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IMPACT OF MASTITIS VACCINATION ON CLINICAL MASTITIS RATES IN 27 BELGIAN COMMERCIAL DAIRY FARMS

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BACKGROUND AND OBJECTIVE

Mastitis remains the most prevalent disease in dairy cattle and represents a major challenge for animal welfare, milk quality, and farm profitability, accounting for a substantial proportion of antibiotic use on dairy farms and raising concerns among stakeholders (Ruegg, 2017; Tommasoni, et al., 2023). Preventive strategies, such as vaccination against major mastitis pathogens, are increasingly adopted. Given the limited availability of multi-farm data under commercial conditions in Belgium, this study assesses the association between mastitis vaccination and changes in clinical mastitis rates.

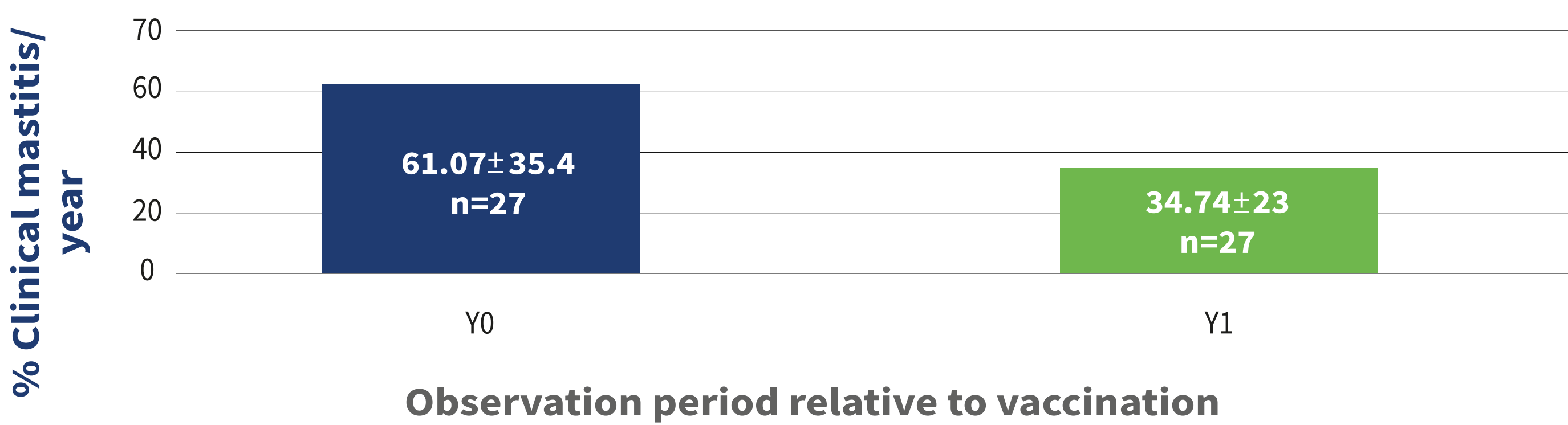
MATERIAL & METHODS

A retrospective, multi-farm observational before-and-after study was conducted using farm records from 27 Belgian dairy farms. Each farm served as its own control by comparing a 12-month pre-vaccination period (Y0) with the subsequent 12-month period under vaccination (Y1).

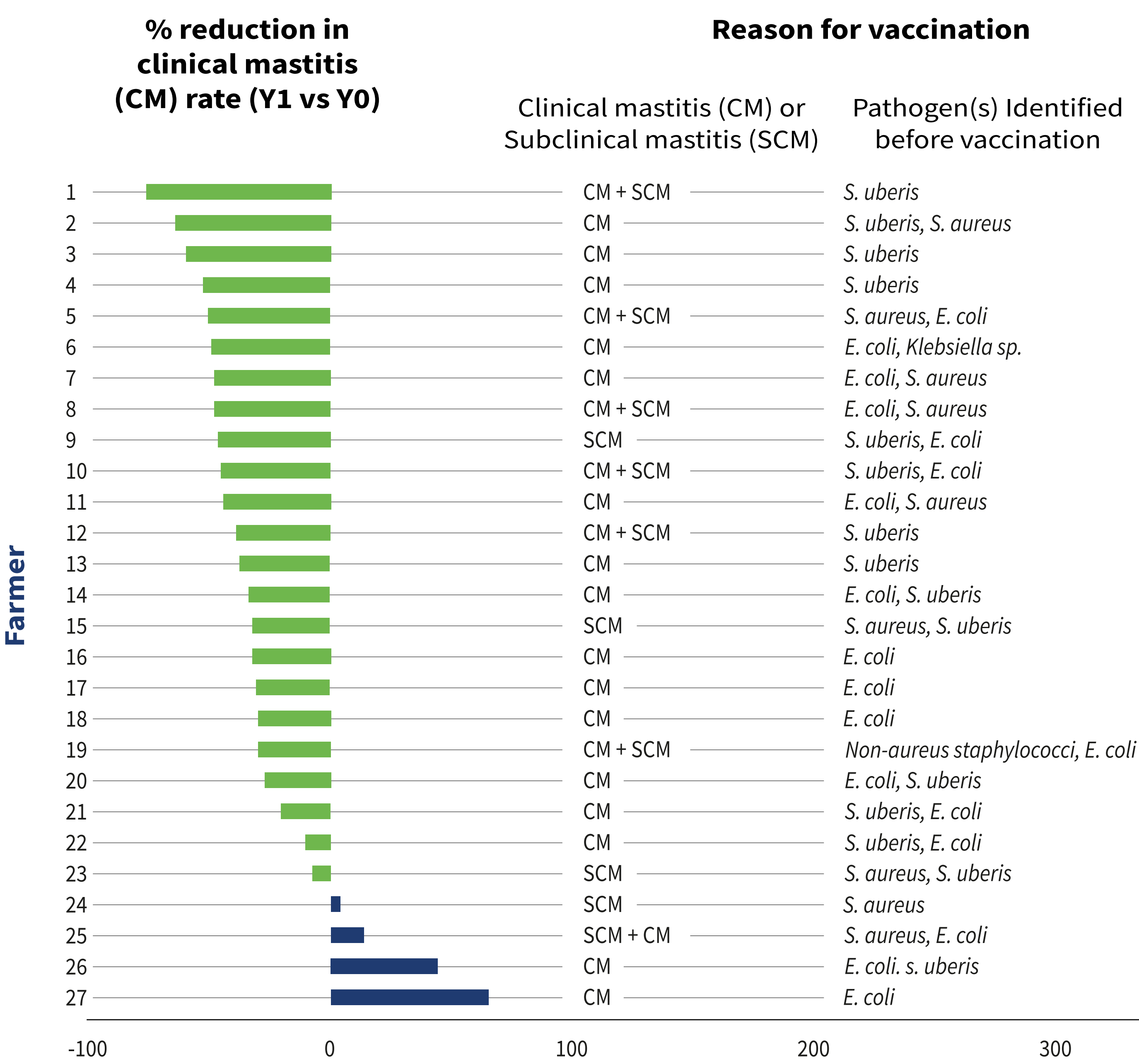
Vaccination was implemented under veterinary supervision and guidance, with a commercially available multivalent vaccine STARTVAC® (17 farms) against *Staphylococcus aureus* (*S. aureus*) and *Escherichia coli* (*E. coli*), and/or a monovalent vaccine UBAC® against *Streptococcus uberis* (*S. uberis*). STARTVAC® was administered as two injections at a one-month interval, followed by booster injections every 2.5 to 3 months in lactating cows, dry cows, and heifers. UBAC® (7 farms) was administered as three injections at one-month intervals, followed by booster injections every six months. On farms using both vaccines (3 farms), booster injections were performed according to the respective schedules of each vaccine. Clinical mastitis was analysed as an annual herd-level rate, calculated as the number of recorded clinical mastitis cases relative to the number of lactating cows. Data were analysed using a linear regression model with group as a factor and “farm” as a random factor.

RESULTS

The average clinical mastitis rate decreased significantly from 61.07% (± 35.4) in Y0 to 34.74% (± 23.0) in Y1 (p < 0.001), corresponding to an average relative reduction of 43.11% (Graph 1). At the farm level, 23 out of 27 farms (85.18%) showed a reduction in clinical mastitis rate, with 40.7% of farms achieving relative reductions greater than 50% (Graph 2). Four farms showed an increase in clinical mastitis rate during Y1.



Graph 1. Average 12-month clinical mastitis rate before (Y0) and during the first year of mastitis vaccination (Y1)



Graph 2. Relative change in clinical mastitis rate per farm during the first year of mastitis vaccination (Y1 vs Y0)

CONCLUSIONS

Mastitis vaccination was associated with a significant reduction in clinical mastitis rates in Belgian dairy farms, despite heterogeneity in farm systems, herd sizes, management practices, pathogen profiles, and vaccination strategies. Certain farms experienced outbreaks caused by pathogens not targeted by the implemented vaccine. Given the multifactorial nature of mastitis, vaccination should be considered as part of a broader mastitis control program.

REFERENCES

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