

# Prevalence, biosecurity and risk management of Bovine Coronavirus infections on dairy farms in Europe.

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## INTRODUCTION

- ▶ Bovine Coronavirus (BCoV): worldwide suspected endemic.
- ▶ No centralized European data available in the scientific literature concerning prevalence.
- ▶ No studies evaluated herd level risk factors for BCoV.
- ▶ A study is required to determine the prevalence and herd-level risk factors of BCoV on commercial European dairy farms.

## OBJECTIVE

A cross-sectional field study to estimate the prevalence of Bovine Coronavirus (BCoV) in dairy production in Europe, and to characterize farm-level risk factors in management and biosecurity that are linked to BCoV infection in neonatal and weaned dairy calves.

## MATERIALS AND METHODS

- ▶ Convenience sample of 130 European dairy farms with at least 100 lactating cows. Samples are taken between September 2021 and September 2022.
- ▶ From 10-20 neonatal calves, 10-20 recently weaned calves and 5-10 fresh cows. All samples are tested individually, no pooled samples.
  - Nasal and faecal swabs: BCoV detection using semiquantitative Real Time PCR (RT-PCR).
  - Blood samples: BCoV antibody detection (expressed in percent optical density (%OD)).
- ▶ Bulk tank milk (BTM) samples: BCoV antibody detection (%OD).
- ▶ 2 questionnaires per farm:
  - General farm description and husbandry.
  - Biosecurity (Biocheck survey, <https://biocheck.ugent.be>, Ugent, BE).
- ▶ Descriptive and inferential statistics were performed.

Bovine Coronavirus (BCoV) is commonly present in both the respiratory and enteric pathway in the dairy cattle population in Europe.



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## RESULTS

- ▶ The study is ongoing.
- ▶ Results presented from 45 dairy farms in Belgium, Czech Republic, Denmark, France, Italy, Netherlands, Portugal, and Sweden.
- ▶ All herds had BCoV antibodies in BTM. Mean antibody levels in BTM were 86%OD. Mean serum antibody levels were 56%OD in neonatal calves, 39%OD in weaned calves and 62%OD in fresh cows.
- ▶ Presence of BCoV was confirmed in 17% of nasal and faecal samples from 27 herds. 50% of herds had one or more BCoV positive results.
- ▶ Correlation between antibodies and virus isolation was 47%.
- ▶ The BioCheck was scored on 41 dairies; overall 58%, external biosecurity 69% and internal biosecurity score 41%.

Location of the 45 European dairy farms.



Faecal swabs, nasal swabs, blood samples, bulk tank milk and over 200 questions per farm.



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