Efficacy of PRRS vaccination and management strategies to control high pathogenic PRRS infection in nursery pigs: a case report

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Background and Objectives

A new highly pathogenic (HP) PRRSV1 strain emerged in Spain in 2020 (Genbank ON571708). Up to date, there is limited information about the efficacy of commercial vaccines against this strain (1). The aim of the study was to determine if a combination of piglet PRRS vaccination and management measures could be an effective and profitable approach to control HP PRRSV1 in nurseries.

Material and Methods

The study took place in a PRRS positive but stable, vaccinated 1300-sow farm (site 1+2). In December-2021, a reproductive PRRS outbreak took place. PRRSV was detected and orf5 sequencing showed it was homologous to strain ON571708 (also known as Rosalia strain). Emergency sow vaccination (blanket vaccination, once, with Porcilis® PRRS, MSD Animal Health, intradermal application) was performed, followed by management changes with the most relevant measures including:

- Implementation of herd-closure for 4 months
- No adoptions policy
- All-in-all out (AI-AO) management

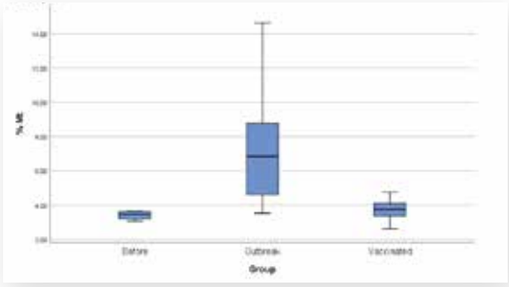
Additionally, production was moved from 2- to 3-week batch system.

By July 2022, all reproductive parameters were back to levels prior to the outbreak, and piglets' flow was PRRSV negative. However, nursery's mortality was still higher than expected.

In August 2022 it was decided to vaccinate piglets at 2 weeks of age (Porcilis® PRRS) with intradermal application for 1 year. Management strategies were maintained.

Effect of vaccination on mortality and medication costs was determined by comparing pre- and post-vaccination batches. PRRSV presence was tested by PCR on oral fluid samples at the end of the nursery phase. Statistical analysis (ANOVA and Kruskall-Wallis test) was performed on monthly mortality and medication cost data, taking the batch as the observational unit.

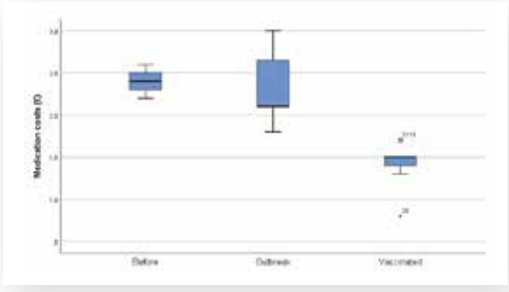
Figure 1. Mortality rate in nursery



Results

Mortality in the nursery was significantly reduced from 7.39% in non-vaccinated to 3.73% in vaccinated batches ($p<0.005$), reaching similar mortality values as before the PRRS outbreak (3.4%; non-significant differences) (Figure 1). Medication costs related to antibiotic usage were also significantly reduced by 0.91€ ($p<0.005$), reaching even lower values than before the PRRS outbreak (Figure 2). At the end of the nursery PRRSV was detected in only one oral fluid sample by PCR, presenting very high ct values (ct 32).

Figure 2. Medication costs in nursery



Regarding profitability, calculated based on the reduction of mortality and medication costs, an extra benefit of piglet vaccination and management measures of 1.96€/piglet was obtained, including the cost of vaccination.

Discussion and conclusion

In this trial, emergency vaccination and adjustment of management helped to control the disease. Piglet vaccination was shown to be an effective and profitable combination to improve production parameters, as well as to reduce virus presence in nursery, after an outbreak of a HP PRRSV1 strain.

[1] E. Mateu et al. 2024. IPVS-ESPHM

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