

FIELD STUDY: USE OF STARTVAC® BOVINE MASTITIS VACCINE ON A SWEDISH DAIRY FARM



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OBJECTIVE

The aim of this study was to do a follow up on the mastitis incidence in a dairy herd (n=180) during a one-year period of vaccination against *S. aureus*, coagulase negative Staphylococci (CNS) and *E. coli* (STARTVAC®). The study focused mainly on the frequency of clinical and subclinical mastitis, bacteriological culture test results and comparison of somatic cell counts (SCC) of individual cows with reference to the previous year.

MATERIAL AND METHODS

The vaccination period was conducted throughout May 2010 and April 2011. A total of 180 Holstein cows and heifers were included. Animals were kept in a loose housing system and milked three times a day. Control measures undertaken in the herd 12 months before the introduction of the vaccination program included detection of subclinical and clinical mastitis. Detection of subclinical mastitis was carried out monthly after sampling all the cows and culturing milk on blood agar from cows with SCC of > 200,000 cells/ml. Detection of clinical mastitis was carried out on a daily basis by the farmer. Samples were taken from the infected quarter and cultured on blood agar. This procedure was followed by treating the cows with benzyl penicillin procaine at a dose rate of 20 mg/Kg B.W. IM for 5 days in average and a single dose of NSAID. In cases in which gram negative bacteria was the causal agent, enrofloxacin at a dose rate of 5 mg/Kg B.W. IM for 3-6 days and a single dose of NSAID were used. Cows were consequently either culled/treated and/or separated from healthy cows. The decision of which cow to cull was based on fertility, milk yield, and severity of infection.

Furthermore, each newly calved cow was also tested with a CMT in order to detect a higher SCC before it was let into the milking parlor again. These control measures were introduced several years before the beginning of the vaccination program and were not modified during the study. The cows were vaccinated according to the manufacturer's indications (HIPRA): 45 days before calving, 10 days before calving and 52 days post-partum. A 2 ml dose IM in the neck was used each time.

RESULTS

At the end of the study, in April 2011, the SCC decreased to 128,000 from 243,000 cells/ml. A significant decrease of clinical and subclinical mastitis rate of *S. aureus* from 11.7% (n=21) to 4.4% (n=8) was observed (p=0.019). Moreover, a decrease (p=0.089) in CNS from 13.9% (n=25) to 7.8% (n=14) and a slight decrease (p=0.78) of *E. coli* infections and a significant reduction (p=0.022) of the Streptococci 12.2% (n=22) to 5% (n=9) were observed.

Figure 1. Prevalence of clinical and subclinical infections before (2009-2010) and after vaccination period (2010-2011).

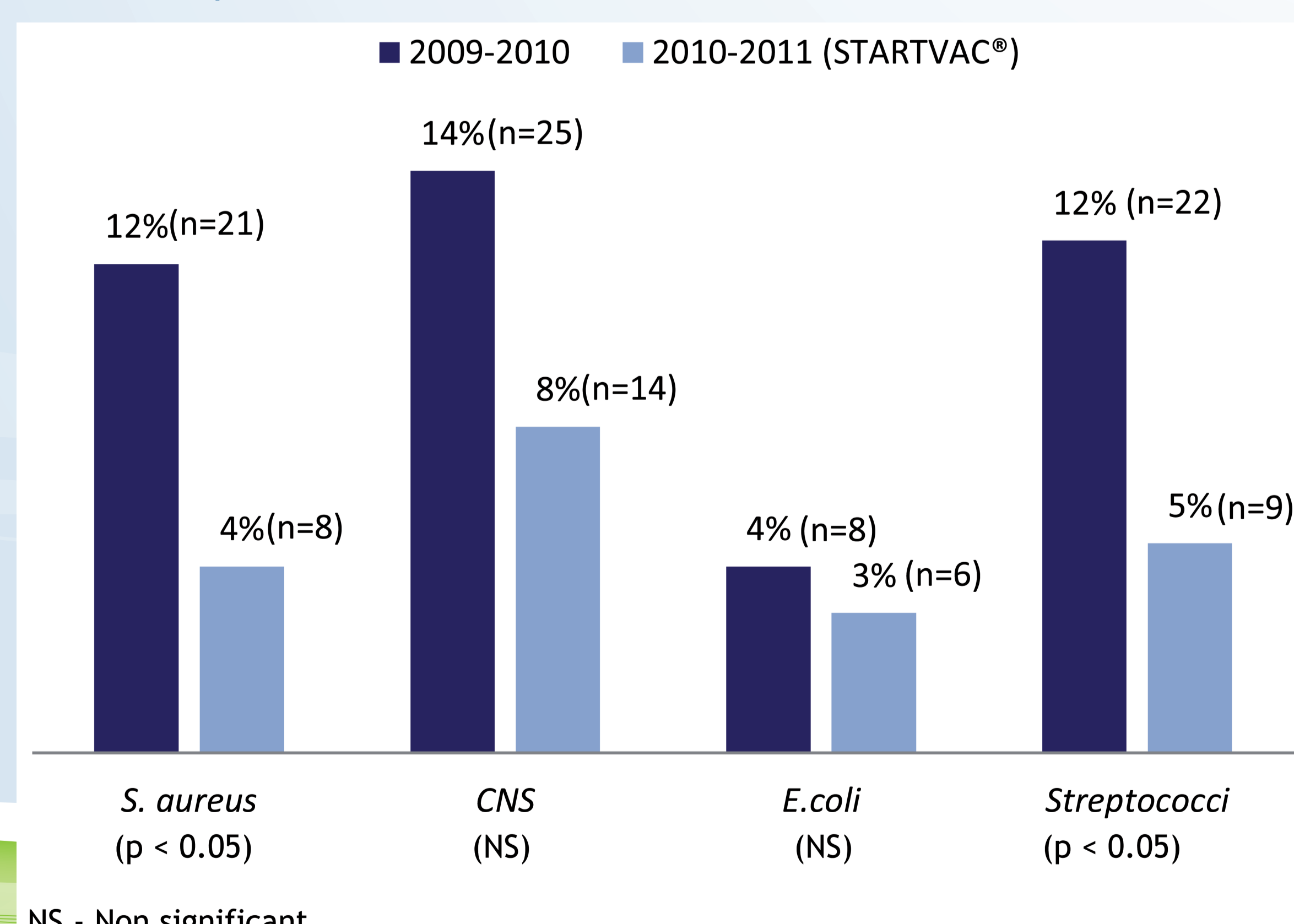


Figure 2. Frequency of subclinical mastitis infections (No. of cases) before (2009-2010) and after vaccination period (2010-2011).

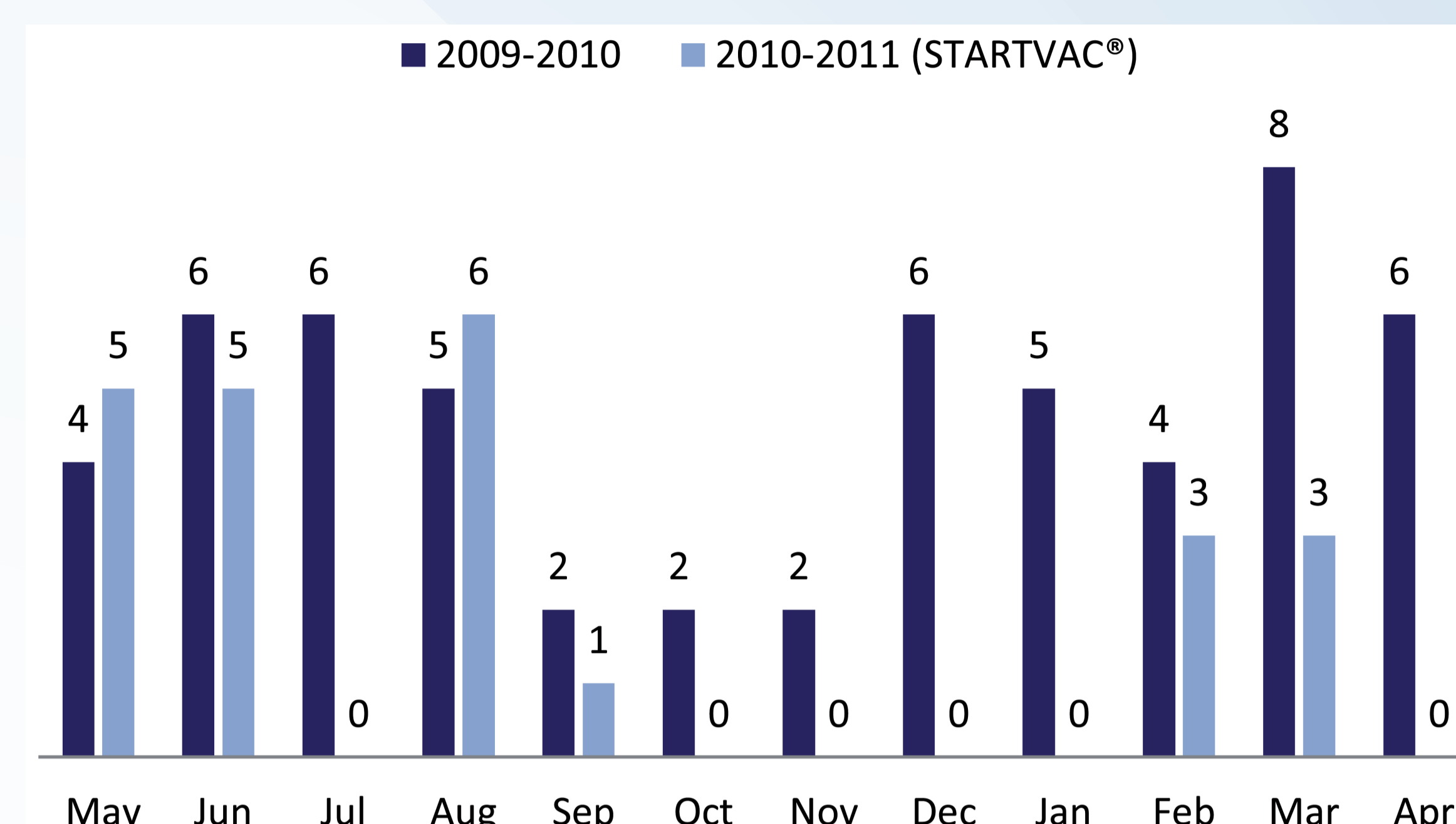


Figure 3. Frequency of clinical mastitis infections (No. of cases) before (2009-2010) and after vaccination period (2010-2011).

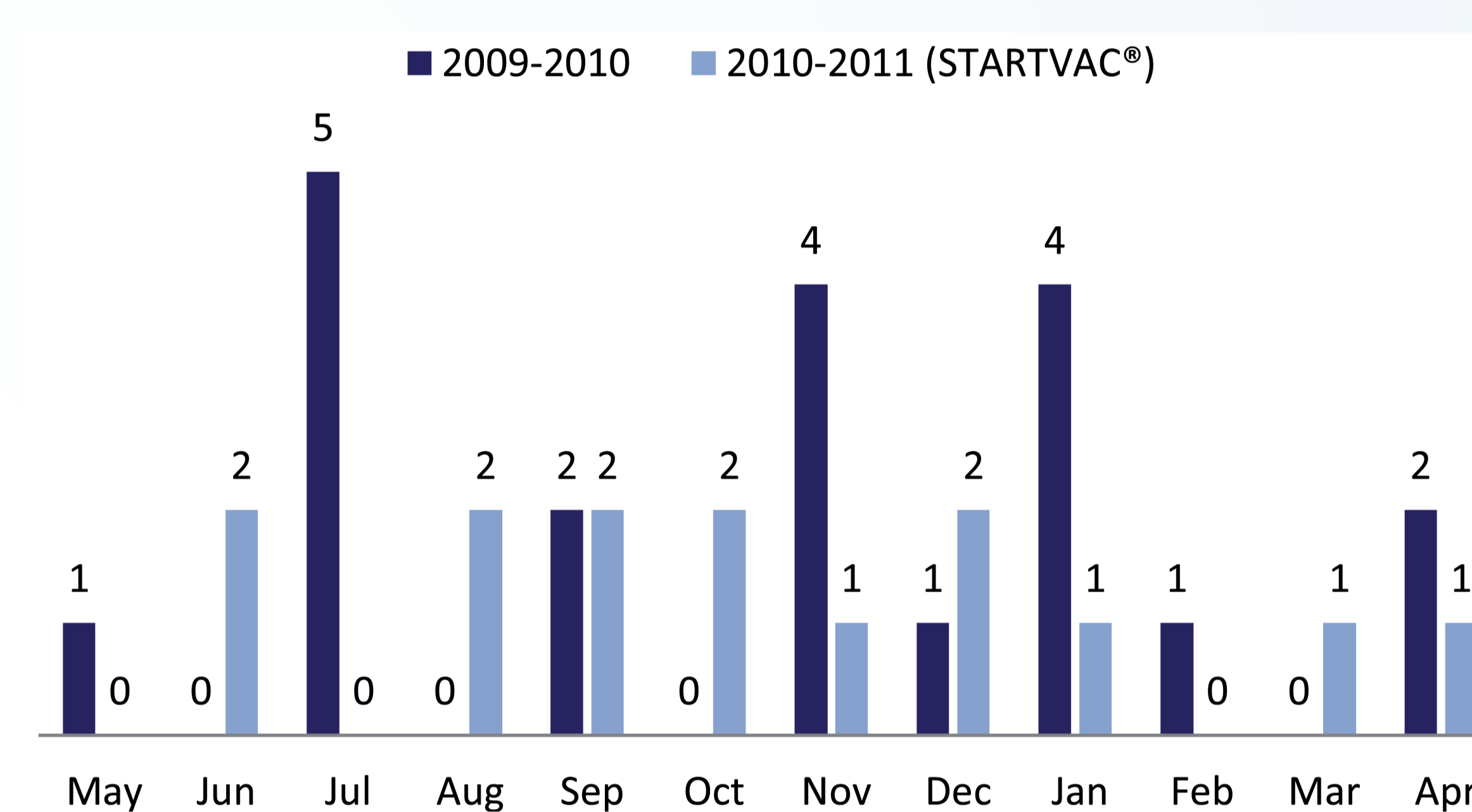
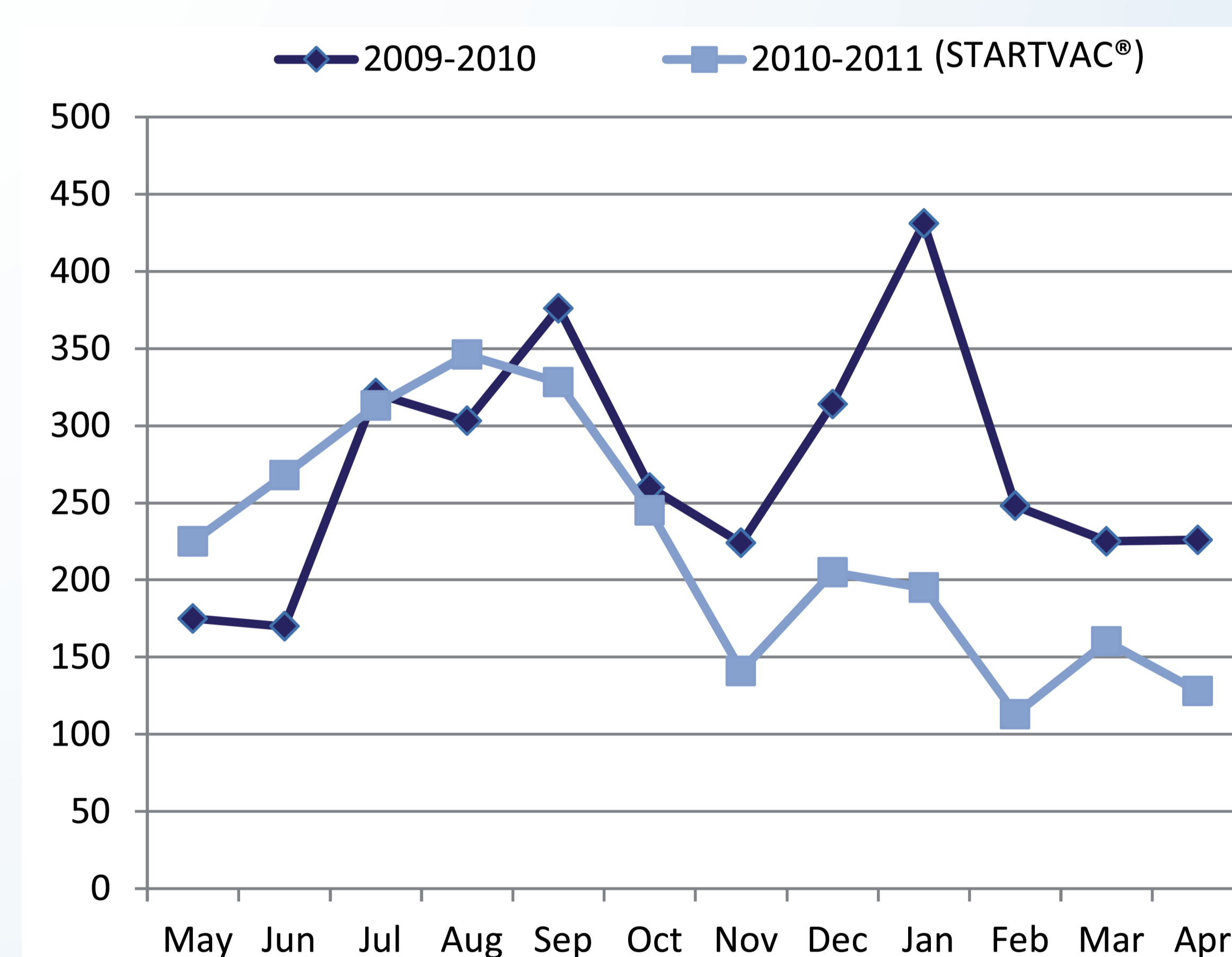


Figure 4. Monthly evolution of SCC (x 1,000 cells/ml) before (2009-2010) and after vaccination period (2010-2011).



CONCLUSION

STARTVAC® was efficacious in controlling subclinical and clinical mastitis infections caused by *S. aureus* (statistically significant p = 0.019). However, no effect can be attributed to vaccination in the decrease of Streptococci infection, as it is not a vaccine against Streptococcal bacteria.

Furthermore, the vaccine was also efficacious by decreasing the individual SCC one year after the vaccination period, as low as below 150,000 cells/ml.