Bovine Abortions and Stillbirths in Denmark 2015 to 2017

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Infections are the most common cause of bovine abortion. Here we report recent diagnostic findings in bovine abortion material from Denmark, a country with a large dairy sector and high animal health standards. This study was conducted in order to gain in-depth knowledge on infectious causes of abortions i.e. to identify and localize infectious agents in placental and foetal tissues. The cultivation-independent methods fluorescence in situ hybridization (FISH) and second generation sequencing were applied additionally to routine histopathology and bacterial cultivation.

**STUDY POPULATION**

Danish Holstein 62%
Danish Jersey 13%
Crossbreed 9%
Danish Red 7%
0.8% of reported abortions during study period

**SAMPLE MATERIAL**

oral route
placental interface
systemic route
Placenta
Liver
Brain
Kidney
Lung

**RESULTS**

**BRUCELLA ABORTUS CULTIVATION**

All foetal organ pools were negative for Brucella abortus.

**HISTOPATHOLOGICAL SCREENING FOR NEOSPORA CANTANUM**

Neospora was diagnosed in 30 out of 162 abortions (19%). Based on findings in HE stained tissue sections of brain, heart, and liver.

**ELISA**

In 90% of the cases, a blood sample of the dam was submitted. All samples were negative for maternal BVDV antibodies.

**FISH**

Screening for bacteria with general probe
Screening for fungi with general probe

**SECOND GENERATION SEQUENCING**

DNA was extracted from placenta, a liver and lung pool as well as kidney. The total bacterial DNA was amplified using universal bacterial primers binding adjacent to the variable regions V1 and V2 of the 16S rRNA gene. The resulting amplicon was sequenced on the Illumina MiSeq platform.

**CONCLUSIONS**

- Neosporosis was the most frequently diagnosed infection.
- No epizootic abortifaciens were found on study population level, however, due to very few abortions submitted per herd, no conclusions can be drawn on herd level.
- Fungi seem to play a minor role as abortogenic agent in Denmark.