PRRSv stabilization and control using modified-live vaccine, herd closure, and serologic monitoring

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Introduction and Objectives
Stabilization and control of Porcine Reproductive and Respiratory Syndrome (PRRS) has been reported using modified-live vaccine\(^1\), herd closure\(^2\), biosecurity\(^3\), and combinations of these tools\(^4\). This case report describes stabilization of a PRRS outbreak using mass vaccination with Ingelvac® PRRS ATP (ATP) (Boehringer Ingelheim Vetmedica, Inc., St. Joseph, MO) and herd closure. It also details PRRS control using whole-herd immunization, routine serology, and improved biosecurity.

Case Description
The farm is a 1270 sow farrow-to-wean herd. Gilt development (GDU) uses multiple sites. Before the PRRS break, these were continuous flow. ATP had been given quarterly to all adults since February 2003. Gilts received ATP at 8 and 4 weeks prior to herd entry. Before the PRRS break, developing gilts were not regularly screened for PRRSv. Acute signs of PRRSv infection were confirmed on December 2, 2003 with fever, abortions, and mortalities. Any open farm space was then loaded with gilts, and on December 10, 2003, the herd was mass vaccinated with ATP and closed to animal entries. Mass vaccination was repeated on January 6, 2004. This process has been called “load/close/homogenize” (L/C/H). Quarterly vaccinations resumed in April 2004. Annual biosecurity assessments\(^5\) began during the L/C/H resulting in improvements including increased serum testing of GDU gilts, sows, and suckling and growing pigs, and all in/all out GDU flow.

Results
Symptoms returned to pre-outbreak levels 3 to 6 weeks after initial vaccination (Figure 1). No negative effects (abortions, anorexia, etc) from this vaccination program were reported or shown on performance records. Today the herd produces over 25 pigs/mated female/year. PRRSv was detected in 1 piglet serum sample in March 2004. Since then, monthly 20 to 30 head piglet PCR surveys have remained negative. Nursery gilts have tested PRRS-negative since screening started in September 2004. Sentinel boars have remained negative since introduction in early 2005. GDU exit serology has detected laterally introduced PRRS virus twice, first with the initial isolation group screened in December 2003 and again in May 2005. Genetic sequencing showed these isolates to be heterologous to known farm viruses, indicating GDU biosecurity breaches. Both sets of gilts were denied herd entry and sold to slaughter.

Figure 1 – Pigs Weaned/Mated Female/Year

Statistical Process Control analysis was performed using NWA Quality Analyst™ v5.2 (Northwest Analytical Inc., Portland, OR, USA).

Conclusions
Modified-live PRRS vaccine helped stabilize this herd via mass vaccination and herd closure, as shown by a return to normal performance and lack of PRRS virus circulation. Ingelvac® PRRS ATP was safe when administered at all stages of production to PRRS-positive adult animals. The processes of whole-herd vaccination, routine serologic screening, and biosecurity assessment and enhancement are effective tools for PRRS stabilization and control.

References

\(^1\) Turner M. 2005. Proc. AASV. P311-317
\(^3\) Nerem J. 2005. Proc. George Young Conf. P57-63