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COMPARING REAL-TIME PCR (RT-PCR) RESULTS FOR PRRS VIRUS BETWEEN POOLED SERUM AND ORAL FLUID SAMPLES IN A SWINE PRODUCTION SYSTEM

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Introduction

Detecting PRRSV in oral fluid samples collected from pigs housed in pens using RT-PCR is an efficient and cost-effective method¹. This allows for samples to be collected quickly and with reduced labor compared to collecting blood samples. The objective of this study is to compare the results of PRRS RT-PCR tests on pooled sera and oral fluid samples from weaned pigs during a 7 month period.

Materials and Methods

The analysis was conducted under commercial production conditions in 50 nursery sites each designed to house 2600 pigs. Serum was collected from 30 pigs making pools of 5 (5:1), and hanged 6 ropes (1 rope per pen, 3 ropes at each side of the nursery site) at each nursery during the first week of placement. A total of 6 pooled serum and 6 oral fluid samples for RT-PCR analysis were collected from each nursery. Samples were collected from individual nurseries on: Nov-10 (n=11); Dec-10 (n=13); Jan-11 (n=11); Feb-11 (n=6); May-11 (n=9). All nursery sites were from sow sources with similar PRRSV status. The PCR tests were performed at Boehringer-Ingelheim Vetmedica's Health Management Center (HMC) diagnostic lab (Ames, IA USA). Statistical analysis included a 95% confidence interval analysis by nursery site, and an overall agreement analysis (Kappa statistics) by site (MINITAB 16.1).

Results

Figure 1 shows the analysis by nursery site using 95% confidence intervals which showed no statistical difference between serum and oral fluid. Overall an 82% agreement was found between results found with oral fluids and serum samples (Figure 2). The overall kappa statistic was 0.628, which is interpreted as substantial agreement between

serum pooled and oral fluid samples collected just after weaning².

Figure 1. Serum vs Oral fluid PRRSV PCR 95% CI

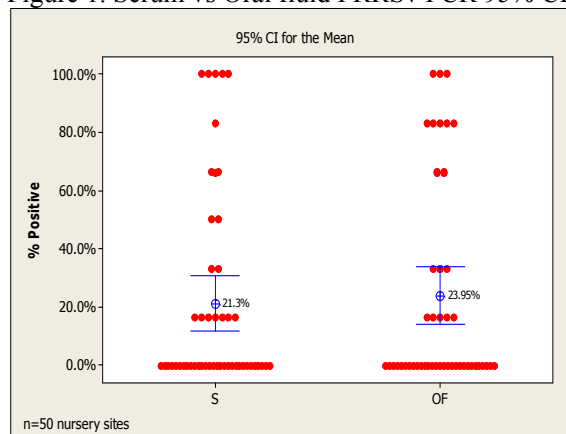


Figure 2. Kappa statistic & agreement between serum & oral fluid results within site

| Number of Sites | Kappa | Observed Proportion of Agreement within Site |
|-----------------|-------------------|--|
| N=50 | 0.628 * | 82% (95%CI 68.5-91.4) |

*Kappa P value < 0.001

Conclusions and Discussion

These results show no difference in PRRSV detection level just after weaning between the pooled serum and oral fluid samples under commercial conditions at the site level. These results show oral fluids as a reliable tool to assess PRRSV status in non-vaccinated pigs at weaning age with the advantages of convenience and less labor over serum.

References

1. Prickett J. et al. 2008. *Vet Diagn Invest* 20:156-163
2. Viera A. et al. 2005. *Fam medicine*:37:360-3