

EFFECT OF THE MISTRAL PREPARATION ON SOMATIC CELLS IN MILK COWS

Adam Traczykowski¹, Maron Saade², Sandie Fouquet², Herve Demais³, Otto Figuero⁴

¹ Department of Animal Hygiene and Microbiological Environment Academy of Technology and Agriculture, Bydgoszcz, Poland

² Institut National Agronomique Paris-Grignon, France

³ Research & Development Olmix, Brehan, France

⁴ Research & Polytechnic State University San Luis Obispo CA, USA

Introduction

Mastitis is one of the most common illnesses in cows and is a major contributor to losses in the breeding of milk cows. In order to achieve a good quality of milk, it is imperative to maintain high hygiene standards during all stages of its production (Skrzypek et al., 2004; Skrzypek 2002). The most important activities recommended before milking cows include: position, udder and teats hygiene. Milk coming from cows kept in a freestyle system contains considerably less somatic cells than in animals kept in controlled conditions (Sawa, 2004). The time of the year also plays an important part, as the quality of milk has been observed to deteriorate during summer and autumn time (Krzyzanowski et al., 1996).

The aim of the study was to measure the content of somatic cells in milk during spring and summer in different systems.

Material and methods

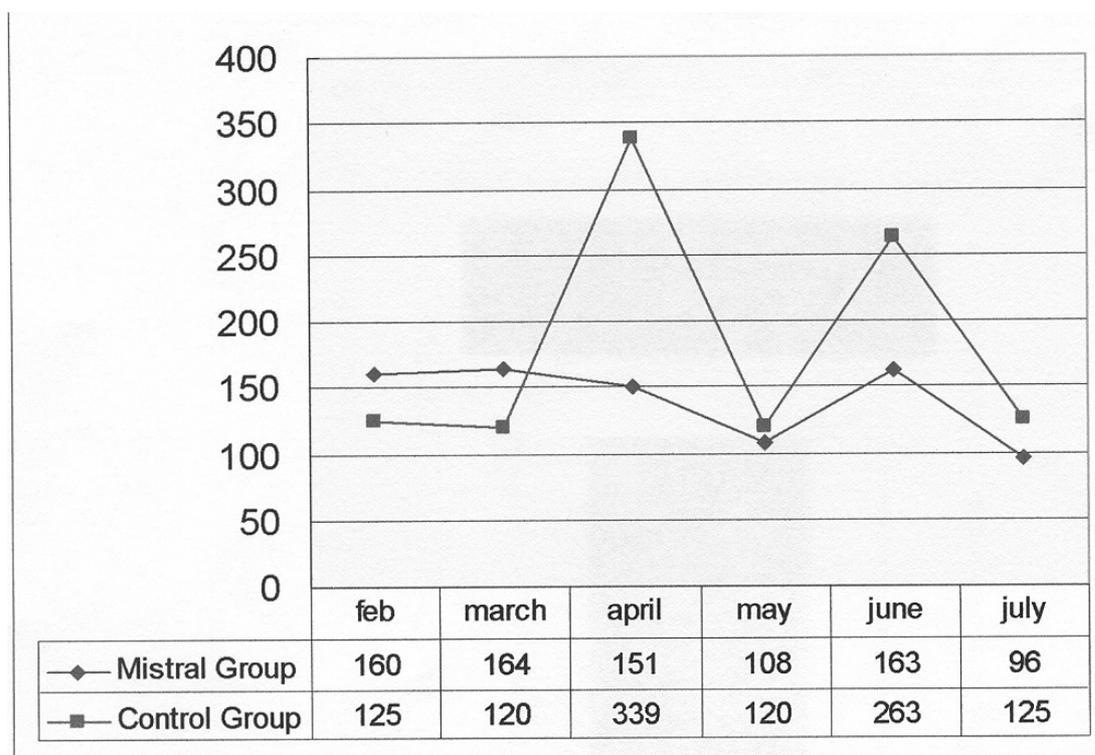
The research took place in the Research Institute of Paris-Grignon, between February and June 2003 on 64 cows, which were split into 2 groups. The control group was kept in without litter system, however the positions and dunging passage of the experimental group were covered with a hygienic preparation called Mistral (150g per position/ per day). Mistral is a product that helps improve the environmental conditions that the animals are kept in, as it considerably lowers the humidity and ammonia levels in the air. Mistral contains 52% of seaweed, 45% of plant and mineral absorbents and 2% of sea's algs. The amount of the somatic cells was measured using the Bactoson 8000 device; however the thermo-humid conditions *were measured using ordinary methods.*

Results and discussion

Milk that is generally used for drinking and processing purposes should meet adequate hygienic standards, which is reflected in the amount of micro-organisms and somatic cells in the milk. Changes in the latter depend primarily on the health state of the

milk glands, the cow's productivity, age, lactation period, time of the year, conditions and hygiene during milk collection (Shook and Schultz, 1994; Pankey, 1989; Malinowski, 2001; Shirandi and Kihumbu, 2004). The research of microclimatic conditions showed the temperature for both animal groups was similar, however the only differences were in air humidity. After the Mistral preparation was applied, the relative humidity dropped by 19% to 62-85%. The cows positions where the Mistral preparation was applied, were much cleaner than those in the control group. This was reflected in the amount of somatic cells in milk.

Fig. 1 Somatic Cell Counts (*100/ml) for animals



As seen in fig. 1, the amount of somatic cells in milk coming from cows that were exposed to Mistral preparation was within the 96-164 x 10/ml criteria. Considerable differences were noted in cows kept in more humid conditions and amounted to 120-339 x10 /ml. The highest levels of the somatic cells were observed in April and June, which has been confirmed by Krzyzanowski's studies (Krzyzanowski et al. 1996).

Conclusions

1. The thermo-humid conditions have improved when applying the Mistral preparation on the experimental group.
2. The amount of somatic cells in cows in the experimental group was 23% lower than of those in the control group.

References

1. Malinowski E., 2001: Komorki somatyczne mleka. *Medycyna Wet.* 57, 13-17.
2. Pankey J.W. 1989: Hygiene at milking time in the prevention of bovine mastitis. *Br. Vet. J.* 145, 401 – 409.
3. Sawa A., 2004: Liczba komorek somatycznych w mleku zbiorczym w zaleznosci od czynnikow organizacyjnych i technologicznych. *Medycyna Wet.*, 58, 632-635.
4. Shitandi A., Kihumbu G., 2004: Assessment of the California mastitis test usage in smallholder dairy herds and risk of violative antimicrobial residues. *J. Vet.Sc.*, 5, 5-9.
5. Shook G.E., Schutz M.M. , 1994: Selection on Somatic Cell Score to Improve Resistance to mastitis in the United States. *J. Dairy Sc.* 77, 648-658.
6. Skrzypek R. , 2002: Liczba komorek somatycznych w mleku zbiorczym w zaleznosci od czynnikow organizacyjnych i technologicznych. *Medycyna Wet.*, 58 632-635.
7. Skrzypek W., Wojtowski j., Fahr R. D., 2004: Wplyw metody przygotowania wymienia i strzykow krow do doju na jakosc higieniczna mleka. *Medycyna Wet.* , 60 , 1002-1005.