

## The surveillance programme for footrot in Norway 2014

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# Surveillance programmes for terrestrial and aquatic animals in Norway

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# The surveillance programme for footrot in Norway 2014

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## Introduction

Ovine footrot is an infectious disease of sheep and is caused by the bacterium *Dichelobacter nodosus*. The severity of disease varies and is dependent on the breed of sheep, environmental factors and bacterial variant. *D. nodosus* strains are divided into so-called benign and virulent variants. In Norway, disease caused by virulent variants (severe footrot) is notifiable to the authorities.

Since 1948, footrot had not been detected in Norway until the bacterium was detected in a single herd with lameness in 2008. Clinical footrot was detected in other flocks later the same year and the industry launched the "Turn the sheep" project. All sheep flocks in the counties of Rogaland, Aust-Agder and Vest-Agder, more than 250,000 animals were included and *D. nodosus* was detected by PCR in more than 500 flocks. At the time no laboratory methods were available in Norway to differentiate between benign and virulent strains.

In 2009, the project "Healthy feet" was launched as a collaborative project between the industry, the Norwegian Food Safety Authority and the Norwegian Veterinary Institute. The goal was to eradicate severe ovine footrot in Norway. Approximately 4,500 flocks including more than 400,000 sheep have been investigated in the field, and further 190,000 animals at slaughterhouses. Methods for culturing, phenotypical virulence testing and a new one step PCR method for the differentiation of virulent and benign strains were established.

Since 2008, the disease has been detected in 105 flocks in Rogaland and 16 in Aust-Agder.

Severe footrot in sheep and goats is a notifiable disease (List B) in Norway. The control of this disease is enforced by government legislation and restrictions on animal movement. A national surveillance programme for footrot in sheep was established in 2014 (based on methods already used in the "Healthy feet" project), running in parallel with the "Healthy feet" project, which terminated early in 2015.

## Aim

The aim of the surveillance programme for ovine footrot is to detect flocks with virulent strains of *D. nodosus* in sheep.

## Materials, methods and results

Samples were analysed using a real-time PCR for the detection of *D. nodosus* and then positive samples were further analysed using a duplex real-time PCR to differentiate between benign and virulent strains of *D. nodosus*.

The feet of approximately 121,000 sheep were inspected by specially trained staff at nine slaughterhouses in Southern Norway. There were 132 inspection days at six slaughterhouses in areas where footrot had occurred, i.e. the Counties of Rogaland and Aust-Agder. In addition, 18 inspection days were used at three abattoirs situated in Eastern Norway. Samples for bacterial examination were collected from sheep feet showing clinical signs in agreement with footrot. In addition, two samples should be collected each inspection day if no sheep with clinical signs was found at the slaughterhouses situated outside the County of Rogaland.

A total of 172 animals originating from 92 different flocks were examined by PCR. No virulent strains of the bacterium *D. nodosus* were detected.

In addition to this programme the “Healthy feet” project and the Norwegian Food Safety Authority inspected and sampled 180 flocks in the field related to an outbreak in Aust-Agder in 2013 and due to disease outbreaks in Rogaland. Eighty-four out of 290 samples were positive for *D. nodosus*, and virulent strains of the bacterium were found in three flocks, two in Rogaland and one in Aust-Agder (1).

## Discussion

The absence of positive samples from the slaughterhouse based surveillance indicates that the occurrence of severe footrot is low.

Preliminary results from an evaluation of the surveillance programme estimates that the prevalence is less than 0.5% - corresponding to less than 12 infected flocks in Rogaland. The probability of the disease being spread outside Rogaland and Aust-Agder is very low (2).

The finding of three new flocks based on clinical symptoms and tracing of contacts shows the importance of continued awareness of footrot as well as continued active surveillance.

## References

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