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EFFECT OF VACCINATION AGAINST STAPHYLOCOCCI IN THE MASTITIS PREVENTION PROGRAMME ON A MALAGUEÑA BREED GOAT FARM.

Sanz¹, M.A.; Escalona², J.

¹HIPRA, Amer (Gerona), España / ²Asociación Española de Criadores de Cabra Malagueña, Casabermeja (Málaga), España

INTRODUCTION

Staphylococci are the main cause of mastitis in dairy goat farms in Spain (Bergonier, D. 2003; Esnal, A. 2018) and they cause large economic milk production losses and increased replacement costs (Pleguezuelos, J. 2015; Martínez, F.; 2018).

In the current scenario of reduction in antibiotic therapy and milk quality improvement, it is necessary to introduce new tools in mastitis prevention programmes to mitigate the health and economic impact of mastitis on our farms.

For this reason, it was decided to introduce VIMCO® (HIPRA, S.A.), a vaccine against mastitis caused by staphylococci, within the vaccination programme on a Malagueña breed goat farm located in the province of Jaén, which is included in the dairy control of the Asociación Española de Criadores de Raza Malagueña [Spanish Association of Breeders of the Malagueña breed].

Dairy controls are an important tool for decision-making on livestock farms in different areas, such as milk quality and mastitis control. Individual somatic cells count (SCC) constitute essential information to see how healthy an animal's udder is. A single control does not tell us much, but the evolution throughout the lactation, performing several controls, can be very good information together with other data such as parity number, production or possible udder lesions, will help us to make decisions on the farm.

Thereby, we will compare the average individual SCC of primiparous and multiparous animals since the vaccine is being used, with the controls from one year before using the vaccine. In addition, we will compare the percentages of controls below 500,000 scc/ml for each group, considering this level as healthy animals.

MATERIAL AND METHODS

In August 2018, we started vaccinating with VIMCO® (HIPRA, S.A.) the parturition groups, 5 weeks before the expected kidding date and revaccinated them 3 weeks later (2 weeks before kidding). The first group to be vaccinated are the group that kidded in October 2018. We define the VIMCO group with all controls with kidding date October 2018 or later, and we define as CONTROL group the dairy controls with kidding date in the same period of the previous year.

To make homogeneous groups, only the first 6 controls are used, and controls with somatic cells equal to zero or no value are eliminated. In addition, the controls of animals with more than 8 births are eliminated. There has been no change in feeding management, milking routine or milking machine on the farm. The conditions of the studied periods have been similar.

We calculated the individual SCC averages of the dairy controls of both groups and by age groups (primiparous and multiparous). We calculated whether differences between groups are significant with the two-sample Student's t-test assuming equal variances. We also calculated the percentages of controls below 500,000 scc/ml, between 500,000 and 1 million scc/ml, between 1 and 2 million scc/ml, between 2 and 5 million scc/ml and over 5 million scc/ml.

RESULTS AND DISCUSSION

SCC are lower after vaccination, with the average for the previous period being 1,524,936 scc/ml and after vaccination has dropped to 1,323,407 scc/ml, this difference being highly significant ($p=0.00069$). This is a 13% reduction, which means 200,000 scc/ml less.

If we calculate the average SCC according to whether they are primiparous or multiparous animals, the difference is bigger in primiparous animals (1,304,267 in the CONTROL group and 913,682 in the VIMCO® group) than in animals with more than one kidding (1,634,662 in the CONTROL lot and 1,491,708 in the VIMCO® lot). In primiparous animals, the reduction is almost 400,000 scc/ml, which represents a reduction of 30%. The fact that the difference is greater in primiparous can be explained because they are healthier animals. In multiparous animals, as there are more somatic cells, there are more cases of subclinical mastitis, and the effect of the non-increase of somatic cells is not so noticeable.

Table 1. Average SCC/ML

	Control	VIMCO®	difference
TOTAL	1,524,936	1,323,407	-13%**
Primiparous	1,304,267	913,682	-30%**
Multiparous	1,634,662	1,491,708	-9%*

(*) $P<0.05$; (**) $P<0.001$

If we calculate the percentage of controls in different SCC ranges (Table 2), we can see that the biggest difference is in the group of primiparous goats below 500,000 scc/ml; when no vaccination was used there were 43% and since vaccination there are 61% of controls below this number. It is also noteworthy that in primiparous animals the percentage of animals having over 2 million [scc] is reduced by half.

Table 2. Percentage of animals in different scc/mL ranges

	MULTIPAROUS		PRIMIPAROUS	
	Control	VIMCO®	Control	VIMCO®
<500,000	33%	37%	43%	61%
500,000 – 1M	23%	22%	23%	20%
1M – 2M	22%	22%	17%	11%
2M – 5M	16%	13%	14%	6%
>5 M	6%	6%	4%	2%

CONCLUSIONS

According to the data obtained we can conclude that since the introduction of vaccination with VIMCO® (HIPRA, S.A.) the somatic cells of the individual controls have been reduced, being higher in first kidding animals.

In addition, there is a higher percentage of animals below 500,000 scc/ml since vaccination is used for the prevention of staphylococcal mastitis. And animals having over 2 million scc/ml have been reduced by half.

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