pens with 24-27 pigs. Two sets of three pens were used to run this study in duplicate. Pens #1 and #3 had one pig vaccinated with the PRRSV modified live vaccine (Ingelvac) intramuscularly in the neck muscle behind the ear. Pen #2 was the control pen. Individual animal samples (serum and nasal swabs) and pen-level oral fluids were collected over a 21 (set #2) to 27 (set #1) day period. Pens #1 and 3 shared ropes with Pen #2 and had one or two designated ropes for oral fluid collection, respectively. The second set of pens successfully transmitted vaccine virus in Pens #1 and #3 showing a linear increase in prevalence in the serum samples starting at 3 days post vaccination (dpv; estimated prevalence of 17.7%) and consistent rates of positive nasal swabs starting on 6 dpv (prevalence of 3.7%). The first set of pens did not successfully transmit the vaccine variant. None of the control pens had positive animals or oral fluid samples. The only difference between the sets of pigs was that second set was on the side of the room where the ventilation exhaust fans were placed, providing a mild environmental stressor to that set of pigs. Oral fluids from shared ropes detected virus at 50% of the detection of the dedicated rope in pen #1 and at 66.7% of the detection of the dedicated ropes in pen #3. Detection in the single dedicated rope sample began at 17.7% seroprevalence and 3.7% nasal swab prevalence (Pen #1) and with two dedicated ropes at 38.6% seroprevalence and 11.1% nasal swab prevalence (Pen #3). Shared rope samples are not as reliable for pathogen detection, particularly in low prevalence settings. Pooling of samples may have a similar result. Setting more than one rope in a pen of 27 animals may also dilute the sample between the two ropes. Further study can confirm and expand upon these findings.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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