

EFFICACY OF UBAC® VACCINE AGAINST AN EXPERIMENTAL INTRAMAMMARY HETEROLOGOUS CHALLENGE IN DAIRY HEIFERS (BACTERIAL COUNT, SCC AND SEROLOGICAL RESPONSE)

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OBJECTIVES

To evaluate the efficacy of a new *S. uberis* vaccine against bovine mastitis (UBAC®, HIPRA S.A, Spain) after an experimental intramammary challenge with a heterologous *S. uberis* strain (SU2H) in dairy heifers.

MATERIALS AND METHODS

Twenty five gestating Holstein-Friesian heifers were randomly distributed in two groups (table 1).

GROUP	Treatment	Administration
Vaccinated (n=13)	UBAC®	60 & 21 d. before day parturition
Control (n=12)	PBS	

Table 1. Distribution and administration program.

All animals were challenged by intramammary infusion of 100 CFU of a *S. uberis* heterologous strain in two quarters per animal, 15 days after parturition.

Milk samples were collected to assess bacteriological count and SCC three times before challenge and from challenge (D0) to the end of the study (D21). Blood samples were collected.

RESULTS

Control animals had significantly ($P < 0.05$) greater mastitis clinical signs compared to vaccinated group in 3 time-points (Figure 1). Vaccinated animals tended ($P = 0.08$) to reduce bacteriological count compared to control group during the 21 days after challenge.

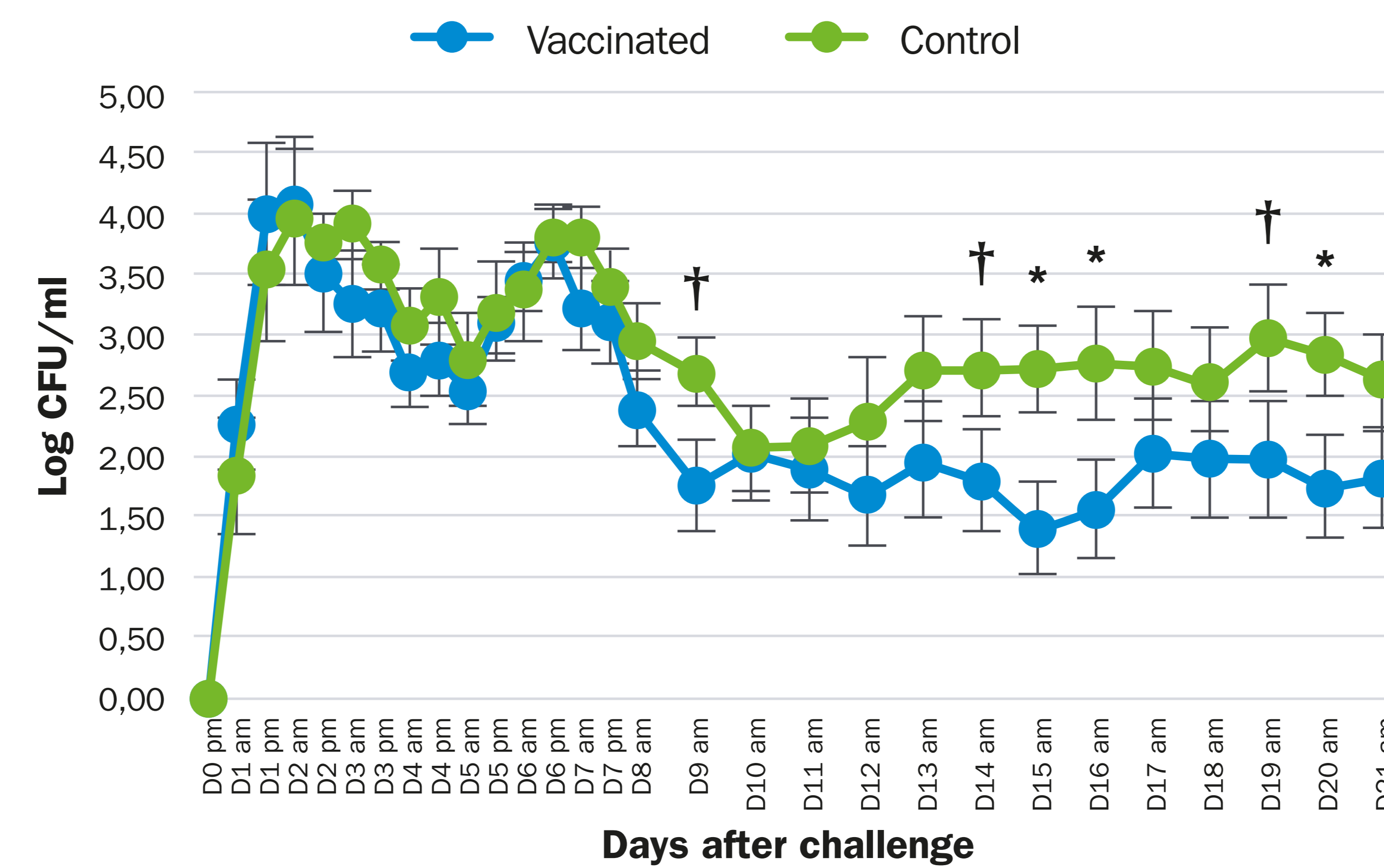


Figure 1. Average of bacterial count (LogCFU/ml) of vaccinated and control group from challenge to 21 days after infection. *Indicates significant differences ($P < 0.05$); †Indicates trend ($P < 0.10$).

Referring SCC, control group had also significantly ($P < 0.05$) greater values compared to vaccinated group at day 21 (Figure 2).

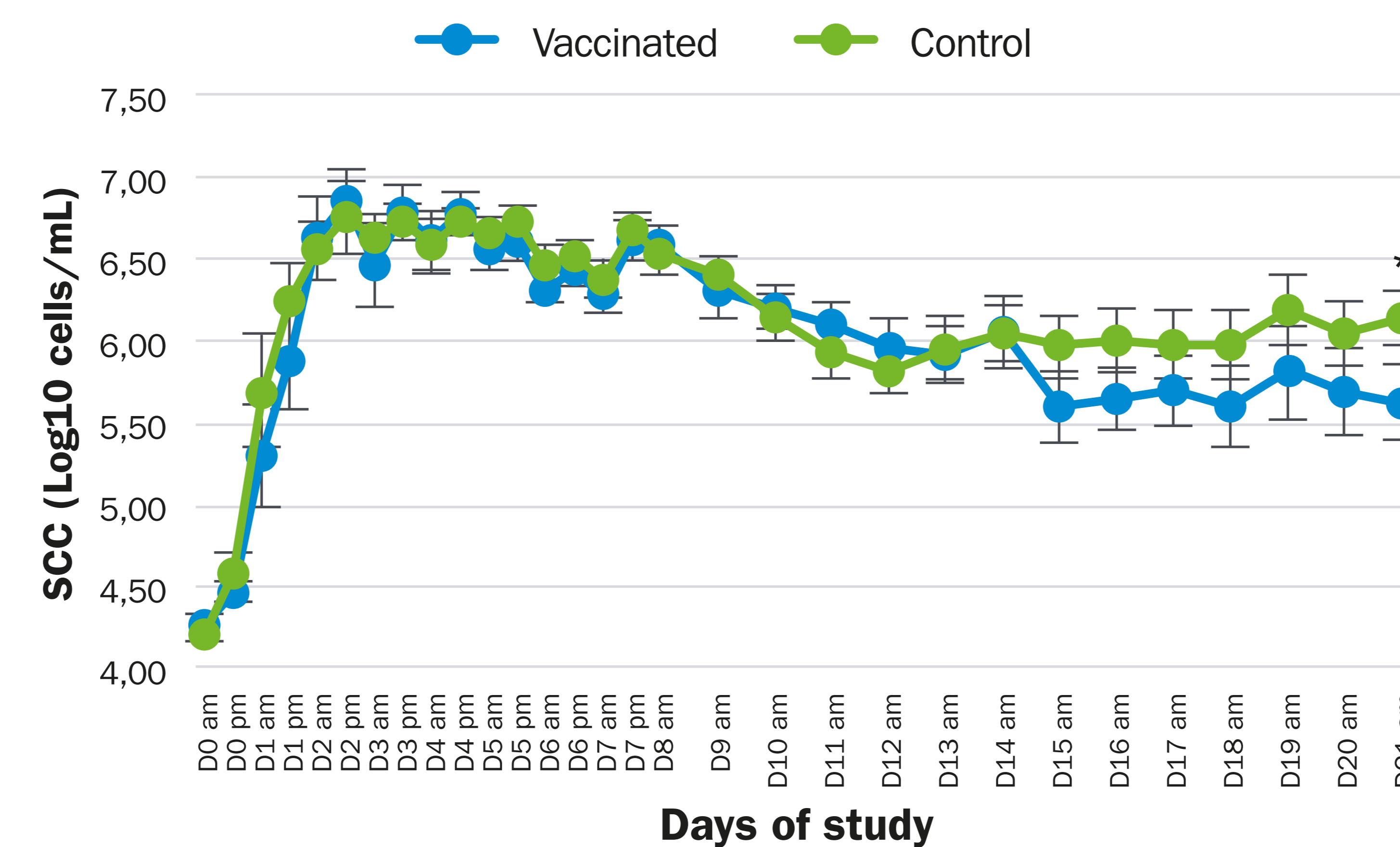


Figure 2. Average of somatic cell count (Log cells/ml) of vaccinated and control group from challenge to 21 days after infection. *Indicates significant differences ($P < 0.05$).

Consequently, vaccinated animals had a significantly ($P < 0.05$) higher cured quarters (SCC $< 200,000$ cells/ml) & no bacteria isolation during 2 consecutive days) compared to control group at the end of the study (53.9 vs 25.0%).

Antibody response was observed on days D-21, D0 and D21, where vaccinated animals had significantly ($P < 0.05$) greater values compared to control group. Significant differences ($P < 0.05$) were also observed in milk samples at D0 (Figure 3).

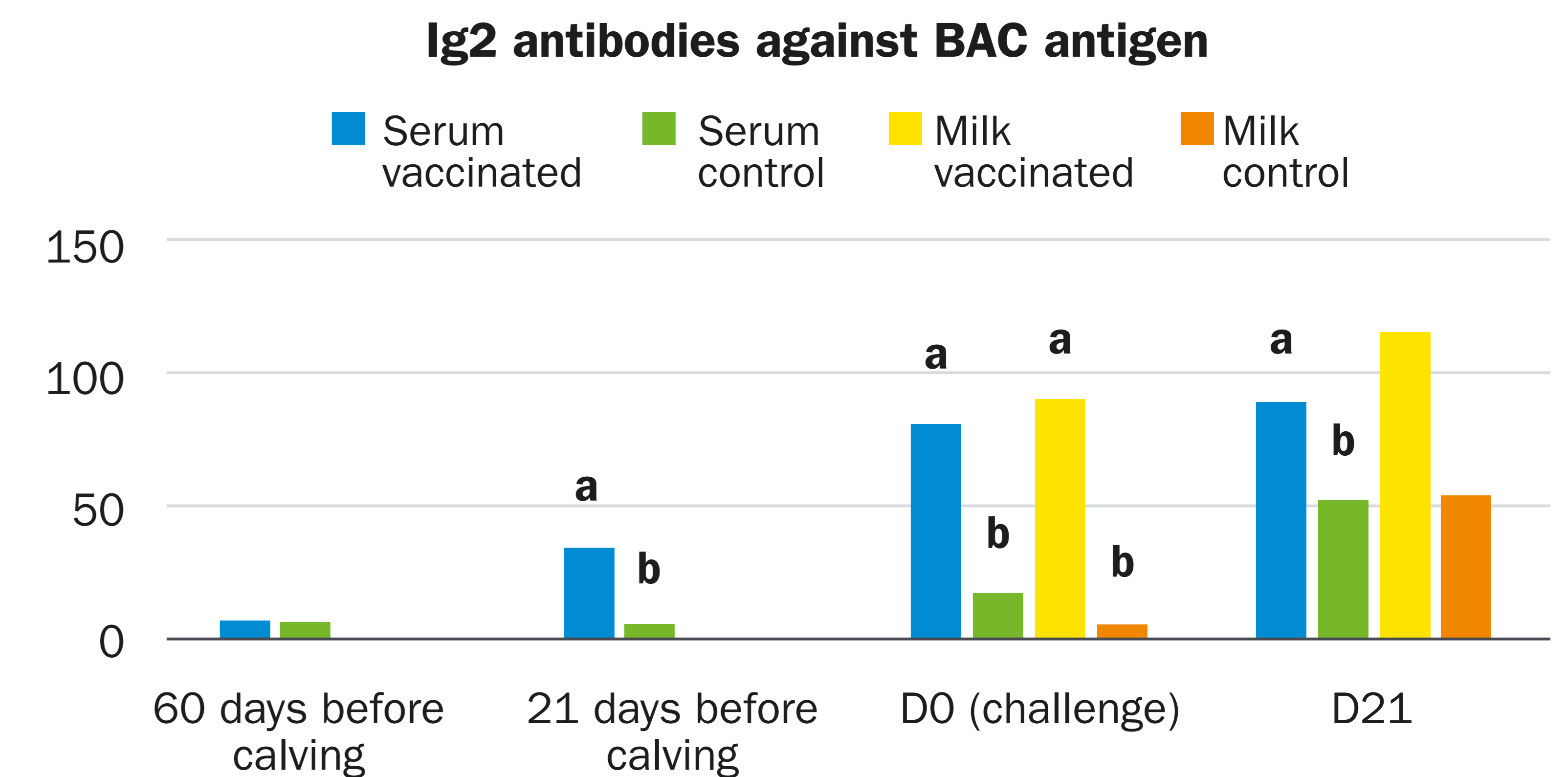


Figure 3. Average of Ig2 antibodies against BAC antigen (RIPC) of vaccinated and control group from 1st vaccination to 21 days after infection. ^{ab}Different superscripts mean significant differences ($P < 0.05$).

CONCLUSIONS

The results presented in this study demonstrate that the intramuscular immunization of dairy heifers with UBAC® vaccine significantly reduces the bacteriological count and SCC, increasing the cure rate of the infected quarters after an intramammary infection with *S. uberis* heterologous strain.