

UDDER HEALTH IN A DAIRY HERD USING AN OFF-LICENCE ADMINISTRATION PROTOCOL OF VACCINE CONTAINING ESCHERICHIA COLI (J5) AND STAPHYLOCOCCUS AUREUS (CP8).

Greenham¹, T.

¹Lambert Leonard & May, Whitchurch, United Kingdom

2016-0056
P04-004-225

OBJECTIVES

This retrospective study aimed to describe udder health parameters in a single dairy herd before and after vaccination with *Escherichia coli* (J5) and *Staphylococcus aureus* (CP8) (STARTVAC[®]; Laboratorios Hipra, Girona). The licensed programme involves administration of targeted periparturient doses. This protocol can be impractical to deliver on some units, leading to adoption of a simpler programme in which paired starting doses precede whole herd quarterly repeat vaccination. The objective of this study was to identify trends in mastitis cases and somatic cell count, looking for associations with use of the off-licence vaccination programme.

MATERIALS AND METHODS

A dairy unit was recruited comprised of five hundred pedigree Holstein cows, permanently housed, with an even calving pattern throughout the year. A protocol had been implemented in which two vaccine doses (STARTVAC[®]) were administered to the whole herd at a three week interval, followed by repeat doses at three month intervals. Clinical mastitis data was recorded contemporaneously by the farm staff (figure 1.). Individual cow level somatic cell counts were sampled every four weeks (Cattle Information Service, Telford). These areas were examined for twelve months preceding the use of the vaccine and thirty months following the commencement of vaccination. Mastitis data was collated in to monthly case rate and, along with somatic cell count values, underwent descriptive analysis (Excel 2010, Microsoft Corporation). The dataset was then examined by univariate analysis of monthly medians (Mann-Whitney) and monthly means (two sample t-test after Johnson's transformation to account for non-parametric distribution) for the periods of the study preceding vaccination and following commencement of the programme (Minitab 17.1.0, Minitab inc.).

RESULTS

Clinical case rate for the period preceding vaccination had a mean of 3.85 index quarter cases per hundred cows per month (95% CI 3.34, 4.35) and 4.38 total quarter cases per hundred cows per month (95% CI 3.80, 4.97). This case rate was not statistically different for the twelve month period immediately after commencement of vaccination, with index cases of 3.73 per hundred cows per month (95% CI 2.86, 4.61) and total case rate of 4.53 per hundred cows per month (95% CI 3.58, 5.47). The final eighteen months of the dataset had a mean case rate of 2.99 index quarter cases per hundred cows per month (95% CI 2.55, 3.44) and total case rate of 3.41 per hundred cows per month (95% CI 2.88, 3.94). The index case rate in the final period of the study was significantly lower than the period preceding vaccination by 0.86 cases per hundred cows per month ($p=0.011$) (figure 2.). Total cases were reduced by 0.97 cases between these two periods ($p=0.014$). Median case rates for these periods were

similarly reduced, with a reduction of 0.85 index cases per hundred cows per month ($p=0.014$) and a reduction of 0.95 total cases per hundred cows per month ($p=0.016$). This equates to a reduction of approximately fifty-one index cases (fifty-seven total cases) for the herd per year.

Somatic cell count was relatively stable over the period of the study. No statistically significant differences in cell count were observed between the periods prior to vaccination and following commencement of the programme.

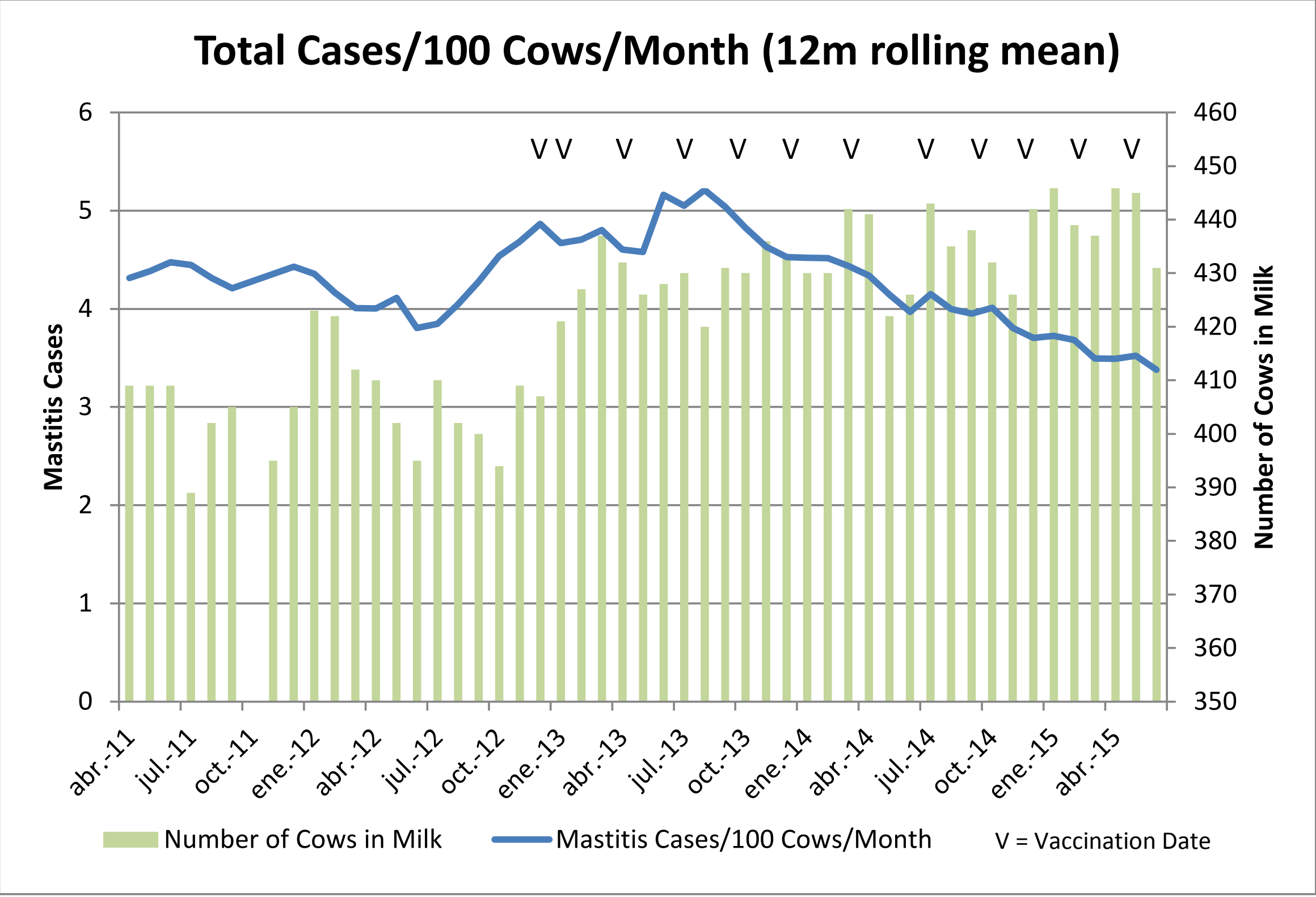


Figure 1. Clinical mastitis data

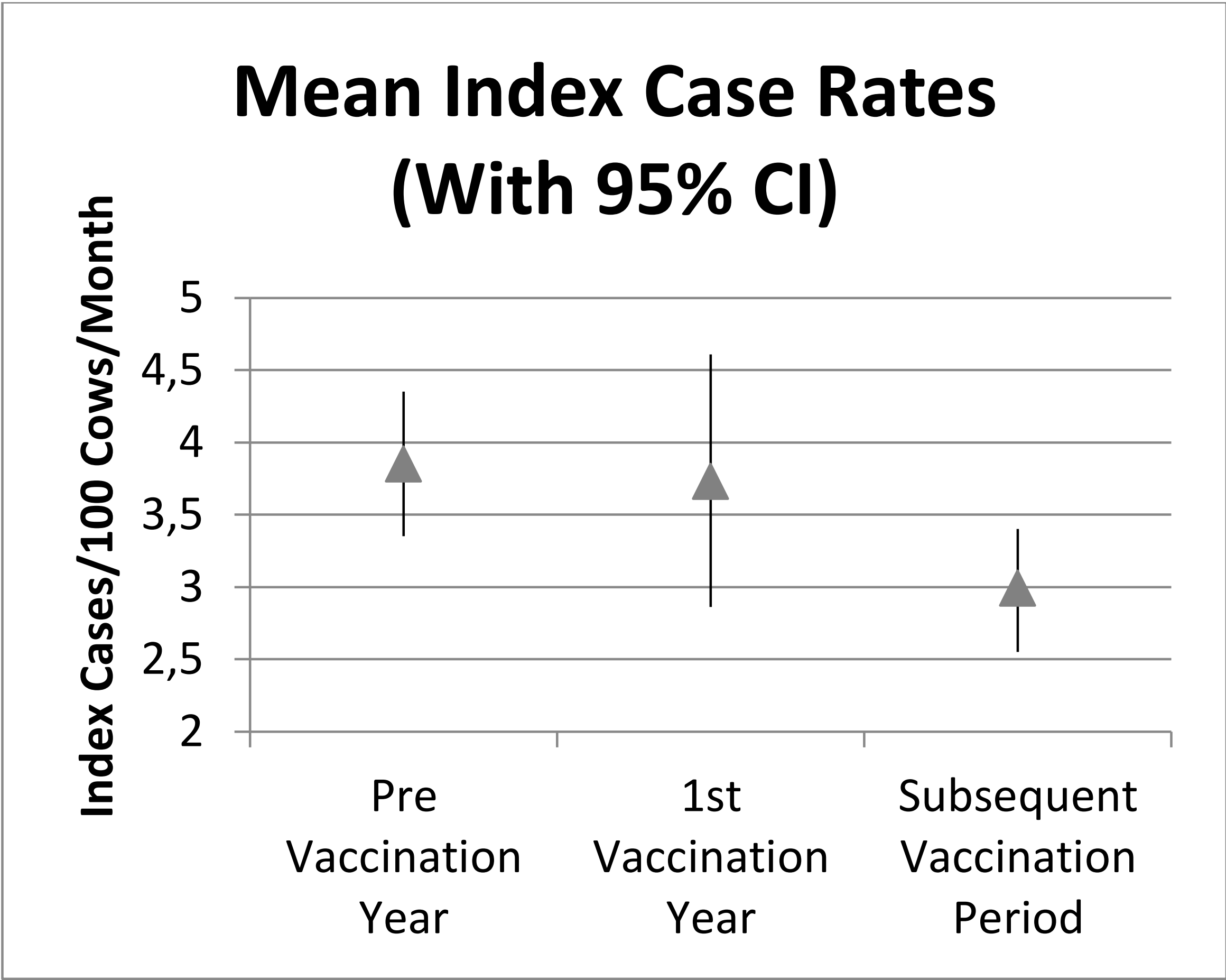


Figure 2. Mean mastitis rates for different periods of study.

CONCLUSIONS

A reduction in mastitis rate started nine months after commencement of vaccination and continued over the remainder of the study. Multivariate analysis was beyond the scope of this dataset, so it was not possible to draw firm conclusions about causality. However, other than the vaccination programme, no major changes were made during the study period that would influence udder health. The temporal trend corresponds with previous reports of efficacy for the 'off-licence' vaccination protocol and supports earlier work suggesting that off-licence quarterly vaccination (STARTVAC[®]) reduces the impact of intramammary infection in dairy cows.