Randomized controlled trial: impact of an inactivated vaccine against biofilm-forming *Staphylococcus* spp. on udder health parameters in yearling dairy goats.

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Introduction

Staphylococci are the main pathogens causing clinical and subclinical mastitis in dairy goats[1]. Implementing a mastitis control program helps improving milk quality and prevents disease[2]. One of the measures that can be included in control programs is vaccination. The study evaluates the impact of an inactivated vaccine against biofilm-forming *Staphylococcus* spp (VIMCO®, HIPRA) on udder health parameters in yearling goats.

Materials and methods

A longitudinal, randomized field trial was performed on the commercial dairy goat farm called " De Römer Dairy Goats" (Heythuysen, The Netherlands) with 3,000 mainly Saanen goats. A group of 349 pregnant yearling goats (12 – 16 months) was randomly divided into a control group (n=180) and a vaccinated group (n=169). Animals in the vaccinated group were vaccinated (VIMCO®) two times at least 14 days before kidding with a 21 days interval. All goats gave birth within a 5 weeks kidding period (most in February, 2022). On March 10, 2022, all yearling goats were mixed into a group with 1,600 non-vaccinated adult goats.

All goats were scored at the first milking after kidding (T=0) for clinical mastitis by forestripping and inspection of the udder for udder symmetry. Milk yield, somatic cell count (SCC), udder symmetry scores, clinical mastitis cases and death due to gangrenous mastitis were recorded within the 4-month period since the start of vaccination. Overall asymmetry was defined as the percentage of goats with at least one asymmetric udder score at T0, T1 (March 7, 2022) or T2 (April 26, 2022). All data were statistically processed to make a comparison between the intervention and the control group.

Results

At kidding (T0), 5.6% of goats in the control group and 0.6% of goats in the vaccinated group had clinical, non-gangrenous mastitis (p=0.008). Overall asymmetry was detected in 16% and 7.7% of goats in the control and vaccinated group, respectively (p=0.016). Completely dried up udders were present in 5 goats in the control group and 2 goats in the vaccinated group (p=0.5). Death due to gangrenous mastitis was seen in 8 goats in the control group and 4 goats in the vaccinated group (p=0.3). Milk yield and SCC did not differ between the vaccinated group and the control group.

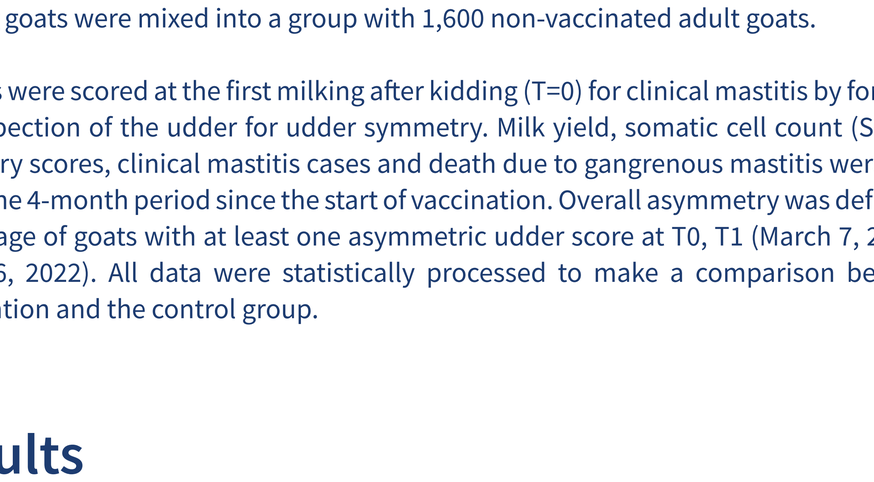

Fig 1. Clinical non-gangrenous mastitis % at T0 (p=0.008)

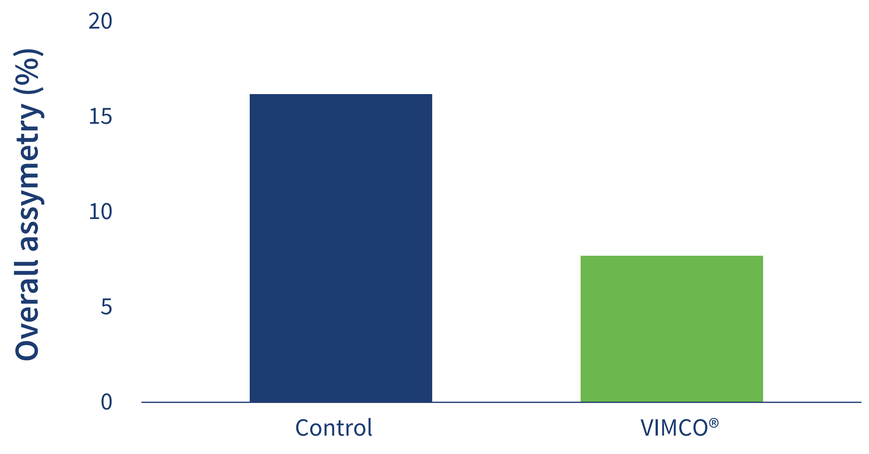

Fig 2. Overall asymmetry % at T0, T1 or T2 (p=0.016)

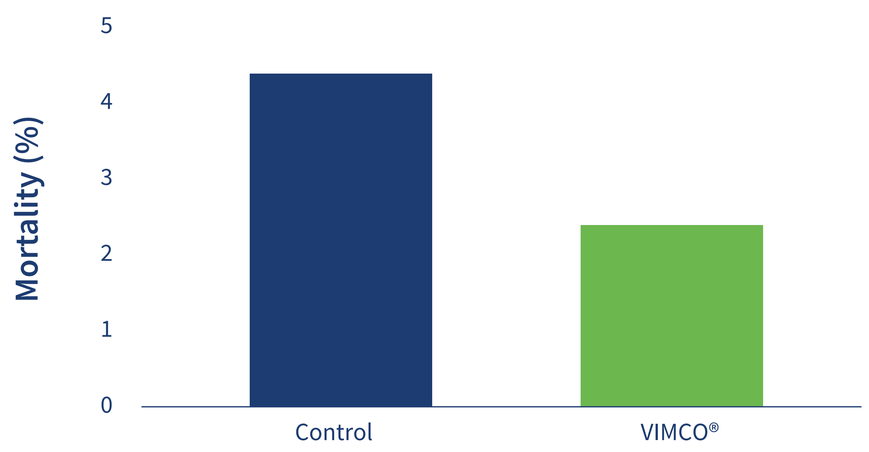

Fig 3. Death % due to gangrenous mastitis (p=0.3)

Conclusions

This trial shows that the vaccine assessed in this study (VIMCO®) prevents in yearling goats clinical mastitis at the first milking, as well as udder asymmetry during first two months after kidding, but an effect on SCC and milk yield remains to be demonstrated. Altogether, vaccination has a positive impact on the udder health of yearling dairy goats.

References

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