Research on the Hygienic Quality of Cow Milk Obtained in Organic Farms

Mariana SANDU¹, Cornel MAN²

¹SC Dorna Lactate SA, Dorna Candrenilor, Floreni, Suceava, Romania; marianasandu@yahoo.com
²University of Agricultural Sciences and Veterinary Medicine, Faculty of Animal Science and Biotehnologies, 3-5 Manastur Street, 400372 Cluj-Napoca, Romania; cornelman@gmail.com

Abstract. The quality of milk is influenced by numerous and various factors. Some of these factors depend on the dairy itself but some of them depend on the climatic conditions, the milking system, the type of fodder and so on. These factors can increase or decrease milk production both qualitative and quantitative. Although milk is obtained from healthy animals, through the most hygienic conditions, it still contains a certain level of bacteriological charge, for this reason specialists must assure the quality of milk in order to avoid a sanogen product becoming a pathogen one.

Keywords: quality of milk, organic milk

INTRODUCTION

The bacteriological quality is the main criteria in the global quality of milk produced for consumption (both fresh and processed milk). Because of the complex composition and the multiple possibilities of contamination, milk always shows a risk for alteration.

The milk with an adequate technological quality is obtained from healthy animals that doesn’t have mammitis and haven’t been treated with antibiotics, hormones, pesticides (which are released in the milk) and it doesn’t have any contact with detergents, disinfectants, preserving products or bacteriophages.

The determination of somatic cells is an important criteria of milk quality. The number of the somatic cells shows the condition of the mammary gland, the hygiene of the milking process, the fact that the milk is adequate for processing, the efficiency of processing, as well as the quality of such obtained products.

Purpose of research: The research’s purpose was the comparative study of the results obtained after the determination of the bacteriological (NTG/ml) and technological (NCS/ml) quality of the milk produced in 10 diary farms of 20 heads each, during the period April 2007-March 2008. The aim was to identify the problems regarding the hygienical quality of milk as row material. The studies have focused on the dynamic evolution of the parameters which show the hygienical quality, namely the total number of germs (NTG/ml), and the number of somatic cells (NCS/ml).

MATERIALS AND METHODS

Researched material. The study has been realised on the results obtained from samples taken from 10 ferms which delivered milk during the period of research. The results obtained from the samples have been compared. A number of 267 samples were taken from the ferms included in the study in order to determine NTG/ml and 223 samples to determine NCS/ml.
Examination methods. In order to carry out the bacteriological examination of milk modern and fast apparatus were used. (Bactocount, Somacount), which determined the chemical components, the number of germs (NTG/ml), as well as the number of somatic cells. These apparatus are calibrated by classic methods, methods which are considered reference methods.

RESULTS AND DISCUSSION

1. Study of number of somatic cell’s evolution (NCS/ml)

The dynamic evolution of the number of the somatic cells/ml shows the fact that the values are in accordance with the legal norms existing in Romania (≤ 400,000 somatic cells/ml). The evolution of the somatic cells in ecological milk is between 63,200/ml–318,000/ml (gr. No.1) with a yearly average of 211,000/ml. The obtained results indicate that there are certain periods throughout the year when the rate of mammitis increases or decreases. The rate of mammitis is lower in the colder period of the year.

![Fig. 1](image1)

2. The study of the evolution of the total number of germs (NTG/ml)

The number of germs determinated in organic milk is between 7,400–121,000 with an average value of 73,000. The lowest average was 39,000 NTG /ml and it was recorded in September (according to gr. No. 2).

![Fig. 2](image2)
There were also recorded higher values than the maximum value accepted by the European norms (100,000 NTG/ml), as a result of the unsatisfying hygienical conditions. The samples show that NTG/ml increases at the beginning and at the end of lactation. In October-December it is an increasing tendency because of the stabling period (39,000-84,000 NTG/ml).

CONCLUSIONS

The number of the somatic cells determinated in the study shows that in certain periods of the years the rate of mammites increases and in the colder period of the year it decreases.

The microbiological parameters (NTG/ml) determined in the milk during the study are in accordance with the European sanitary norms.

What the quality of milk is concerned there are certain deficiencies. The supervision needs to be strengthened in order to identify and monitorize the problems of each farm.

REFERENCES