Veterinærinstituttet
Norwegian Veterinary Institute

Rapport 42- 2022

The surveillance programme for *Mycoplasma bovis* in Norway 2021

REPORT 42/2022

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Suggested citation

Ånestad, Lise Marie, Moldal, Torfinn, Hopp, Petter and Klevar, Siv. The surveillance programme for *Mycoplasma bovis* in Norway 2021. Surveillance program report. Veterinærinstituttet 2022. © Norwegian Veterinary Institute, copy permitted with citation.

Quality controlled by

Merete Hofshagen, Director of Animal Health, Animal Welfare and Food Safety, Norwegian Veterinary Institute

Published

2022 on www.vetinst.no

ISSN 1890-3290 (electronic edition)

Commissioned by

Norwegian Food Safety Authority

Mattilsynet

Colophon

Cover design: Reine Linjer

Cover photo: Ingrid Toftaker

www.vetinst.no

Content

Summary

In 2021, samples from 45 calves in nine herds with clinical respiratory disease were included for sampling and analysis in the programme. Serum from the animals were analysed for antibodies against *Mycoplasma bovis*. All the samples were negative for *M. bovis*.

Introduction

Mycoplasma bovis is a pathogen of emerging significance in cattle throughout the world. *M. bovis* can causes a range of diseases, including mastitis, arthritis, and pneumonia. The bacteria has never been detected in Norway, however due to the recent introduction of *M. bovis* in Finland (1) and the high occurrence in neighbouring countries, a passive clinical surveillance programme was initiated. The criteria for submission was cattle herds with high occurrence of respiratory diseases in calves. This criterion was based on data collected in Great Britain, which demonstrated a significant proportion of pneumonia (86.4%) in diagnoses due to *M. bovis* infections (2).

Recent investigation of *M. bovis* in Norway includes a surveillance programme performed in 2018 "*Smittemessige konsekvenser av grovfôrimport i 2018*" (3). The aim of the programme was to monitor introduction of selected pathogens, exotic for Norwegian livestock, after the increased import of roughage due to drought in Norway in 2018 and included investigation of antibodies against *M. bovis* in bulk milk of which all were negative.

The Norwegian Food Safety Authority was responsible for implementing the surveillance programme. The Norwegian Veterinary Institute was in charge of planning the programme, coordinating collection of samples from veterinary practitioners, performing the analyses and reporting the results.

Aim of the programme

The aim of the surveillance programme is to supplement documentation of the freedom of *M. bovis*, furthermore to increase the awareness and preparedness in case of introduction of *M. bovis*.

Materials and methods

Blood samples (n=45) from animals with clinical respiratory disease were collected by the herd veterinarian. Five blood samples were collected from each herd.

Serum samples were analysed in duplicates for specific antibodies against *M. bovis* using the ID Screen®Mycoplasma bovis Indirect (IDvet Grabels, France)(4). If the result was doubtful or positive, the sample was re-tested using the same ELISA. If the result then was negative, the sample was concluded to be negative. If the result was inconclusive, a new blood sample and swabs from the upper airway of the suspected animal, would be requested and tested as described above.

Swabs were analysed using a real-time PCR for detection of the *opp*D gene of *M. bovis* (5).

Result

When analysing the 45 serum samples from calves of nine different herds, 44 were negative for antibodies against *M. bovis,* and one was doubtful. The doubtful sample was followed-up by requesting blood samples and swabs from five calves in the herd of origin, including the animal with the doubtful result. All swabs and blood samples were negative. In conclusion, *M. bovis* was not detected in any of the samples.

Discussion

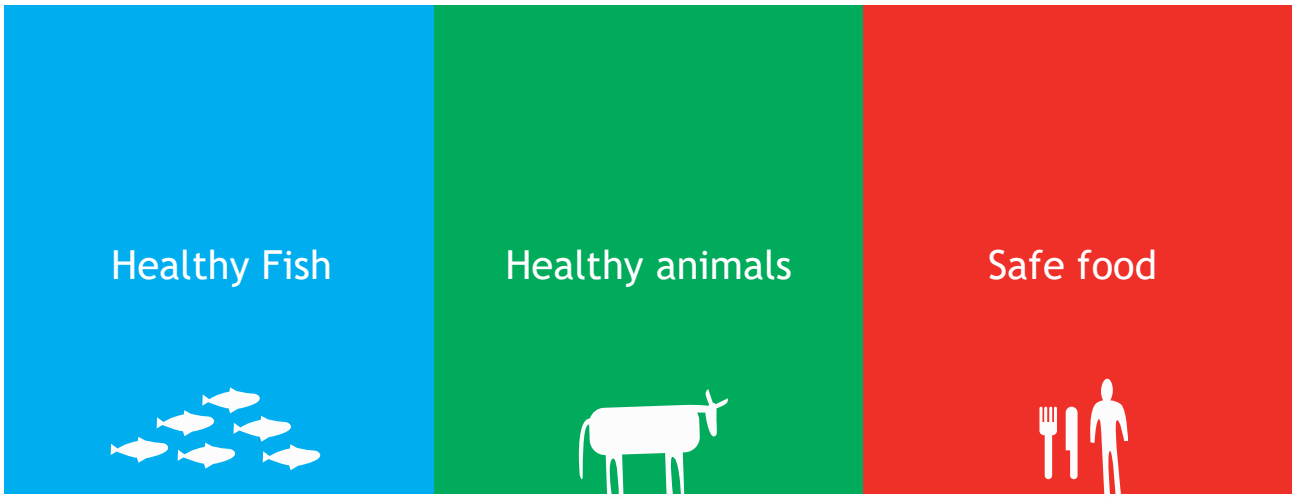
Mycoplasma bovis was not detected in any of the herds sampled in 2021. Although Norwegian livestock appear to be free from the disease, import of infected animals and animal products of bovine origin or feed may pose a threat to the present status (6). The programme is too limited to document freedom from disease, but increases the possibility of rapid detection of a potential introduction, and consecutive control of spreading. The surveillance system also contributes to increased awareness and preparedness if introduction should occur.

Acknowledgments

The authors thank all the persons who have contributed in collecting, preparing and examining the samples. The authors would also like to thank all the technical staff from the NVI for performing the analyses with excellence.

References

1. Haapala, V.; Pohjanvirta, T.; Vähänikkilä, N.; Halkilahti, J.; Simonen, H.; Pelkonen, S.; Soveri, T.; Simojoki, H.; Autio, T. Semen as a source of Mycoplasma bovis mastitis in dairy herds. Vet. Microbiol. 2018, 216, 60–66.
2. Wawegama, N.K.; Browning, G.F.; Kanci, A.; Marenda, M.S.; Markham, F.F. Development of a Recombinant Protein-Based Enzyme-Linked Immunosorbent Assay for Diagnosis of Mycoplasma bovis Infection in Cattle. Clin. Vaccine Immunol. 2014, 21, 196–202.
3. Klem, Thea Blystad, Nilssen, Nicolay Rustad, Nordstoga, Anne Bang, Kampen, Annette Hegermann, Hopp, Petter, Sølverød Liv, Lindheim, Dag and Klevar, Siv. The surveillance programme "Smittemessige konsekvenser av grovfôrimporten i 2018. Surveillance program report. Veterinærinstituttet 2022. © Norwegian Veterinary Institute, copy permitted with citation.
4. Dudek, K.; Nicholas, R.A.J.; Szacawa, E.; Bednarek, D. *Mycoplasma bovis* Infections—Occurrence, Diagnosis and Control. *Pathogens* **2020**, *9*, 640. https://doi.org/10.3390/pathogens9080640
5. Sachse, K., Salam, H. S., Diller, R., Schubert, E., Hoffmann, B. & Hotzel, H. (2010) Use of a novel real-time PCR technique to monitor and quantitate Mycoplasma bovis infection in cattle herds with mastitis and respiratory disease. Vet J, 186: 3, 299-303.
6. Klem, Thea Blystad, Moldal, Torfinn and Klevar, Siv. The surveillance programme for *Mycoplasma bovis* in Norway 2020. Surveillance programmes for terrestrial and aquatic animals in Norway. Annual report 2020. Oslo: Norwegian Veterinary Institute 2021.



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