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Tiergesundheit **Zoonosen**

Dichelobacter nodosus in domestic ruminants, South American camelids and free-ranging wildlife in Switzerland – assessing prevalence in potential hosts to design targeted disease control measures

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Key words
Dichelobacter nodosus, foot rot, farm animals, South American camelids, RT-PCR, risk factors, Switzerland, wild ruminants

Aim of the study (Formatvorlage Überschrift 2)
(1) Providing baseline data on the occurrence of infections with *D. nodosus* (*DN*) in potentially susceptible hosts before the implementation of a national control program (prevalence, risk factors);(2) Establishing routine foot rot molecular diagnostics for *DN* at the Institute of Veterinary Bacteriology in Bern (IVB; reference laboratory).

Material and methods (Formatvorlage Überschrift 2)
Cross-sectional study in farm animals and sympatric wildlife to estimate a nationwide prevalence of virulent and benign *DN* in sheep (reference species), cattle, goat, South American camelids (SAC) and free-ranging Alpine ibex, chamois, roe and red deer, incl. the analysis of collected 4-feet swabs by RT-PCR; Collection of information on potential risk factors via direct interviews (farms) and questionnaire (wildlife).

Results and significance (Formatvorlage Überschrift 2)
(1) Farm animals: True prevalence (TP) of virulent *DN* was 16.9% in sheep; 0% in cattle and goats; in SAC apparent prevalence (AP) was 0.2%. On farm level, TP of virulent *DN* was 16.2% for sheep; for SAC herds AP was 1.5%. Thus, it seems that cattle, goats and SAC do not play a role in footrot epidemiology for the virulent *DN*. For benign *DN*, TP in sheep was 6.3%, in cattle 88.4%; in sheep farms 2.8%, in cattle farms 95.9%. In goat and SAC farms, AP was 6.6% and 7.4%, respectively. (2) Wild species: The overall prevalence was <2% for benign *DN* (mainly red deer, which have most frequent contacts with cattle; and 1 ibex with footrot lesions); and <1% for the virulent strains (1 ibex with lesions). (3) RT-PCR: The technique was successfully established at the IVB. Overall, wildlife, goats and SAC seems to be only an incidental spillover host (healthy carriers), while sheep comes up as the only maintenance host for the virulent strain. The simultaneous, harmonized investigation of wild and domestic species has contributed to a better understanding of footrot epidemiology in Switzerland and will help developing an efficient disease control program.

Publications, posters and presentations (Formatvorlage Überschrift 2)
Ardüser F. et al. 2019 *Dichelobacter nodosus* in sheep, cattle, goats and South American camelids in Switzerland - Assessing prevalence in potential hosts in order to design targeted disease control measures
. Published in Prev. Vet, Med. https://doi.org/10.1016/j.prevetmed.2019.05.001
Moore-Jones G. et al. Identifying maintenance hosts and risk factors for infection with *Dichelobacter nodosus* in free-ranging wild ruminants in Switzerland: a prevalence study. Submitted. http://dx.doi.org/10.1101/691600
By September, this work will have been presented at 4 national (2 oral, 2 poster presentations) and 5 international conferences (4 oral , 1 poster presentations); until now it has been awarded 2 student prizes.

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