

# CASE REPORT OF THE UTILIZATION OF A POLYVALENT VACCINE FOR MASTITIS IN THE DRY PERIOD AND THE MILK QUALITY AND FERTILITY OUTCOMES

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## INTRODUCTIONS

Even though mastitis control programs are frequently used in dairy production, mastitis are still one of the most frequently occurring and costly diseases in modern dairy farms (Halasa et al., 2007). Mastitis monovalent vaccines are widely used in some countries showing significant results in the reduction of severity of clinical signs and duration of infection of environmental mastitis (Wilson et al., 2009). The goal of this study was to evaluate the impact in milk quality, fertility and economic outcome of a polyvalent vaccination protocol for mastitis STARTVAC<sup>®</sup>, HIPRA, Spain.

## METHOD AND MATERIAL

The study was held in a commercial dairy farm of 450 lactating cows on average, situated in the northwest Portugal. The animals were allocated to each group in an alternating form when entering the dry period (157 in the control group and 159 in the vaccinated group). The first dose was administered 8 weeks prior to calving and the rappel applied 4 weeks later. The period of vaccination occurred between October 2013 and July 2014. Production data, somatic cell count (SCC) and fertility data were compiled in an Excel file for posterior statistical analysis. Animals that were culled or died for other reasons than mastitis were excluded from the final analysis. The average value of the milk production difference between the groups was calculated based on the average price of milk sold during the period of study.

## RESULTS

The results obtained showed significant differences between the groups (Table 1). Concerning the SCC a significant reduction in the average values of the three months for multiparous was observed being more visible on the second month of lactation (342 x103 cells/ml in control group and 86 103 cells/ml in vaccinated group; p<0.01), potentiating milk production. There was also a positive difference of milk production on the three months favouring the vaccinated group although only statistically significant on the second month of test day of the multiparous cows (2.35 L; p<0.05). In effect, the vaccinated group registered less 52 mastitis cases thus explaining the raise in milk production when compared to the control group. Concerning the fertility index the calving-first insemination interval was 11.5 shorter for multiparous (p<0.01) contributing to the decrease of the calving-conception interval. On the economic analysis, the vaccine showed a gain of 47.10 € on the first three months of lactation on the multiparous of the vaccinated group. This value was of 21.15 € when just evaluating the second month when the difference was more significant.

|             |                         | 1st test day       | 2nd test day | 3rd test day |
|-------------|-------------------------|--------------------|--------------|--------------|
|             | Average SCC             | SCC x1000 cells/ml |              |              |
| Total       | -43                     | 25                 | -139*        | -43          |
| Multiparous | -114*                   | 38                 | -256**       | -68          |
| Primiparous | 68                      | 34                 | -5           | 68           |
|             | Average milk production | Milk Production L  |              |              |
| Total       | 0.89                    | 0.42               | 1.62         | 0.61         |
| Multiparous | 1.50                    | 0.47               | 2.35*        | 1.63         |
| Primiparous | 0.15                    | 0.47               | 0.22         | -0.38        |

\*p-value <0,05

\*\*p-value <0,01

**Table 1.** Differences in somatic cell counts and milk production in the first three months of lactation between the control and vaccinated groups

## CONCLUSIONS

This study showed that the utilization of this polyvalent vaccine for mastitis reduced the somatic cell count and improved the milk production of the vaccinated cows. Additionally, less clinical cases were registered during the period of analysis in the vaccinated group. Finally, the immunized group performed better in terms of fertility indexes, namely, on the reduction of the interval from calving to conception. These results showed that the utilization of this polyvalent mastitis vaccine is an important additional tool to include in the prevention mastitis programs.