

EPIDEMIOLOGICAL AND CLINICAL EVALUATION OF STARTVAC® VACCINE IN A STAPHYLOCOCCUS AUREUS INFECTED DAIRY HERD



L Pinho¹, R Lameira¹, T Salvado², R Guix²

¹SVA- Serviços Veterinários Associados, Fradelos, Portugal ²HIPRA, Amer, Girona, Spain

OBJECTIVE

The clinical efficacy of a mastitis vaccine STARTVAC® was evaluated in a commercial dairy farm with a high prevalence of *Staphylococcus aureus*.

BACKGROUND

Mastitis is the most frequent and costly disease in dairy production and is associated with both direct (e.g., veterinary treatments, increased labor, loss of production), and indirect costs (e.g., premature culling, reduced milk price due to increased bulk tank milk somatic cell counts (SCC)).

S. aureus is a major contagious mastitis agent that often causes chronic infections. The udder is the main reservoir for this agent and spread between cows or quarters occurs mainly during milking.

S. aureus mastitis control is based on preventive measures to reduce the risk of infection between cows.

Vaccination against this agent is now available as an additional tool in mastitis control programs.

MATERIAL AND METHODS

A herd of 46 Holstein lactating and dry cows, and 4 pregnant heifers, from a Portuguese dairy farm, was vaccinated with the commercial vaccine STARTVAC® at three month intervals from March to October of 2011.

S. aureus initial prevalence was determined by individual milk analysis of all lactating cows followed by regular total herd checks and analysis of new mastitis cases and freshly calved cows and heifers. California Mastitis Test (CMT) scores were recorded for all cows in total herd checks and milk samples were collected in quarters with positive results on the test.

Comparisons of SCC from regular test day data with incidence of *S. aureus* infection between different periods and between total herd surveys were performed. No other measures were implemented on the milking routine or herd management during the period of analysis.

RESULTS

Figure 1. Annual distribution of infectious status of cows calculated from comparison of somatic cell scores in consecutive months during the vaccination trial period (number of cows).

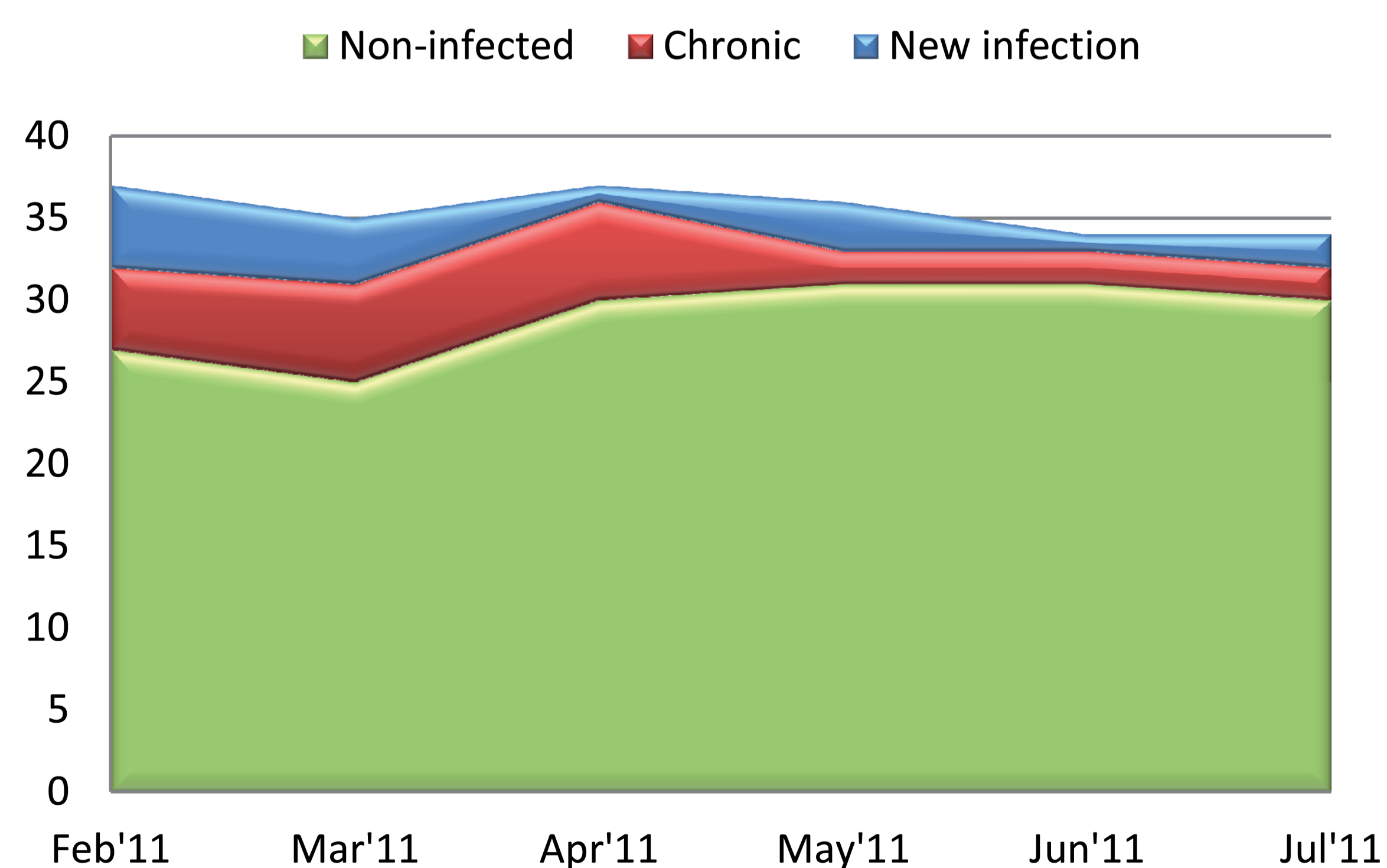


Figure 2. Incidence of *S. aureus* mastitis cases during the trial period and comparison with homologous period on the previous year (number of cases).

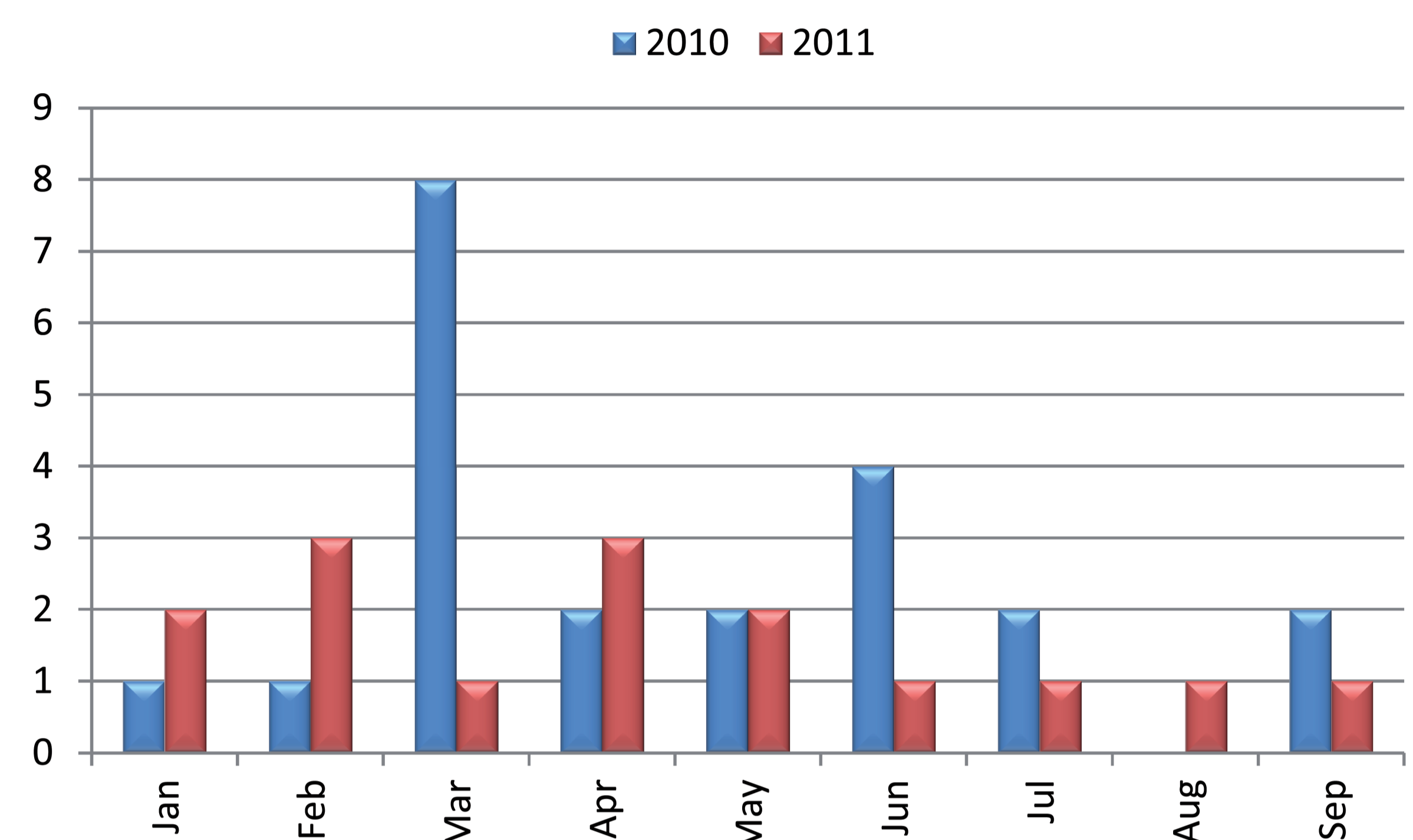


Figure 3. Bulk tank milk somatic cell count during the trial period and comparison with homologous period on the previous year (x1,000 cells/ml).

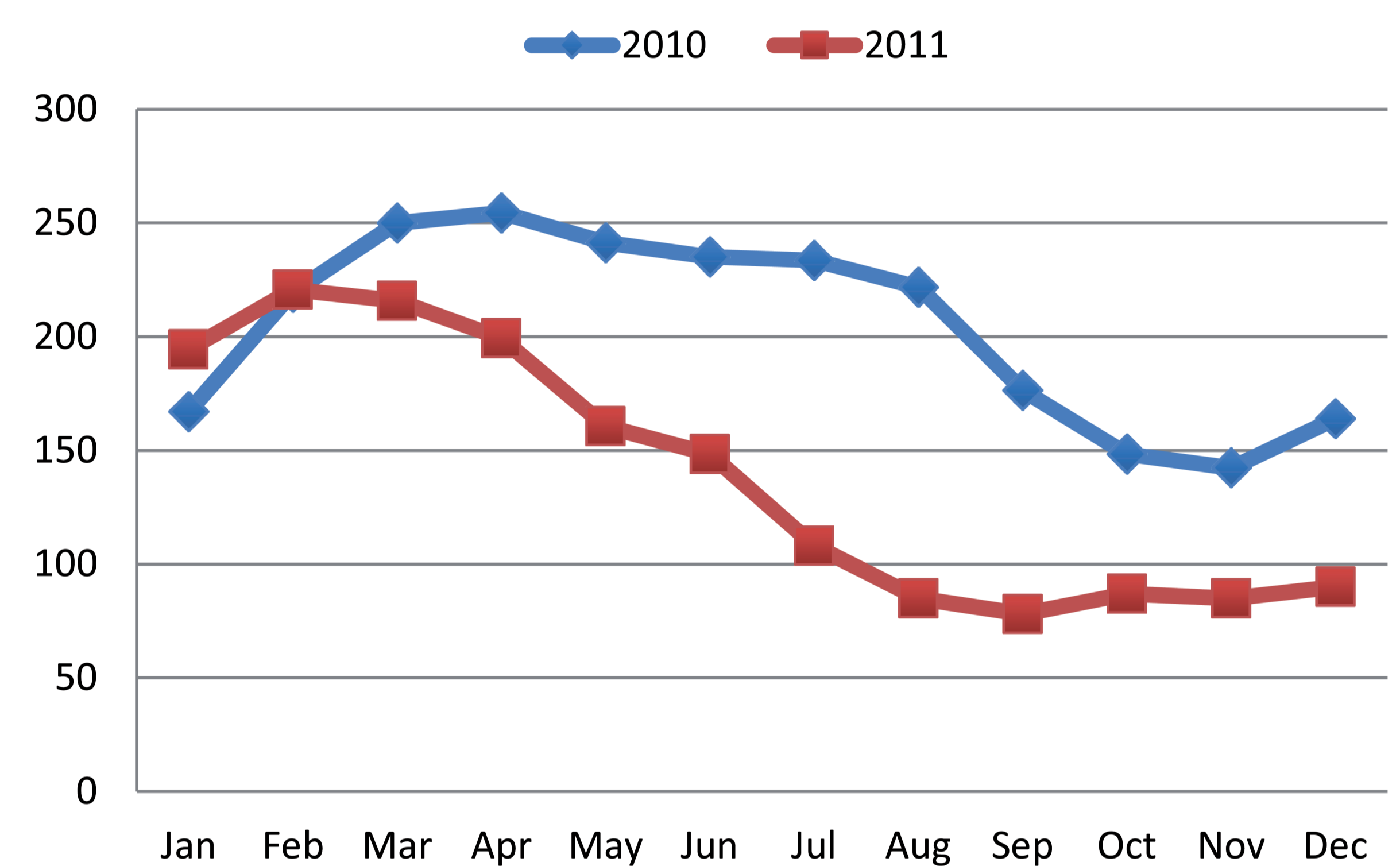


Table 1. Comparison of *S. aureus* prevalence, average California mastitis test (CMT) score in infected quarters, average somatic cell score (SCC) and days of infection of infected cows before the first vaccination and at the end of the trial period.

	Vaccination Trial Period		P value
	Initial	Final	
Prevalence	56.4	43	NS
Average CMT score (infected quarters)	2.3	1.4	<0.05
Average SCC (infected cows)	222 830	78 690	<0.05
Average days of infection	115	117	NS

NS - Non Significant

CONCLUSIONS

1. The results obtained showed that the use of STARTVAC® allowed a decrease of *S. aureus* prevalence and of the rate of new infections in a heavily infected dairy herd.
2. Vaccination lead to lower somatic cell counts of the bulk tank milk and of individual cows during the period of analysis.
3. The use of this vaccine in heavily infected *S. aureus* dairy herds is useful for mastitis control.