



# The surveillance programme for paratuberculosis in Norway 2025

REPORT 38/2026

# The surveillance programme for paratuberculosis in Norway 2025

## Authors

Annette H Kampen, Girum T Tessema, Thea A Fatnes, Mette Valheim, Attila Tarpai

## Suggested citation

Kampen, Annette H, Tessema, Girum T, Thea Fatnes, Valheim, Mette, Tarpai, Attila. The surveillance programme for paratuberculosis in Norway 2025. Surveillance programme report. Veterinærinstituttet 2026. © Norwegian Veterinary Institute, copy permitted with citation

## Quality controlled by

Merete Hofshagen, Surveillance Programme Coordinator, Norwegian Veterinary Institute

## Commissioned by

Norwegian Food Safety Authority



## Published

2026 on [www.vetinst.no](http://www.vetinst.no)  
ISSN 1890-3290 (electronic edition)  
© Norwegian Veterinary Institute 2026

## Colophon

Cover photo: Colourbox  
[www.vetinst.no](http://www.vetinst.no)

# Content

|                                     |   |
|-------------------------------------|---|
| Summary.....                        | 3 |
| Introduction .....                  | 3 |
| Aim.....                            | 3 |
| Materials and methods.....          | 3 |
| Active surveillance .....           | 3 |
| Passive clinical surveillance ..... | 4 |
| Methods.....                        | 4 |
| Results.....                        | 4 |
| Discussion .....                    | 5 |
| Acknowledgements .....              | 5 |
| References .....                    | 6 |

## Summary

In 2025, *Mycobacterium avium* subsp. *paratuberculosis* was not detected in Norway.

## Introduction

Paratuberculosis in ruminants is a notifiable disease (List 2) in Norway. *Mycobacterium avium* subsp. *paratuberculosis* infection was first diagnosed in cattle and goats in Norway in 1907 and 1934, respectively (1, 2). More recently, *M. avium* subsp. *paratuberculosis* was detected for the first time in sheep in 2002 and in alpaca in 2014 (3).

The control of this disease is enforced by government legislation and includes restrictions on animal movement.

In goat herds, government restrictions combined with vaccination was previously used to control paratuberculosis. However, in recent years a large proportion of the Norwegian goat herds has undergone a disease eradication programme (4), and vaccination is now prohibited.

A national surveillance programme for paratuberculosis in cattle was established in 1996 (5, 6). The programme was extended to llamas and alpacas in 2000, goats in 2001, and sheep in 2002.

Descriptions of occurrence of the disease in Norway, control measures adopted until 1995, and results from the surveillance programmes from 1996 to 2001, can be found in the annual report for 2001 (6). The number of new infected herds detected since 1996 when the surveillance programme started, is given in Figure 1.

## Aim

The aim of the surveillance programme for paratuberculosis is to detect and control the infection in the Norwegian ruminant and camelid population.

## Materials and methods

The programme includes cattle every year and goats or camelids alternating every other year. In 2025, cattle and camelids were samples in the programme. Faecal samples were collected at farms, and organs were collected at slaughterhouses, by the Norwegian Food Safety Authority.

### Active surveillance

#### Cattle

The target population consisted of all cattle herds with dairy cows or suckler cows according to the register of production subsidies as of October 2025. Two hundred cattle herds were selected for sampling. Faecal samples from the five oldest animals in each herd were to be collected.

#### Camelids

The target population consisted of all llama and alpaca holdings. The number of herds to be sampled was predefined for each district. Faecal samples from five animals older than four years of age should be collected in each herd. If the herd had less than five animals, all animals were to be sampled.

## Passive clinical surveillance

Clinical surveillance has been part of the programme since 2000. Samples are collected from cattle older than three years that show clinical signs like reduced milk production, weight loss, diarrhoea lasting more than 14 days, and from other species on clinical suspicion.

## Methods

A real-time PCR-method was used for detection of *M. avium* subsp. *paratuberculosis* genome in the faecal samples (7). This test is based on amplification of the DNA segment IS900 target present in multiple copies of *M. avium* subsp. *paratuberculosis* genome.

For faecal sample preparation approximately 2 - 3 g of the sample was diluted in sterile demineralised water (1% dilution, w/v). The faecal mixture was filtered using the ADIAFILTER (Bio-X Diagnostics, Belgium). The sample was further subjected to mechanical destruction by use of glass beads and disrupted with a homogenizer. The lysate was used for extraction of nucleic acids before real-time PCR using the ADIAVET® REALTIME PARATB kit (Bio-X Diagnostics, Belgium).

In case faecal samples tested positive by PCR, further confirmation would have been performed by bacterial culture test.

If organ samples had been received, they would have been examined for macroscopic pathological changes, and histopathological examination would be performed if lesions were present. In addition, bacteriological confirmatory diagnostic tests would be performed.

## Results

In 2025, samples from 936 cattle from 189 herds and 212 camelids from 68 herds were all tested negative for *M. avium* subsp. *paratuberculosis* by PCR. None of the faecal samples in the 2025 surveillance programme were positive by PCR, and thus bacteriological culture was not performed.

No organ samples were received in the surveillance programme in 2025.

Details on type of samples and number of herds/locations are described in Table 1.

Table 1. Number of samples analysed for *Mycobacterium avium* subsp. *paratuberculosis* in the 2025 surveillance programme.

| Species  | Type of sampling   | Number of animals (herds or locations) |                 |                |                |
|----------|--------------------|--|-----------------|----------------|----------------|
|          |                    | Faecal                                 | Cadavers/Organs | Total positive | Total analysed |
| Cattle   | Risk-based samples | 936 (189)                              | -               | 0 (0)          | 936 (189)      |
|          | Suspected cases    | -                                      | -               |                |                |
| Camelids | Risk-based samples | 212 (68)                               | -               | 0 (0)          | 212 (68)       |
|          | Suspected cases    | -                                      | -               |                |                |

Since the surveillance programme for paratuberculosis started in 1996, *M. avium* subsp. *paratuberculosis* has been detected in altogether 35 goat herds (some of these also positive before 1996), 11 cattle herds, six sheep flocks, and two alpaca herds (Figure 1). In the figure, only herds where *M. avium* subsp. *paratuberculosis* is detected for the first time are presented. However, a herd that has previously been reported as positive for *M.*

*avium* subsp. *paratuberculosis*, can be counted as a herd with new cases again if *M. avium* subsp. *paratuberculosis* is reported in a different ruminant species.

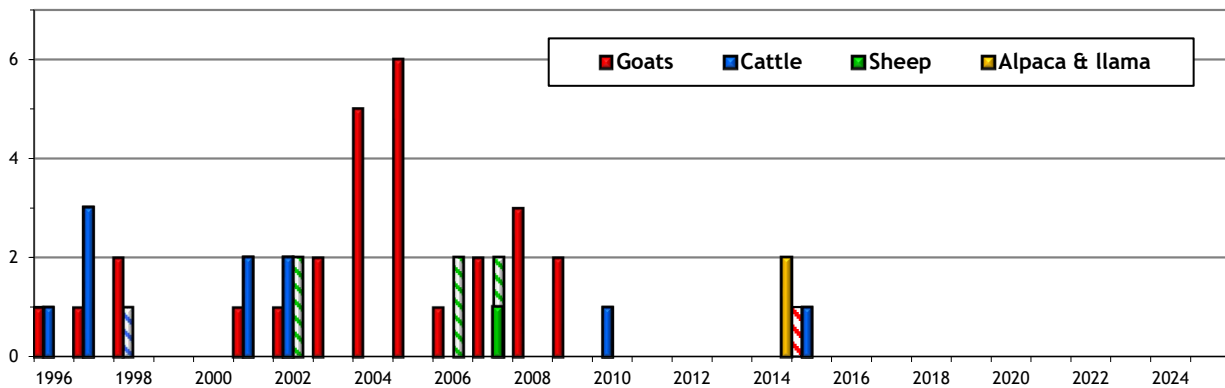


Figure 1. Number of new herds being reported positive for *Mycobacterium avium* subsp. *paratuberculosis* irrespective whether the samples were collected as part of the surveillance programme or not. Striped bars represent herds where another species in the same holding previously was reported positive.

## Discussion

*Mycobacterium avium* subsp. *paratuberculosis* has not been detected in Norway since 2015.

Paratuberculosis in goats has previously been detected in five out of the 15 counties in Norway (8). All the cases among cattle and sheep have been traced to imported animals (seven cattle herds, one sheep flock) or contact with infected goats (three cattle herds, five sheep flocks). Importation of live cattle is limited and largely replaced by importation of semen and embryos.

The dairy organisation (TINE) and the Norwegian Goat Health Services have conducted an eradication programme named “Healthier goats”, targeting three infectious diseases that were previously widespread in goats; namely caprine arthritis encephalitis, caseous lymphadenitis and paratuberculosis. In total 612 goat herds were included in the programme from 2001 to 2014 (4).

All dairy goat herds in Norway have joined the eradication programme. All known goat herds diagnosed with paratuberculosis have joined the eradication programme or have slaughtered their animals. Hence, Norway is in the unique position in the world of currently having no known positive cases of paratuberculosis (9).

Even though the eradication programme in goats has reduced the indigenous source of *M. avium* subsp. *paratuberculosis*, there may still be undetected infected goat herds or other species that pose a risk for new infections to the Norwegian ruminant population in the coming years. Furthermore, imports of cattle, sheep, goats, llamas and alpacas as well as import of animal feed, for example hay, may present risk for new introduction of *M. avium* subsp. *paratuberculosis* infection into the Norwegian ruminant population.

## Acknowledgements

The authors would like to thank the technical staff for performing the analyses with excellence. In particular, Hilde Welde has contributed substantially to the project.

## References

1. Horne H. Kronisk pseudotuberkuløs tarmbetændelse hos kvæg konstateret i Norge [Chronic pseudo-tuberculous intestinal inflammation demonstrated in Norway, No]. *Nor Vet Tidsskr.* 1908; 20: 70-7.
2. Holmboe FV, Slagsvold L. Paratuberkulose hos sau og geit [Paratuberculosis in sheep and goats, No]. *Skand Vet Tidsskr.* 1934; 24: 573-85.
3. Kampen AH, Tessema GT, Hermansen L, Valheim M, Hopp, P. The surveillance programme for paratuberculosis in Norway 2024. Surveillance programmes for terrestrial and aquatic animals in Norway. Annual report 2024. Oslo: Norwegian Veterinary Institute 2025.
4. TINE Rådgiving, Helsetjenesten for geit. Syk – friskere - friskest. Sluttrapport prosjekt Friskere geiter 2001-2015. [Healthier goats project, final report 2001-2015, No]. Ås: Helsetjenesten for Geit; 2016.
5. Djønne B, Fredriksen B, Nyberg O, Sigurðardóttir ÓG, Tharaldsen J. National bovine paratuberculosis program in Norway. *Bull Int Dairy Fed.* 2001; 364: 75-80.
6. Djønne B, Nyberg O, Fredriksen B, Sigurðardóttir ÓG, Tharaldsen J. The surveillance and control programme for paratuberculosis in Norway. In: Fredriksen B, Mørk T (editors). Surveillance and control programmes for terrestrial and aquatic animals in Norway. Annual report 2001. Oslo: National Veterinary Institute; 2002. p. 45-54.
7. Green EP, Tizard ML, Moss MT, Thompson J, Winterbourne DJ, McFadden JJ, Hermon-Taylor J. Sequence and characteristics of IS900, an insertion element identified in a human Crohn's disease isolate of *Mycobacterium paratuberculosis*. *Nucleic Acids Res.* 1989 Nov 25;17(22):9063-73. doi: 10.1093/nar/17.22.9063. PMID: 2555783; PMCID: PMC335114.
8. Lybeck KR, Tessema GT, Kampen AH, Djønne B and Agdestein A. Paratuberculosis in Goats. In: Behr MA, Stevenson K, Kapur V (Eds.) Paratuberculosis. Organism, Disease, Control. Boston. 2020; 175-88.
9. Whittington R, Donat K, Weber MF, Kelton D, Nielsen SS, Eisenberg S, Arrigoni N et al. Control of paratuberculosis: who, why and how. A review of 48 countries. *BMC Vet Res.* 2019; 15:198.

# Health and well-being for animals and people



Norwegian  
Veterinary Institute

Ås ▪ Sandnes ▪ Bergen ▪ Trondheim ▪ Harstad ▪ Tromsø

[postmottak@vetinst.no](mailto:postmottak@vetinst.no)

[vetinst.no](http://vetinst.no)