

# REPRODUCTION

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## RESULTS FROM DIFFERENT DIAGNOSTIC APPROACHES CONCERNING LEPTOSPIRA SPP. IN TERMS OF SMEDI LITTERS

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### Background and Objectives

Diagnostic material for PCR in terms of *Leptospira* spp. associated abortion or stillbirth may include lung, liver, kidney or stomach content from affected fetuses or the detection of antibodies against *Leptospira* spp. in stillborn fetuses, if infected after the 70<sup>th</sup> day of gestation. In the present study we used different specimens for direct *Leptospira* spp. or antibody detection to evaluate adequate diagnostic approaches for *Leptospira* diagnostic in SMEDI cases.

### Material and Methods

We included 142 fetuses of 36 SMEDI litters from 16 farms in which also serum of the affected sows was available. Serological examinations (MAT) of sow sera, fetal heart blood and PCR examinations of fetal tissue pools (Kidney, Liver), stomach content and meconium from affected fetuses were carried out.

### Results

Antibodies against *Leptospira* spp. were present in 62.5% of the farms and 44.4% of the individual sow sera. Highest titers against serovars Pomona, Bratislava were present in sera of sows from *Leptospira* spp. PCR positive litters. Due to hemolysis, only 23.5 % heart blood samples of the fetuses could be examined by MAT; all revealed negative results. 14.1 % of the tissue pools were positive for *Leptospira* spp. by qPCR. Single sample examination revealed a detection rate of 95 % for kidney, 85 % for liver, 70 % for meconium and 65 % for stomach content. In fresh stillborn fetuses the probability to detect *Leptospira* spp. was reduced (OR: 0.055). Parity of the sow and farm size were associated with an increased chance to detect *Leptospira* spp. (gilt: OR: 49.57 / farm > 900 sows: OR: 22.98).

### Discussion and Conclusion

Parity of sows and phenotype of the fetus affect the *Leptospira* spp. detection. Kidney displayed the most suitable tissue for *Leptospira* spp. detection in SMEDI fetuses by qPCR. Heart blood of fetuses was not suitable for *Leptospira* spp. serological diagnostics.