

EVALUATION OF THE ECONOMIC IMPACT OF THE PRRS VIRUS ASSOCIATED WITH PRRS STATUS ON DUTCH SOW FARMS

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BACKGROUND & OBJECTIVES

The Netherlands is one of the main European pig producing countries where PRRS is an endemic disease causing significant productive and economic losses. Knowledge of PRRS virus (PRRSV) epidemiology is crucial for the development of control strategies against this disease. In that regard, classifying farms according to PRRSV shedding and exposure, and understanding key drivers of the change in status over time, provides useful applied knowledge for developing disease control programmes. The aim of this study was to establish a systematic monitoring programme for PRRSV in order to classify farms and evaluate the productive and economic impact of PRRSV infection under Dutch field conditions.

MATERIALS AND METHODS

Between January and June 2020, 8 TN70 breeding herds with 5,200 sows in total located in The Netherlands voluntarily enrolled in a half-year PRRS virus monitoring programme.

Following the criteria described by Holtkamp et al.¹, farms were classified monthly based on the detection of PRRSV RNA by RT-PCR, and PRRSV antibodies by ELISA in serum samples as: Negative (N), (ELISA -), Positive Unstable (PU) (ELISA + PCR +) and Positive Stable (PS) (ELISA + PCR -). For this purpose, all the PRRS-positive farms adopted a diagnostic monitoring protocol which consisted of monthly individual blood tests of 30 pre-weaned non-vaccinated piglets by RT-PCR (5 pools of 6 samples each).

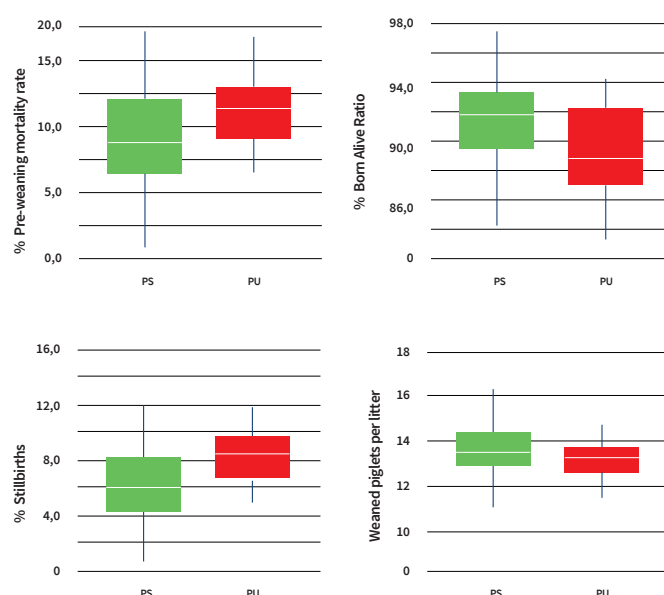
For the evaluation of the productive impact, these reproductive parameters were recorded monthly during the study period; piglets born alive ratio, % stillbirths per litter, pre-weaning mortality and number of weaned piglets per litter.

RESULTS

A total of 169 weekly data were analysed: 141 weeks were classified as PS and 28 weeks as PU.

Statistically significant differences were observed in the piglets born alive ratio (-1.84% PU vs. PS), stillborn piglets per litter (+0.34% PU vs. PS), preweaning mortality (+0.22 PU vs. PS) and weaned piglets per litter (-0.47 PU vs PS). Fig 1. Comparative statistical analysis of KPI between different PRRS status was performed by an ANOVA test using RStudio software.

Figure 1. Productive variability found during the study time between PRRS stable (PS) and PRRS unstable (PU) farms.



Taking into account this -0.47 weaned piglets on the PU farms and assuming an average size per farm of 656 sows, we estimated the productive impact of the PRRSV. The PU farms had a reduction of 1.13 weaned piglets/sow/year due to instability (0.47 weaned piglets/litter x 2.4 litters/sow/year = 1.13 weaned piglets/sow/year).

Following this, we calculated the annual opportunity cost of being PS, assuming that the average weaned piglet price in the Netherlands was 30€. The PRRSV economic impact on PU farms was 22,238 € ((656x1.13)x30).

DISCUSSION & CONCLUSION

These results provide a better understanding of the productive and economic impact of PRRSV circulation in breeding herds, reinforcing the efforts to not only stabilize but maintain the stability on the PRRS-positive farms.

REFERENCES

¹Holtkamp, D.; et al. Terminology for classifying swine herds by porcine reproductive and respiratory syndrome virus status. J Swine Health Prod. 2011; 19(1), pp. 44-56.