REDUCTION OF PRESSURE OF INFECTION AND MORTALITY AFTER INTRADERMAL PIGLET VACCINATION AGAINST PRRSV, MYCOPLASMA HYOPNEUMONIAE AND PCV2

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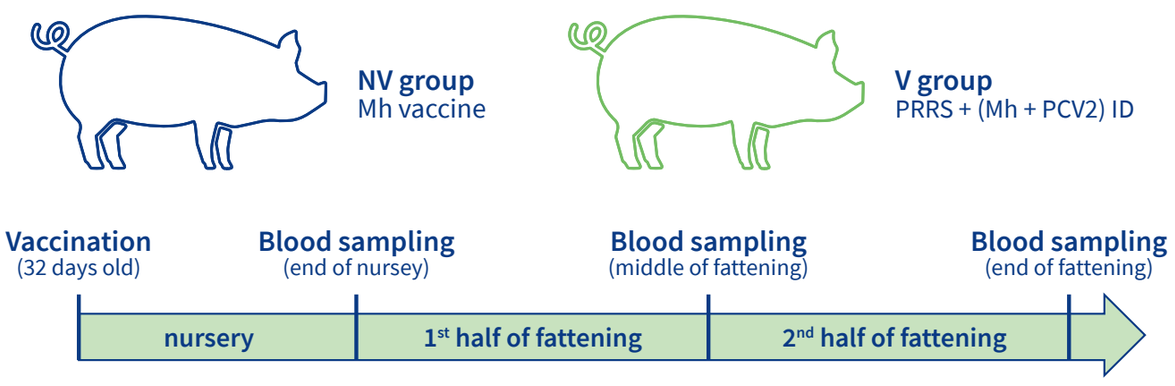
Background & Objectives

This case-report describes the changes on pressure of infection and mortality after the implementation of an intradermal piglet vaccination program against Porcine Reproductive and Respiratory Syndrome (PRRSV), Porcine Circovirus type 2 (PCV2) and *Mycoplasma hyopneumoniae* (Mh) on a commercial pig farm.

Materials & Methods

On a farrow-to-finish farm, the deterioration of the health situation in the post-weaning unit was linked with a coinfection of PRRSV and PCV2. Both infections were diagnosed in nursery piglets and fatteners (RT-PCR and ELISA testing of blood samples) and an ORF5 PRRSV sequencing was performed. The piglets were only vaccinated against Mh. **An intradermal vaccination programme was then implemented at 32 days of age with Unistrain® PRRS and Mhyosphere® PCV ID** and a before/after comparison was made.



The antibody levels and viremia (PRRSV/PCV2) were assessed, respectively, by ELISA (IDDEX® PRRS and BioCheck® PCV2) and RT-PCR at each blood sampling timepoint. 10-12 animals were sampled per group in each timepoint.

The number of dead pigs, individual antimicrobial treatments and animals diagnosed with arthritis were recorded weekly. To avoid seasonal effects, technical results are compared on the same period of time (June to November) before and after vaccination.

The statistical analysis was performed using R software v4.3.

Results

At 10 weeks of age, the NV piglets were PCR-positive to PRRSV (wild-type virus) whilst all V samples remain negative to the virus. All samples were PCR-negative to PCV2. The antibody titres against PRRSV and PVC differed significantly between groups (figures 1 and 2).

Figure 1. Antibody titres against PVC2 (BioCheck® PCV2: non-vaccinated (blue) versus vaccinated group (green). Statistically significant differences (*) at middle and end of fattening.

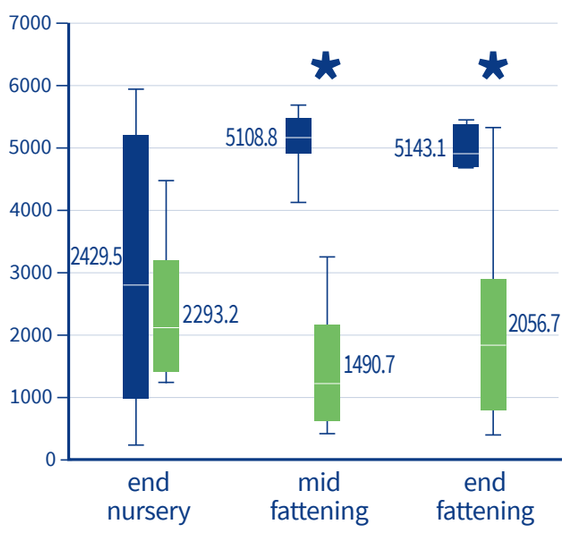
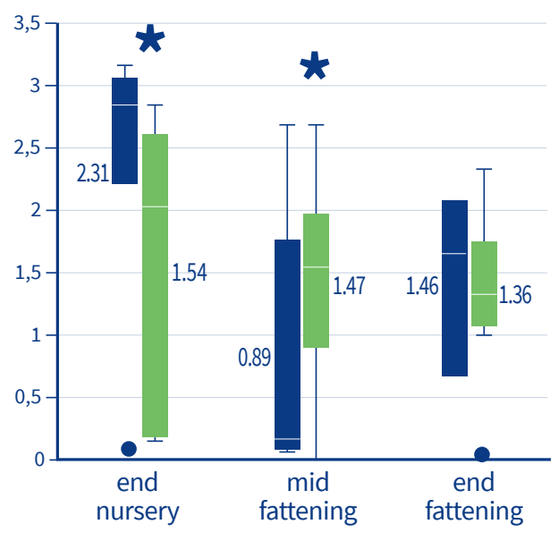
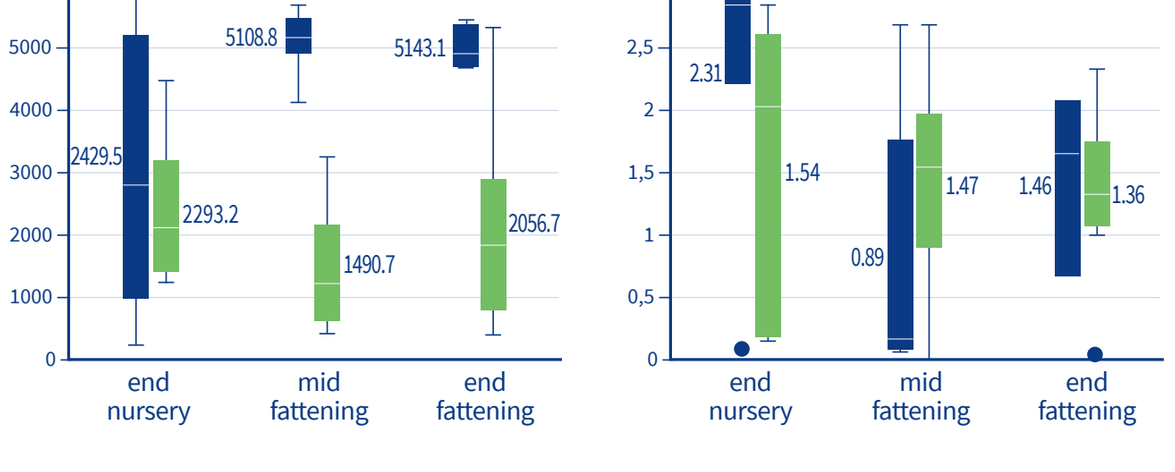


Figure 2. Antibody titres against PRRSV (IDDEX® PRRS): non-vaccinated (blue) versus vaccinated group (green). Statistically significant differences(*) at end of nursery and middle of fattening.



Average weekly mortality was lower in **group V** (0.77 dead pigs versus 1.73), in 5 months, it represents 17 dead **V** pigs and 38 **NV** pigs. Antimicrobial treatments (0.23 versus 4.95) and the number of animals diagnosed with arthritis (0.14 versus 3.27) have also decreased remarkably (figure 3).

Figure 3. Comparison of weekly dead pigs, applied antimicrobial treatments and newly diagnosed cases of arthritis.



Discussion & Conclusion

The vaccinated batches showed a milder seroconversion to PCV2, suggesting a significant reduction of viral circulation on the vaccinated population. Similarly, the results suggest a reduction of PRRSV circulation, with no virus being found on the samples from vaccinated animals. These variations were accompanied by a reduction of mortality, antimicrobial treatments, and arthritis incidence. Considering the risk of iatrogenic pathogen spread posed by needles[1], the implementation of a needle-free vaccination program might have contributed as well to the reduction of the incidence arthritis and the demand for antimicrobials.

References

1. Salman et al. Sci Rep (2023) 13(1):

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