

EFFECT OF THE STARTVAC[®] VACCINE IN CONTROLLING INTRAMAMMARY INFECTION CAUSED BY STAPHYLOCOCCUS AUREUS

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OBJECTIVE

The main objective of this trial was to evaluate the impact of the use of the bovine mastitis vaccine STARTVAC[®] in a 19 dairy cow farm with *Staphylococcus aureus* problems.

INTRODUCTION

Antibiotic therapy is that most commonly used in cases of incidence of subclinical mastitis on dairy farms. Depending on the mastitis-causing pathogen, antibiotic treatment is not always effective. This therapy is mostly ineffective against *S. aureus* because of its ability to survive intracellularly and to produce Biofilm or Slime. With a new vaccine against mastitis on the market (STARTVAC[®]), there is now a prophylactic alternative to the use of antibiotics available. There are several studies that show that bovine mastitis vaccination can be effective in controlling intramammary infection caused mainly by *S. aureus* and *E. coli* or other coliform bacteria.

MATERIAL AND METHODS

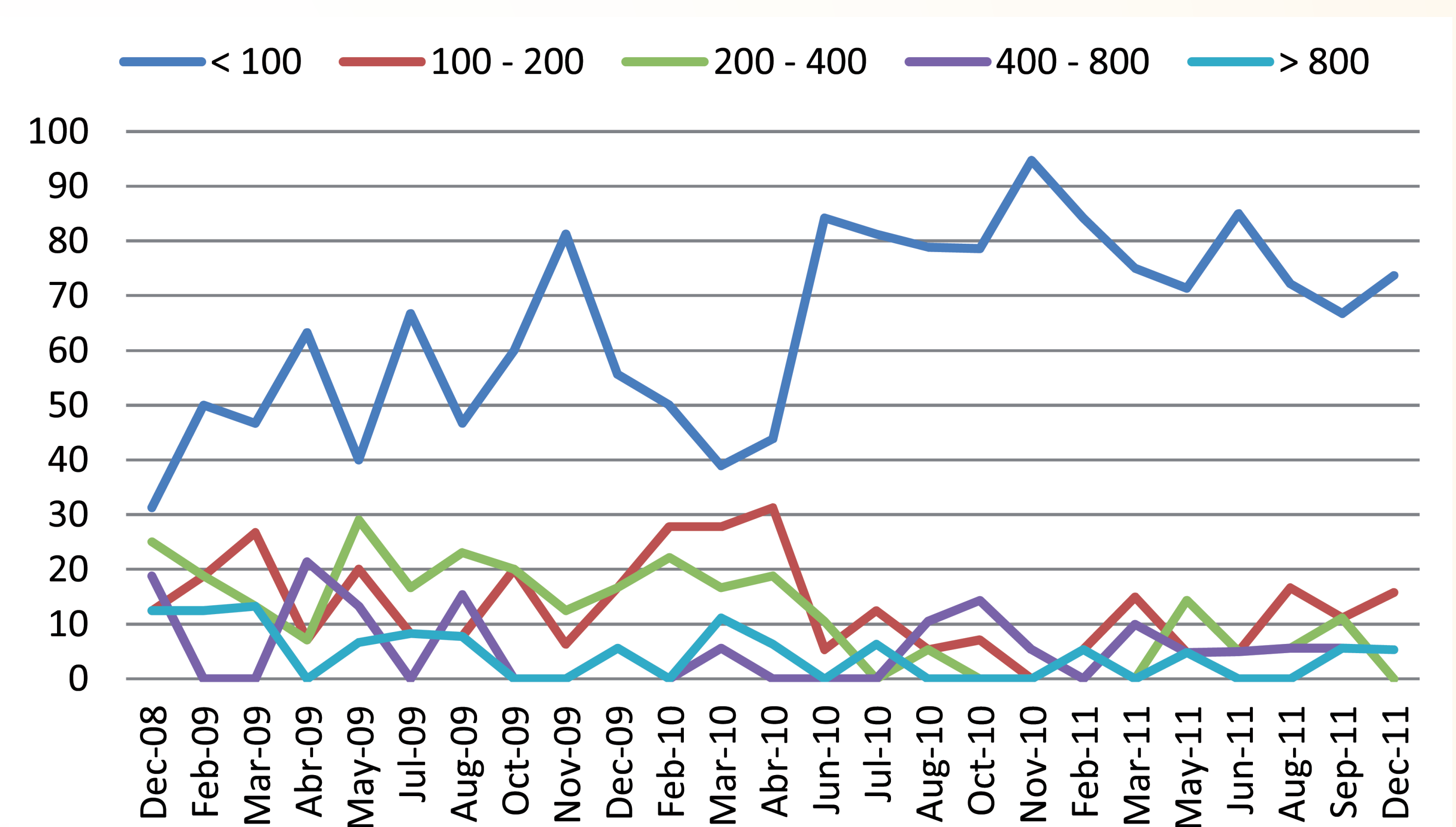
The trial took place on an Austrian 19-dairy-cow farm. For the evaluation of the prevalence of *S. aureus*, quarter milk samples were taken and analyzed for bacteriological culture test three times in a one-week interval. Further milk samples were taken twice, every fifty days, in a one-week interval. All cows and heifers were checked 15 times in the year 2010. The viability of the dairy farm was in danger due to a high in-tank somatic cell count (SCC): 370,000 cells/ml. The whole herd was vaccinated with STARTVAC[®], on February 1st 2010 and 4 weeks later a booster was injected. Then every four months a new injection was applied. The heifers were vaccinated according to the standard vaccination scheme (45 and 10 days before and 52 days after calving). Follow up was done over a 20-month period.

RESULTS

Twelve of the 19 sampled animals at the first 3 samplings showed an infection with *S. aureus*. Fifty days after the booster vaccination, *S. aureus* infection was only still detectable in 4 cows. One cow stayed *S. aureus* positive in

one quarter during the whole research period. At the first checkup, the SCC was lower than 100,000 cells/ml in 42% of the animals and in 9.2% of the cows it was higher than 800,000 /ml. One week after the first shot, the SCC was reduced to 200,000/ml. Five months after vaccination, the SCC was between 200,000 and 400,000 cells/ml in 10.5 % of the animals; on the other hand, 84.2% had a SCC under 100,000/ml. Since the start of vaccination, no new infections with *S. aureus* could be detected. From June 2010 until December 2011 the SCC varied between 65,000 and 110,000 cells/ml.

Figure 1. SCC evolution and distribution per percentage of animals (x 1,000 cells/ml).



DISCUSSION

Vaccination of the entire herd reduces remarkably risk of new infection. The SCC is also influenced very positively. With STARTVAC[®] vaccination, cull rate decreased which had a very important economic impact to the dairy farm. Cows were allowed to stay longer in the farm and remained free of mastitis. All heifers that were incorporated in the herd were also kept free of infection by *S. aureus*. It is very important to include them in the vaccination program. A new introduction of *S. aureus* into the herd can be prevented.

CONCLUSION

STARTVAC[®] bovine mastitis vaccination was shown to be a very effective alternative tool to antibiotic treatment by controlling and reducing the incidence of new intramammary infections.