

## Summary of: Production losses five months after outbreak with a recombinant of two PRRSV vaccine strains in 13 Danish sow herds

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### Key Points:

- A new PRRS-1 recombinant between two vaccine strains variant was reported.
- This variant was detected in a boar station and affected breeding and production herds.
- Production losses associated with this variant in the production herds comprised a decrease in liveborns/litter and in weaned/litter, as well as an increase in stillborn/litter which was higher than observed in previous Danish PRRS outbreak reports.

Both PRRSV-1 and PRRSV-2 have been prevalent in Danish herds since the early 1990s. In 2019, PRRSV-1 was detected in a boar station. PRRSV was detected in three breeding herds and at least 33 production herds that received semen from that boar station, with animals presenting clinical signs that included sustained reproductive failures and high piglet mortality. The PRRSV isolated from the boar station had never been detected and was therefore considered a new PRRS-1 variant, a recombination between two vaccine strains (> 99% homology with the Zoetic commercial vaccine strain in ORF 2 and > 99% identity with the Hipra Unistrain strain in ORF 5). The authors describe the impact of the outbreak and the production losses it caused compared to previous PRRSV outbreaks in Danish herds.

The study included 13 of the affected production herds that sequenced the recombinant of the two PRRSV vaccine strains from samples of individual animals. Only one herd had mass-vaccinated the sows with “Porcilis® PRRS VET” (MSD Animal Health, USA) prior to the infection with the recombinant PRRSV strain. After infection with the new PRRSV-1 variant, most of the herds used the MLV “Unistrain PRRS” (Hipra, Spain), three herds used the MLV “Porcilis® PRRS VET”, and one herd used the killed-virus vaccine “Progressis® Vet” (CEVA, France). Productivity data from 2018 and 2019 were obtained and divided into the period preceding PRRSV-1 infection (7 months) and after PRRSV-1 infection (5 months). They observed an average decrease in the number of liveborns of 2.8 liveborns/litter and an average increase in stillborns of 1.4 stillborns/litter after PRRSV-1 infection compared to historical records. Pre-weaning mortality also increased from an average of 23% to 40%, which reflected in 2.4 to 6.5 fewer weaned pigs/litter after PRRSV-1 infection.

The authors report that before the outbreak, the monitoring of PRRSV at the boar stations was based on antibodies and performed every second week. After the outbreak, the surveillance was changed and now the boar stations are monitored every week based on detection of PRRSV by PCR and antibodies every second week. When comparing this with the previous Danish PRRS outbreak reports in the literature, the authors report that this new PRRSV-1 variant results in higher production losses than older variants of PRRSV seen in Denmark (higher impact in liveborns/litter, stillborn/litter, and pigs weaned/litter). The authors conclude that infection with this new recombinant PRRSV-1 variant resulted in an important decrease in productivity during the subsequent five-month period in the 13 herds studied, which exceeds that previously reported in Denmark.

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