

## SWINE HEALTH

**Title:** “Family oral fluids-based PRRSV monitoring in due-to-wean piglets”  
NPB #18-191

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### Scientific Abstract

PRRSV status of breeding herds is commonly classified using PCR results from 30 due-to-wean piglets. According to that practice, 4 consecutive negative tests 30 days apart would qualify a herd as “PRRS stable”. However, herds have been shown to have PCR-positive piglets even after fulfilling those criteria, which demonstrates the need for better surveillance tools to detect PRRSV in low prevalence scenarios. With that, the objectives of this study were to investigate the use of family oral fluids (FOF) as an alternative for surveillance of breeding herds by a) compare the probability of PRRSV detection by PCR in litters using FOF or individual serum samples, b) assess risk factors associated with a litter being detected as positive for PRRSV, and c) estimate the number of FOF samples necessary to detect PRRSV as a function of prevalence and desired confidence level. Matching samples (FOF and serum from all piglets within a litter) were collected in six breeding herds totaling 2,177 blood samples from individual piglets and 199 FOF samples. All samples were tested by RT-qPCR for the detection of PRRSV RNA at the ISU-VDL. Information about the litter location within farrowing rooms, age, parity of the dam, and the number of piglets per litter was also recorded. Thirty-four litters had at least one viremic piglet (according to serum samples), and 28 litters had PCR-positive results on FOF samples. The overall probability of detection of a positive litter using FOF was 82.4%. Litters with one or two positive piglets had a 50% probability of being detected as positive using FOF, while litters with three or more positive piglets had a probability of being detected as positive using FOF of 97.8%. One of 163 litters was detected as positive in FOF while having all piglets testing negative on serum by PCR, accounting for a specificity of 99.4%. Parity and number of piglets were significant risk factors for a litter to have at least one viremic piglet. The odds ratio for having a litter as positive was 2.82 and 6.13 greater for parity one litters and litters with less than 12 piglets compared to litters coming from older sows, and litters with 12 or more piglets, respectively. Using 5, 7, 10, 15, 20, 30 and 40 FOF samples was equivalent to testing serum samples from 30, 60, 90, 120, 240 and 400 piglets, respectively to obtain an equivalent probability of PRRSV detection by PCR. FOF is an aggregate population sample that allows an increase in the number of piglets monitored using fewer samples that are easier to collect, more practical and pig welfare-friendly compared to serum samples, providing the swine industry with an alternative sampling technique.

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