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PROCEEDINGS

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|Virology & Viral Diseases-PRRS|

Lack of evidence of porcine reproductive and respiratory syndrome virus (PRRSV) infection as cause of reproductive failure in Brazilian swine herds

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Introduction

Several infectious agents are associated with abortion and reproductive failures in swine production. Among those, the porcine reproductive and respiratory syndrome virus (PRRSV) causes the most economically important disease in swine herds worldwide. Although Brazilian swine production is expressive (4th pork producer and exporter), there has been no evidence of PRRSV infection in those herds (1). Most of the analysis uses serology by commercial ELISA tests in breeding herds to perform prevalence surveys. Fewer studies investigated suspected or positive ELISA samples using additional laboratory tests as differential diagnostic, aiming to detect PRRSV as the etiological cause of reproductive losses. The objective of this work was to detect PRRSV in samples of organs from fetuses originated from sows with reproductive failures and from reproductive organs of culled sows.

Material and Methods

This study used two sources of material for laboratorial testing: fetuses or culled sows.The aborted, stillbirth, mummified or unviable fetuses were collected from sows from 27 swine farms previously selected due poor reproductive performance. In addition, reproductive organs from culled sows were obtained from four slaughterhouses of Santa Catarina State, but the reason for their removal was not particularly due to reproductive failures. Thus, a total of 199 samples of organs from 118 fetuses and from 81 culled sows were collected from 2009-2010 and were sent to Embrapa Swine and Poultry for processing. Samples of heart, lung, liver, kidney, lymphoid organs and nervous tissues from fetuses and reproductive organs, as fragments of ovaries and uterus from culled sows, were processed for viral RNA extraction by MagMAX® 1836-5 (Applied Biosystems). Real-time PCR reactions were performed using specific primers to detect ORF7 gene sequences of North-American PRRSV as previously described (2). Positive control RNA was *in vitro* transcribed using RiboMAX™ Large Scale (Promega), gently provided by NADC/ARS/USDA (Ames, USA) (2). Serum samples were also collected from sows of 27 swine farms up to 15 days following the farrowing or abortion. All the samples were tested using IDEXX HerdChek* Porcine Reproductive and Respiratory Syndrome Antibody Test Kit.

Results

Real-time PCR used here was able to detect $2.6x10^3$ molecules/uL of PRRSV positive control (2). However, all 199 organ samples from both fetuses and culled sows were negative. Serum samples from sows of those 27 swine farms also resulted negative when IDEXX HerdChek* PRRS Antibody Test Kit was used. These results indicate the absence of RNA or antibodies for PRRSV in the samples tested in this study.

Discussion and Conclusion

Although no surveillance test was performed here, samples analyzed in this study show no evidence of PRRSV infection on Brazilian swine herds. Recent studies have detected single stranded DNA viruses` co-infections as cause of reproductive problems in pigs in Brazil. Those analyses identified by PCR sequences of porcine circovirus type 2 (PCV2), PCV1, torque-teno suis virus (TTV1 and TTV2) and porcine parvovirus (PPV) in fetuses of the study described here. PCV2 was detected in 17.1% and PCV1 DNA was detected in 27.6% of them (4). In addition, TTV1 and TTV2 were detected in 24.1% and 82.8% of the fetuses, respectively (4, 5). PPV was less frequently detected, only 6% of PCV2 positive fetuses (6). At the time of sampling, no PCV2 vaccine was used in those farms (5). These previous findings combined to the results described here raise the question of the importance of PCVs and TTVs in the pathology of PCVAD associated reproductive failures and vertical transmission in swine farms. Furthermore, shows no evidence of PRRSV infection in those swine farms, indicating the importance to implement a monitory program for PRRSV and control measures for PCV2.

References

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