

Understanding PRRSV Infection Dynamics in Growing Pigs in Control and Elimination Programs

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Key points:

- Growing pigs play an important role in regional PRRSV spread.
- There was an association between prevalence of PRRSV infection in growing pig sites and risk of outbreaks in sow farms.
- Learning about PRRSV infection dynamics in growing pigs and associated risk factors should help manage pig flows to minimize PRRSV incidence and /or risk of dissemination.

One production company had the opportunity to use historical PRRS information for sites located in a small region in an overall pig dense area with several types of farms including five filtered sow farms and 18 growing pig sites. All sites were managed by the same production system and there were no outside pigs moved into the area other than the production system's own pigs. All pigs originated from PRRSV negative sources at time of placement with no PRRS vaccination. The goal of the company was to eliminate PRRSV from the area and to maintain the filtered sow farms PRRSV negative. However, several PRRSV incursions into finishing sites and sow farms were reported. PRRSV testing in growing pigs started in response to sow farm breaks to understand the possible sources of virus, oral fluids in nursery and finisher pigs along with blood samples for sequencing was implemented in a monthly basis. Sow farms were monitored for PRRS status monthly. Existing surveillance data from sites in the region was analyzed retrospectively. Data from 23 sites and 208 weeks of observation (4 years) revealed the following:

Filtered sow farms:

The probability that a sow farm had at least one outbreak in 4 years was 80%.

An outbreak was estimated for every ~ 3.33 years of the sow farm being at risk.

Risk of infection in the sow farms increased as prevalence of infection in the growing pigs increased.

There was a statistically significant association between weekly PRRS prevalence in growing pigs and weekly prevalence in sow farms after adjusting for season and sow farm PRRS prevalence in previous week.

Growing pig-sites:

15/18 (83%) growing pigs sites had at least one PRRS outbreak during the analyzed period.

- 14/15 (93%) growing pig sites had multiple PRRSV outbreaks.
- The risk of having a PRRSV outbreak in growing pigs was 24%. (min. 0% Max. 75%)
- At least 11 different PRRSV strains were identified during four years using ORF5 sequencing.

There was temporality of PRRSV infection in growing pigs relative to sow farms. PRRSV was most commonly detected in growing pigs right before outbreaks in sow farms.

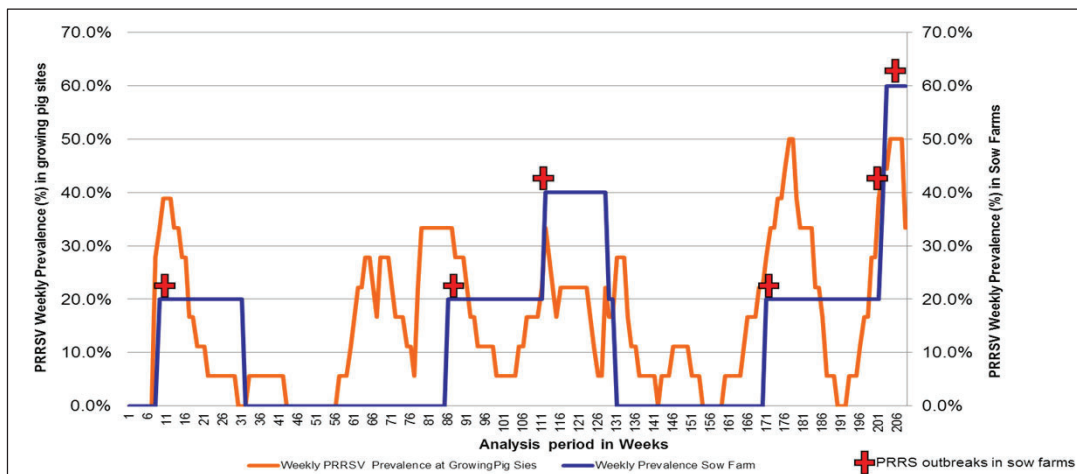


Fig 1. PRRSV weekly prevalence in sow filtered farms and growing pig sites

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