

RESEARCHES REGARDING COW-MILK'S QUALITY OBTAINED IN THREE FARMS FORM ALBA COUNTY

CERCETĂRI PRIVIND CALITATEA LAPTELUI DE VACĂ OBȚINUT ÎN TREI FERME DIN JUDEȚUL ALBA

JURCO E., MUREȘAN G.

Faculty of Animal Sciences and Biotechnologies, Cluj-Napoca, România

In the selection process, along with the milk quantity obtained from an animal, an important part is the milk quality, which has a big influence in the recalculated milk quantity and also in its nutritive, energetic and biological value which the milk contains both as food and as feed. Hygienic milk must fulfill two quality indicators: total bacterial count (TBC) and somatic cell count (SCC) both referring to 1 ml of milk, extracted from the farmer's milk tank. To fulfill the sanitary and veterinary inspection and to be considered a high-quality merchandise TBC must be situated at the maximum limit of 100,000/ml and SCC must not rise above 400,000/ml. By evaluating the milk quality on the basis of determining total bacterial count and somatic cell count, there were obtained very good values of these two indicators. The total bacterial count (TBC) obtained in the 33 examined samples had values between 10x1000 cfu/ml and 930x1000 cfu/ml, and the somatic cell count has been situated between the values of 13000 cells/ml and 2184000 cells/ml.

Key words: milk, TBC, SCC

Introduction

Milk quality is influenced by a series of factors which depend on the animal's potential, its maintenance conditions (shelter, microclimate, food, water), and also the hygienic conditions during and after the milking process.

The somatic cell count of the milk indicates the cows' udder condition of health: if the udder's four quarters are in perfect health then the milk collected from these will contain the minimum SCC, about 100,000/ml of milk. If one quarter of the udder is ill, then SCC will rise as the infection will be spread and the drastic it gets, the inflammation might extend to the entire udder.

Materials and Methods

Milk samples from the tank that was obtained from three dairy cow farms, were collected monthly from January till November 2007 with the purpose to determine the somatic cell count and the total bacterial count. There were collected

33 samples of cow milk from three farms from Alba: S.C. Agrolact S.R.L., S.C. Agro Trust S.R.L. și S.C. Unichim. In these three farms the milking process is made in special rooms provided with transport devices of the milk and a tank for collecting and cooling the milk. The milk collected for the qualitative evaluation has been collected in sterile test tube (cca. 25 ml), and the samples were examined at the Milk Quality Control Foundation and procesator units.

Results and Discussions

The milk from the tank tested for the somatic cell count and the total bacterial count is bringing valuable informations about the current status of mastitis and sanitation in their farms.

Table 1

The values obtained following milk quality control

Farms	Control date	Fat (g/100g)	Protein (g/100g)	Lactose (g/100g)	SCC/ml x1000	TBC/ml x1000
S.C. Agrolact	19.01.2007	3.9	3.2	4.66	426	840
	19.02.2007	3.9	3.2	4.77	316	640
	19.03.2007	3.9	3.2	4.61	356	560
	19.04.2007	4.2	3.2	4.77	361	72
	19.05.2007	3.9	3.2	4.81	337	580
	19.06.2007	3.8	3.2	4.77	314	590
	19.07.2007	3.9	3.2	4.64	373	88
	19.08.2007	3.8	3.2	4.53	341	830
	19.09.2007	3.9	3.2	4.6	352	780
	19.10.2007	3.9	3.2	4.65	280	17
19.11.2007	4.0	3.3	4.58	286	38	
S.C. Agro Trust	19.01.2007	3.9	2.95	4.7	855	889
	19.02.2007	3.86	3.12	4.65	40	10
	19.03.2007	4.0	3.05	4.59	2082	113
	19.04.2007	3.95	3.10	4.7	1064	213
	19.05.2007	3.95	3.05	4.74	365	130
	19.06.2007	3.90	3.15	4.64	169	10
	19.07.2007	3.55	3.10	4.63	171	10
	19.08.2007	3.70	3.10	4.70	867	930

Table 1 continued

Farms	Control date	Fat (g/100g)	Protein (g/100g)	Lactose (g/100g)	SCC/ml x1000	TBC/ml x1000
S.C. Agro Trust	19.09.2007	3.95	3.10	4.61	2184	113
	19.10.2007	3.80	3.2	4.58	456	10
	19.11.2007	3.70	3.10	4.4	874	10
S.C. Unichim	19.01.2007	3.9	3.2	4.7	21	10
	19.02.2007	3.9	3.15	4.6	86	10
	19.03.2007	4.0	3.15	4.63	114	22
	24.04.2007	4.1	3.2	4.58	21	10
	15.05.2007	3.85	3.05	4.68	110	10
	26.06.2007	3.95	3.05	4.67	13	10
	19.07.2007	3.8	3.1	4.71	23	10
	20.08.2007	4.0	3.2	4.78	169	10
	11.09.2007	4.0	3.1	4.81	19	10
	23.10.2007	4.1	3.2	4.7	39	10
18.11.2007	3.95	3.1	4.65	131	10	

Table 2

The average values of the main traits of milk obtained from three farms of cows

Farms	Samples No.	Fat (g/100g)	Protein (g/100g)	Lactose (g/100g)	SCC/ml x1000	TBC/ml x1000
S.C. Agrolact	11	3.92±0.11	3.21±0.03	4.67±0.09	340.18±41.36	457.73±334.75
S.C. Agro Trust	11	3.84±0.14	3.09±0.06	4.63±0.09	829.73±728.76	221.64±346.87
S.C. Unichim	11	3.96±0.09	3.14±0.06	4.68±0.07	67.82±55.75	11.09±3.62

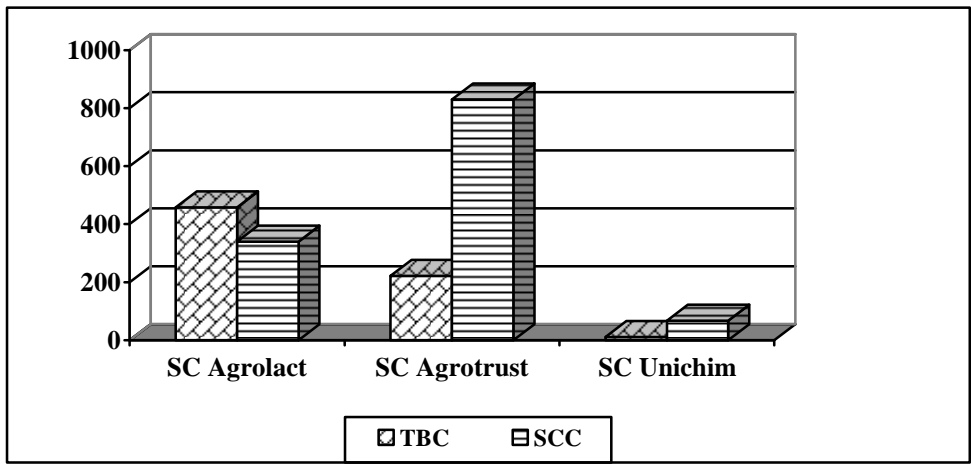


Figure1. The average values of NSC and TGN obtained in three farms

Figures 2 and 3 shows the variation of SCC and TBC in all three farms during the eleven months.

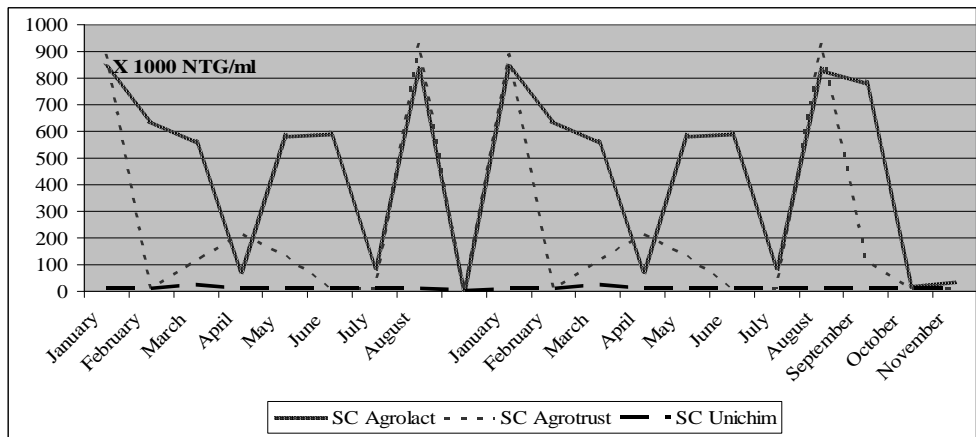


Figure 2.. The dynamic of TBC in all three farms

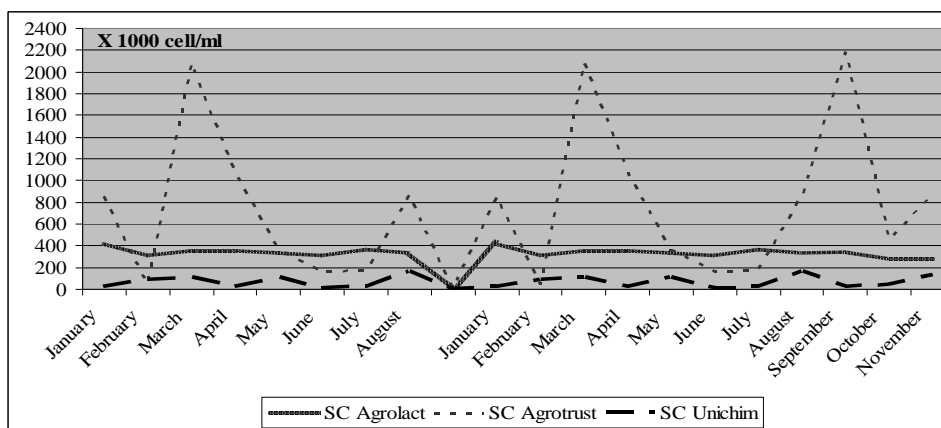


Figure 3. The dynamic of SCC in all three farms

Conclusions

- Analyzing the evolution of the milk quality indicators, on the cows population included in the study, point out numerous aspects determined by the reference biologic material but must of all by the exploited technology applied and the milking system;
- Total bacterial count had values between 10x1000 cfu/ml and 930x1000 cfu/ml, and the somatic cell count has been situated between the values of 13,000 cells/ml and 2,184,000 cells/ml;
- The lowest values of TBC and SCC were registered for milk samples from SC Unichim farm, values between 10,000 cfu/ml and 22,000 cfu/ml, and 13,000 cells/ml and 169,000 cells/ml, respectively.

Bibliography

1. **G. Onaciu** (2006)- *Characterization of the milk production traits in cows included in oficial control of production (OCP) in 4 counties from Transylvania*, Al 5-lea Simpozion Internațional Perspective ale Agriculturii Mileniului III, 5-6 octombrie 2005, Cluj-Napoca, Buletin USAMV-CN, 62 /2006 (71-74), ISSN 1454-2382
2. **Jurco E., G. Onaciu** (2006) *Researches concerning the characterization main indexes for the milk production to biological material breded in the S.C. Crisan ranch Gherla*. *Lucrări științifice Zootehnie și Biotehnoologii*, vol. XXXIX-2 (2006), Timișoara, pag. 173-178, ISSN 1221-5287