

VVD-OP-06

TITLE

ANALYSIS OF RESILIENCE MARKERS IN RELATION TO ABORTION RATE IN PIGS

Romi Pena¹, Carlos Fernández², Maria Blasco-Felip³, Lorenzo Fraile¹, Joan Estany¹

¹ *University of Lleida, Lleida, Spain*

² *INZAR SL, Zaragoza, Spain*

³ *Free-lance veterinarian, Zaragoza, Spain*

CONTENT

Introduction

The concept of Resilience is used to define the ability of animals to overcome internal and external stressors, such as pathogen challenges. In pigs, a number of genetic markers have been studied in relation to the response to infection with the porcine reproductive and respiratory syndrome virus (PRRSV), but their relationship with abortion rate during PRRSV outbreaks has not been described.

Material & Methods

Genomic DNA was isolated from 180 Landrace x Large White sows from a PRRSV negative farm that suffered a PRRSV epidemic outbreak in December 2017 that lasted for six weeks. The abortion rate during the outbreak was 30%. Animals were genotyped for markers in the GBP1 (rs80800372), GBP5 (rs340943904), CD163 (c.3534C>T), MX1 (-1520ins275) and USP18 (-1533G>A) genes. The effect of each marker on the abortion rate was analyzed with a logistic regression model.

Results

All the sows were homozygous GG for the marker of the USP18 gene. In the other four polymorphisms, the allelic frequency of the minor allele ranged between 0.20 and 0.32. The percentage of abortions was significantly lower in the homozygotes for the minor allele of the GBP1, GBP5 and MX1 markers, whereas the CD163 genotype did not affect abortion rate. The abortion rate in heterozygous sows for GBP1 and GBP5 was similar to that of sows homozygous for the minor allele, whereas for MX1 the opposite situation occurred. The likelihood of abortion was 2-fold (GBP1 and GBP5) or 5-fold higher (MX1) between alternative homozygous sows.

Discussion & Conclusion

These results are a first step in the selection of resilient sows which can successfully cope with an epidemic PRRSV infection. These results are currently being validated in other populations in both endemic and epidemic phases of the disease.