

RESULTS OF INCORPORATION OF A POLYVALENT MASTITIS VACCINE INTO AN UDDER HEALTH PROGRAMME

OBJECTIVE

The aim of this study was to evaluate the results of incorporation of a polyvalent mastitis vaccine into an udder health programme.

MATERIALS AND METHODS

A dairy farm located in the Department of Florida, Uruguay, started to implement a mastitis control plan in January 2012. The herd had an average of 400 lactating Holstein Friesian dairy cows, with a high number of clinical mastitis cases (40 cows at the time of the request for professional advice). The average milk yield per cow was 20 kg/d (44 lb/d), on a grazing system. The milking parlour had a 16-unit herringbone swing-over design, without automatic take-offs. Cows were milked twice a day by 3 milkers. There was no established milking routine, milkers did not use gloves and post-milking teat dip disinfection had very poor coverage. Documentation of clinical mastitis (CM) cases was very poor. In February 2013, 3 milking points were added along with automatic take-offs. From that time, two workers were left milking. During the first two years, the following measures were taken: training of milking staff, with emphasis on the use of gloves, consistent forestripping and ensuring consistent good coverage of post-milking teat disinfection; established a protocol of use of antibiotic in order to get a reasonable use of them; the milkers were trained in how to treat and register the cases; testing the lactating herd using the California Mastitis Test; monitoring hygiene in the pre-calving area. The recurrent problems detected at follow-up were: poor post-milking dipping and poor condition of cows' teat skin. It took five months for the personnel to achieve consistently good post-milking teat disinfection. Achieving consistent use of gloves during milking was a prolonged process and took at least 1 year. Some chronically infected cows were culled, but others were still in the herd. In January 2014, chronic cases were isolated (selection criteria: cows with an SCC of over 700,000 cells/ml for 3 months and/or more than 3 episodes of CM) and

the mastitis control plan was continued without further modification. In January 2015, in order to minimize losses due to clinical mastitis, vaccination with a commercial vaccine (STARVAC®) was incorporated into the mastitis control plan. The vaccination protocol used consisted of an initial course of two doses of vaccine given 21 days apart followed by a booster dose every three months (de Torres *et al.*, 2014). In that year, only healthy cows ($\leq 200,000$ cells/ml), and heifers were vaccinated. The following year, only chronically infected cows, which had still been isolated, were not vaccinated. Milk samples from affected quarters of cows with CM were taken for bacteriological culture. The culture results showed *Staphylococcus aureus* to be the most frequent organism every year.

RESULTS

During the first 2 years of implementation of the mastitis control plan, CM remained at a high level. In 2014, after isolation of chronic cases, there was a decrease in CM, but the number of recorded cases remained high. Only after vaccination started in 2015 did the incidence of CM drop below 5% (Figure 1). Bacteriological culture of CM showed a reduction in the isolation of *Staphylococcus aureus* after incorporation of the vaccine (Figure 2).

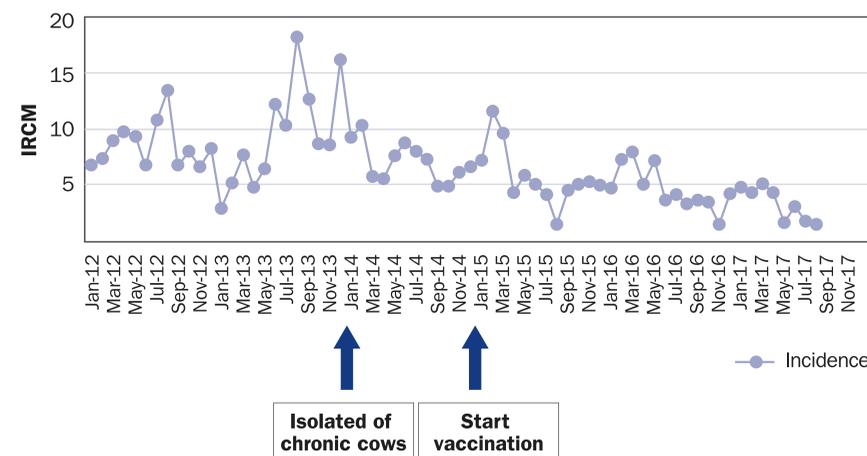


Figure 1. Timeline of incidence rate of clinical mastitis (IRCM).

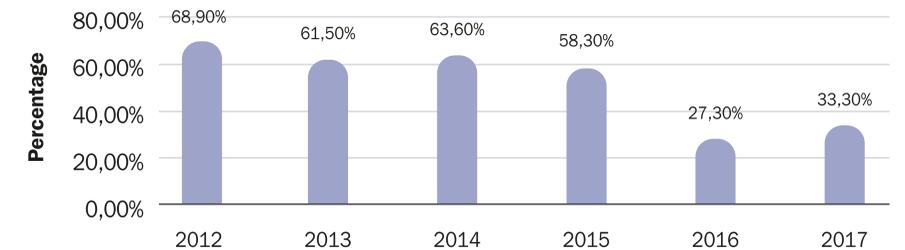


Figure 2. CM culture results showed *Staphylococcus aureus* as the most frequent pathogen every year but decreasing.

CONCLUSIONS

On this dairy farm, satisfactory IRCM results were obtained after vaccination. The reduction in *S. aureus* isolation in CM cases was very pronounced after vaccine use. **The use of this tool, as part of a mastitis control plan, was effective in preventing mastitis on this farm, infected mainly by *S. aureus*.**

REFERENCES

De Torres E., Sierra G, Zorrilla F (2014). *Mastitis control: The use of a vaccine*. Proceedings of the NMC Regional Meeting. Ghent, Belgium. Pp 188.