Presentation: 68 - Developing sampling guidelines for oral fluid-based PRRSV surveillance

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Abstract: Purpose
Oral fluids (OF) are a convenient surveillance sample because they are easily collected and can be tested for nucleic acids and/or antibodies for PRRSV and a variety of pathogens. We are currently developing statistically-based guidelines for sample size, frequency, and location.
Methods
Two studies were conducted to map the spatiotemporal aspects of PRRSV infection and further the development of oral fluid sampling guidelines. Study 1 - In one WTF barn on each of 10 production sites, OF samples were collected from 6 equidistant pens (~25 pigs per pen) every 2 weeks for 18 weeks. Study 2 - In 3 WTF barns on one finishing site, OF samples were collected weekly from every occupied pen (108 pens; ~25 pigs per pen) for 8 weeks. OF samples were randomized and then tested for PRRSV RNA, IgG, and IgA. To date, statistical analyses have been done to examine spatial autocorrelation, compare detection based on systematic spatial vs random sampling, and compare sampling from the same pens vs alternate pens at each time point. Further analyses are ongoing.
Results
Analyses showed that the disease status of a pen in a barn was highly influenced by the status of other pens in the same barn, i.e., the presence of ≥ 1 positive pens increased the odds of detecting another positive pen.
Analysis showed that systematic spatial sampling was as good as or better than random sampling. Sampling the same pens at each time point was more effective than changing the pens sampled at each time point.
Conclusions
Spatial autocorrelation has previously not been quantified at the barn level and has important implications for surveillance. Sample size calculations are in progress, but frequency of sampling is more important than sample size. That is, fewer samples collected at regular 2-week intervals are more useful that more samples collected at long intervals.