

CASE STUDY: CONTROLLING STAPHYLOCOCCUS AUREUS IN A FLEMISH HERD



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INTRODUCTION

Although *Staphylococcus aureus* is isolated only in 18% of the culture positive quarters in Flanders, Belgium (Piepers, 2007), it remains the predominant cause of intramammary infections in some Flemish herds, causing elevated SCC and becoming one of the most common causes of chronic mastitis.

In a herd with 52 cows in milk located in the Flemish area of Belgium, during 2010 a problem with *S. aureus* was diagnosed; 21 from 38 cows sampled were diagnosed as *S. aureus* infected. Cows are housed in freestalls with cubicles and rubber mattresses. Cows were milked in a herringbone parlor with 5 milking points at each side of the pit. The milking routine was consistent and performed by one milker following the next steps: dry cleaning of the teat ends, forestrip and disinfect five cows, and then attach five cows, respecting the 60 seconds rule. After milking, disinfection with a iodine-based product was applied as a dip. At that time the milker did not wear gloves during milking.

MATERIAL AND METHODS

In February 2011, a complete review of the farm was performed, some points were found and referred to as key factors to improve. The first action was to change the milk bowls, because they were too small for the high producing animals, the farmer had to stop during individual milkings to empty them. This issue had been identified before but the problem increased during 2010 as a result of the increasing milk yield so it was decided to purchase bigger ones. Secondly it was decided to change the vaccination protocol. Vaccination with STARTVAC® had been used before, but vaccinating all the cows every 6 months. According to the manufacturer recommendations, it was suggested that the protocol used was not enough to solve the problem and it was considered that vaccination every 4 months would work better. In addition the heifers should be vaccinated twice before calving. As a third measure chronically infected cows were to be culled, the culling rate during the year 2010 was increased to eliminate 15 *S. aureus* positive animals. As a fourth measure the milker was to wear gloves during milking.

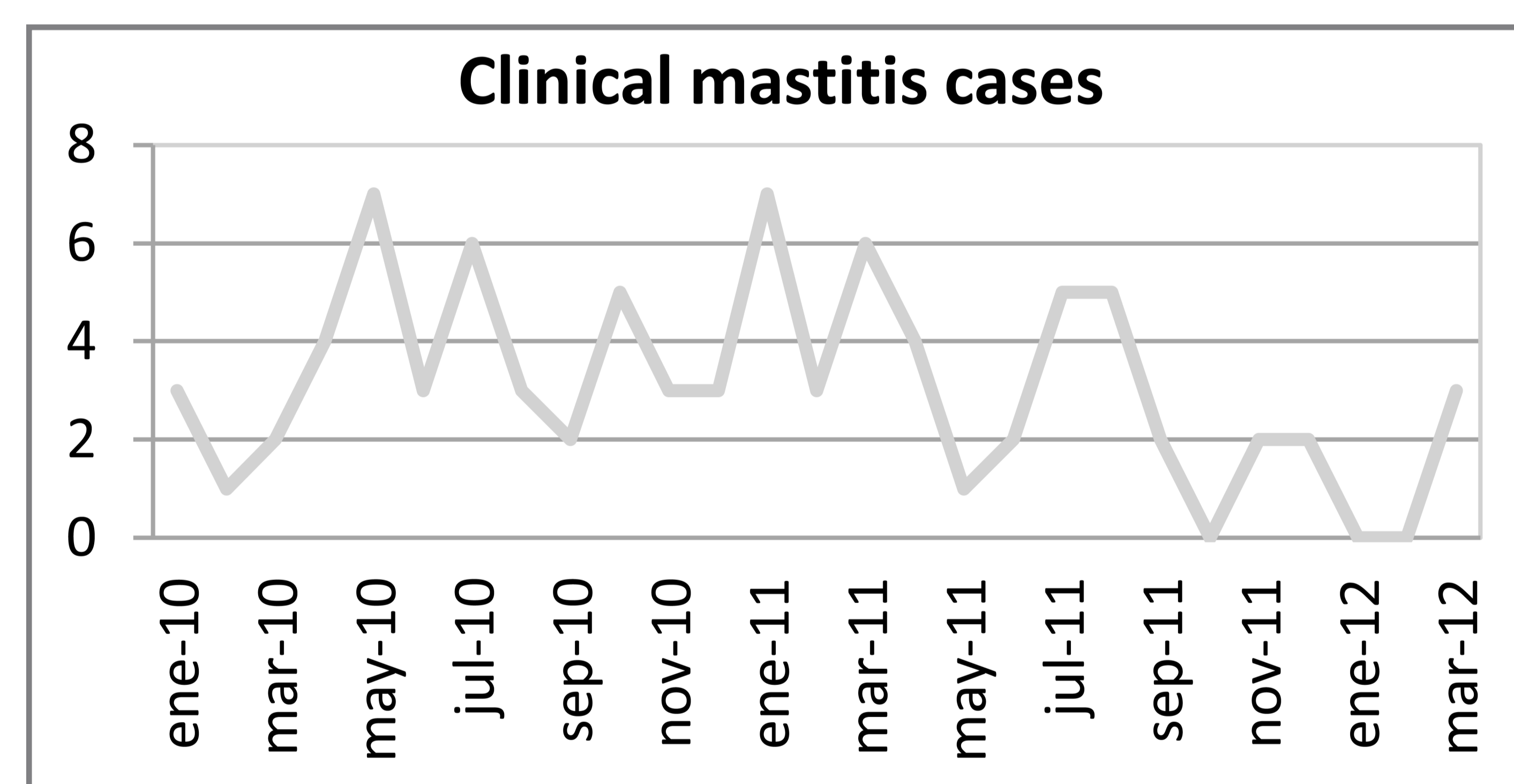
RESULTS

One year after the adaptations, the problem with *S. aureus* has reduced and based on the data available a dramatic reduction in the number of new infections has been achieved. Results showed an increase in healthy animals with somatic cell count below 200 000, from 80% to 91%.

The somatic cell count in the bulk tank has decreased from 271 000 to 249 000; based on the low level of subclinical mastitis it should be lower but we need to consider that the farmer is not longer withdrawing milk because of SCC and some cows are

contributing more than 50% of the BMSCC. A decrease in the clinical mastitis rate has occurred, the level of clinical mastitis has been reduced from a monthly rate of 6,40% to 5,60%. This reduction has been particularly important for the primiparous cows, until now (October 31st) no heifers that were vaccinated twice before calving and every 4 months afterwards have been found positive for *S. aureus* when tested due to high SCC, only a few for *E. coli*. A dramatic reduction in the culling of cows has been seen, during the year 2010 a lot of chronically infected cows had been removed from the herd, in 2011 no cows have been removed for this reason.

	Mar 2010- Feb 2011	Mar 2011- Feb 2012
Number of lactating cows	52	50
SCC average	271,000	249,000
Animals with SCC higher than 200,000	20%	8%
Animals with SCC between 200,000 and 100,000	12%	8%
Animals with SCC below 100,000	68%	83%
Total clinical mastitis cases	40 cases	34 cases
Clinical mastitis cases per month	6,40%	5,60%
Clinical mastitis cases in primiparous cows	10 cases	4 cases
% S aureus (as % of IMI sampled)	58% (15/26)	21% (6/28)
Cost of mastitis antibiotics	1,873 €	1,680 €
Average production per cow and year	10,782	10,899
Culled animals	33	1
Culled for mastitis problems	15	0



CONCLUSIONS

The combination of a good milking parlor performance, an accurate use of the vaccine and the culling of chronic animals appears to be associated with a decrease in the number of infected cows. This improvement has been particularly important for the level of subclinical mastitis in all cows and also for the number of clinical mastitis cases in primiparous animals.

REFERENCES

Piepers S., 2007. J. Dairy Res. 74: 478-483.