

Managing mastitis for healthy cows and economic performance

by Erwan Le Bras, Olmix,
ZA du Haut du Bois, 56580 Brehan,
France.

Mastitis is the most costly disease in the dairy industry, especially because of decreased production, costs of treatment, extra labour and the increased rate of cow replacement.

Mastitis management necessitates a multi-factorial approach to be understood and solved.

Several risks factors do exist and to minimise them, solutions need to be implemented in order to allow the farmers to breed healthy cows and to achieve economic profit from their work.

A costly disease

Being an endemic disease on dairy farms all over the world, mastitis is an important cause of a less efficient milk production and it is also an animal welfare problem.

The economic damages of mastitis, either clinical or subclinical, not only include milk production losses but also the cost of drugs, discarded milk, veterinarian charges, labour, milk quality, culling, new cases of subclinical and clinical mastitis and the risk of other diseases.

In The Netherlands the cost of an average case of clinical mastitis is estimated to vary from €114-182 per cow present depending



Clean and dry environmental conditions are optimal in order to breed healthy animals and to achieve an economic profit.

on the average bulk milk somatic cells count.

Mastitis is the most common disease in dairy farming and it generates the highest economic losses. Indeed, 97% of the mastitis do not generate visible changes in of the mammary gland or the produced milk.

Nevertheless, a decrease in milk produc-

tion and an increase of the somatic cells is observed.

Several risk factors have been studied by various researchers over the last few decades. It is interesting to point them out in order to see what can be improved in farm management to decrease economic losses due to mastitis and to improve cow welfare.

Table 1. Correlation between the somatic cell count and losses in milk production.

Somatic cells per ml of milk	Loss in milk production (%)	Losses per cow at 6300-6750kg of milk (in kg)	Losses per cow at 8000kg of milk (in kg)	Losses per cow 10000kg of milk (in kg)
100,000	3	180	240	300
200,000	6	360	480	600
300,000	7	450	560	700
400,000	8	540	640	800
500,000	9	585	720	900
600,000	10	630	800	1000
700,000	-	675	-	-
800,000	11	720	880	1100
900,000	-	745	-	-
1,000,000	12	765	960	1200
>1,200,000	>12	>765	>960	>1200

Interaction of risk factors

Mastitis, similar to other diseases, is the result of the interaction between the host (cow), the pathogen, and the environment.

Milking time hygiene, maintenance of the milking system and cattle housing facilities, and dry cow therapy constitute the main parameters of a mastitis control programme.

However, it is important to also keep in mind that genetic and management of the heifers is important.

Hutton et al observed that managers of

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excellent control herds more frequently milked the high producing cows first and milked the clinical cows last. They also have automatic milking unit detachers, so the problem of overmilking is greatly reduced, and they keep the moisture content of cow bedding lower.

Indeed, an increase in the moisture content of bedding is associated with an increased growth of the environmental mastitis pathogens (streptococcus, staphylococcus, Escherichia coli and actinobacterium).

Reducing economic losses

According to Table I it seems obvious that the control of the hygiene status is indispensable for every farmer who wishes to breed healthy animals and, consequently, to optimise the investment from each cow.

However, it is important to note that most mastitis is due to environmental bacterial infections, for example *Streptococcus uberis*, *Streptococcus dysgalactiae*, *Escherichia coli* and *Klebsiella* spp., which are present in the cows' rearing conditions. They penetrate in the udder through the teats during the periods separating two milkings.

Naturally present in the intestines of the animals, these micro-organisms are mainly found in the faeces of the cows and, there-



With Mistral, litter is dry, clean and healthier for the udder.

fore, in their litter. Their proliferation will be even easier if the litter is wet or not renewed often enough.

Housing conditions

It seems that the best housing conditions to avoid environmental mastitis is the pasture but as it is impossible to leave the cows out-

side for the whole year, adequate prevention is important in order to offer a hygienic environment and quality litter.

Each housing system has its own advantages and drawbacks; but in a situation where there is a high density of animals and a more elevated microbial pressure, the drawbacks may turn into nightmares, including bad evacuation of the liquids and accumulation of faeces in the cubicles, wet and

dirty free stall area and cows laying down in the passageway.

Indeed, the conditions become optimal for bacterial proliferation and infection of the teats and the udder.

Also, it is important to note that the ideal organic litter does not exist and simply clean and dry straw is an excellent litter.

Nevertheless, its current expensive costs represent a not inconsiderable burden on the farmer. It is not uncommon for producers to give more attention to stress factors that generate the outbreak of infections than to factors which increase the incidence of new infections.

Yet, it is by reducing the number of new subclinical infections that breeders will have better success in their fight against mastitis. So, it is particularly important for farmers to implement coherent fighting strategies against mastitis.

A study undertaken by the Agronomic Institute of Paris-Grignon (INAPG) demonstrated the efficacy of Mistral from Olmix in the prevention of mastitis in milking cows and fresh calved cows.

Thanks to its high absorption capacity, Mistral blocks the moisture, which is indispensable for the development of pathogenic micro-organisms. It demonstrated a reduction of more than 63% on the average somatic cells count in the three months following calving (see Fig. 1).

Moreover, numerous trials demonstrated the benefit of using Mistral as it allows producers to save up to 30% of the litter because it stays cleaner for longer and reduces the working time associated with straw mulching.

Conclusion

Taking control of the litter and of the housing conditions in general can show several advantages:

- 1 It offers a favourable environment to the cows.
- 1 Prevents bacterial proliferation.
- 1 Producers can breed healthy animals that are subjected to less stress.
- 1 Saves on costs of straw.
- 1 The return on investment made for each cow can be optimised.

In this way, the yield per cow will be increased by reducing the impact of mastitis on the decrease of milk production and the health status will be secure by offering adequate hygiene conditions.

Preventive measures do exist as the application of Mistral can help the animal whatever its physiological status, for example in the dry period, calving, lactation or as a calf.

Pathogenic organisms present in the dairy are opportunistic agents which will only proliferate to the detriment of the health and performance of dairy cows, if they are allowed to do so. ■

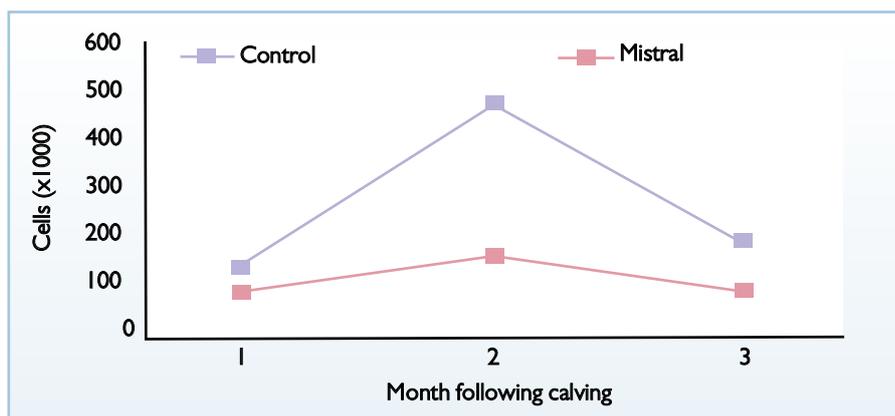


Fig. 1. Effect of the application of Mistral on the somatic cells count in fresh calved cows.

References are available
from the author on request