

## SWINE HEALTH

**Title:** PRRSv detection over time in different age groups in breeding herds attempting to produce PRRSv-negative piglets at weaning: part 2: suckling pig population (NPB 18-161)

**Investigator:** Daniel C. L. Linhares

**Institution:** Iowa State University College of Veterinary Medicine

**Co-Investigator:** Marcelo Almeida

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### Scientific Abstract:

One of the major challenges to successfully eliminate PRRSv from breeding herds is correctly identifying when the within-herd PRRSV transmission has been ceased, and the herd has started to consistently produce PRRSv-negative pigs at weaning. Processing fluids (PF) and family oral fluids (FOF) have been described as ‘population samples’ that can be used for monitoring of swine populations in breeding herds by sampling pigs at 3-5 days of age and due-to-wean pigs, respectively. However, there is still limited data on the dynamics of PRRSv detection over time by these methods in herds undergoing virus elimination.

The objective of this study was to describe the dynamics of PRRSv RNA detection by rRT-PCR in suckling piglets over time in herds undergoing PRRSv elimination in PF and FOF. Seven breeding herds attempting PRRSv elimination were followed over time with weekly sampling of PF and FOF. The PCR results of each specimen was compared and described within herd over time (weeks) and farrowing rooms, and described in an aggregated format.

Among all farms there was intermittent weekly detection of PRRSv RNA using PF or FOF in 15 and 7 occasions, respectively. Within the same week (between rooms), intermittent results were observed 22 times with PF and 12 times with FOF, which demonstrates a crucial importance of continuously monitoring on a weekly basis, by sampling as many rooms as possible in an attempt to minimize misclassification of farm based on the test results of pigs in a single room. Although one farm achieved 11 weeks of consecutive negative results with PF, testing piglets at weaning revealed the detection of PRRSV twice during that same period, which demonstrates the importance of testing the due-to-wean piglet population for a higher confidence in the results of the monitoring program.

Overall PF and FOF results matched in 73% of the occasions. FOF detected particular weeks as positive in 9.5% of the time and PF tested negative for those weeks. Also, in 17.5% of the time PF tested positive for a specific week while FOF failed to detect the same week as

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For more information contact:

National Pork Board • PO Box 9114 • Des Moines, IA 50306 USA • 800-456-7675 • Fax: 515-223-2646 • pork.org

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positive. However, when only considering matching results where the same rooms were tested by both PF and FOF, both techniques yielded the same classification for a given week in 80.7% of the times, while PF classified a week as positive and FOF as negative in 8.8% of the occasions and FOF classified as week as positive in PF as negative in 10.5% of the time.

The results of this study provide insights for the design monitoring programs for breeding herds attempting PRRSV elimination. More specifically, it supports that combination of PF (3-5 days old) and FOF (due-to-wean litters) provides an increased probability to detect the virus in the suckling pig population. The study also provides evidence of the intermittent nature of PRRSV RNA detection in different weeks and by room within the same week with PF and FOF. Moreover, this study provided evidence that a period of more than 11 weeks of consecutive negative results with PF and FOF is necessary to establish a herd as stable for PRRSV. PF-based monitoring over time appears to be a great screening process. FOF is a great addition to the monitoring program when PCR results of PF samples start to consistently become negative for at least 8 consecutive weeks.