

Neospora caninum antibody detection in serum and milk from Estonian dairy herds



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INTRODUCTION

Acknowledgement of *Neospora caninum* (Nc) as an important, but enigmatic, parasitic infection in cattle has steadily increased since its finding in 1984. Increased incidences of abortion and other reproduction problems have been associated with the pathogen worldwide. Infection rates vary greatly between countries and herds [1]. This study gives the first look into larger Estonian dairy herd infection status with Nc.

MATERIALS AND METHODS

The study consists of: 320 herd bulk milk samples, 1972 individual serum samples of 19-20 cattle between 1-14 years from 100 farms, and additional 119 individual samples from two farms with high milk OD for estimation of maximum in-herd prevalences. Samples were collected from Estonian herds between 2007 and 2008. All samples were randomized and tested for presence of antibodies against Nc using an iscom-ELISA (SVANOVIR® *Neospora*-ab ELISA, SVANOVA). Milk samples were diluted 1:2 and tested as singles, and serum 1:100 and tested as doubles. Cut off value = 20% of the kits positive control (PP). Herd sizes were statistically compared using chi-square analysis.

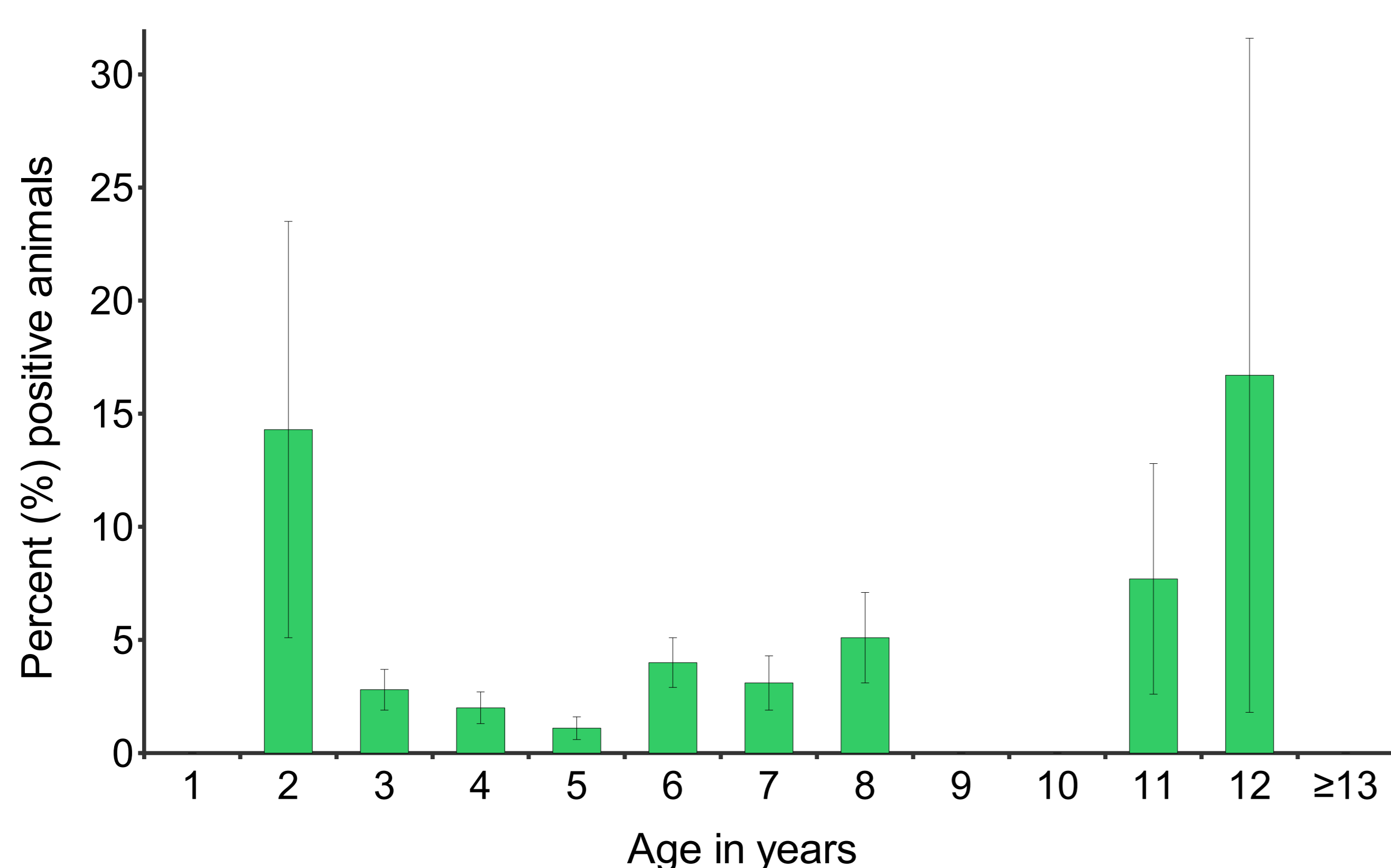


Figure 1: Age distribution of 49 seropositive cattle out of 1972 samples from Estonian dairy farms tested for *Neospora caninum* with 95% confidence intervals error bars.

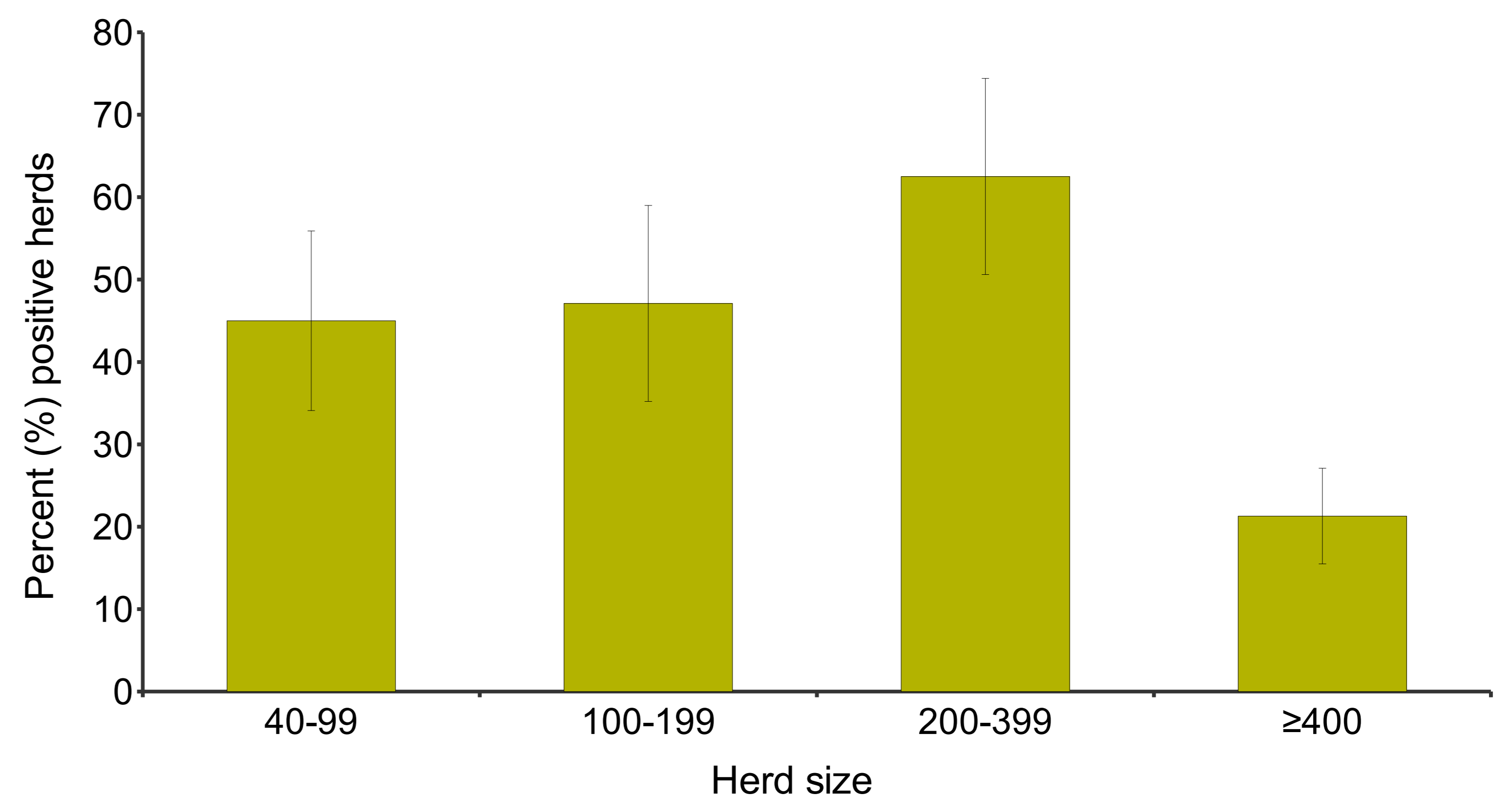


Figure 2: Herds with minimum one seropositive animal for *Neospora caninum* according to herd size with 95% confidence intervals error bars.

RESULTS AND DISCUSSION

Neospora caninum sero-positive animals were found in 2.5% (95% CI: 1.8-3.2) of the animals, while 37.0% (95% CI: 27.4-46.6) of the herds had minimum one seropositive animal. Bulk milk samples tested positive in 16.3% (95% CI: 12.3-20.3) of the herds, being very similar to Latvian reports [2]. Seropositive animals dominate among 1-2 or 12-13 year old animals (Figure 1), which may not contribute milk production as the intermediate age groups which explain the difference between herd prevalences seen with the two methods. Serum samples collected from two herds (n=79 and n=40) with the highest bulk milk PP of 53 and 34 respectively resulted in 25 and 35% of the animals being seropositive. The within-herd prevalence of Nc in these farms was high when comparing to Swedish reports [3]. Herds with 400 cows or more animals tended to be less likely to be positive (p=0.06), but it is unclear if this is due to management, age distribution or other factors (Figure 2).

CONCLUSIONS

- 2.5% of cattle were positive for *Neospora caninum* antibodies
- 37% of dairy herds had at least one seropositive cow
- There is a tendency of herds larger than 400 cattle to have less infected animals.
- Within-herd prevalences can reach up to 35%
- 16% of dairy herds tested positive from bulk milk samples

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