

Comparison of milk composition and quality between voluntary and conventional milking systems

D. Kairisa, D. Jonkus, I Muizniece, L. Paura

Agrobiotechnology institute Latvia University of Agriculture, Liela str. 2, LV-3001 Jelgava, Latvia,

Introduction:

- In the dairy industry, technological improvements are continuously being made to the mechanisation of the milking process in order to reduce manual labour.
- Voluntary milking systems are designed to ensure maximum welfare needs of animals — free choice of milking time and milking frequency, as well to facilitate of human labour and influence on the cow. Besides the automatic recording of data, they also facilitate improvements in animal health control.

Material and methods:

- The research was carried out in the teaching and research farm “Vecauce” of the Latvian University of Agriculture
- from July to October 2008 on 80 dairy cows, 40 per group. Dairy cows managed in a loose housing system.
- Milking system: voluntary and conventional.
- Milk samples from individual cows were collected.

The aim of this research was to analyze variation in milk yield and milk composition in voluntary and conventional milking systems.

Results

- Average cows parity in the voluntary group was 2.3, and in the conventional system was 2.9.
- Most of the cows from both groups were in the second phase of lactation.

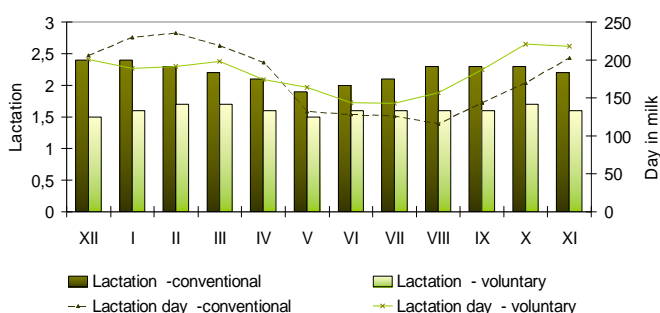


Fig.1. Comparison of cows parity and milking day with voluntary and conventional milking system

- The highest daily milk yield in voluntary group was in August at 26.1 kg, but in conventional system, it was in July at 24.8 kg.
- In the following months, daily milk yield decreased in both groups connected with changes in lactation days.
- Somatic cell count (SCC) was used as an index of milk quality. In the voluntary milking system, SCC for the total period was at the limited value and did not increase above 400.000/ml.

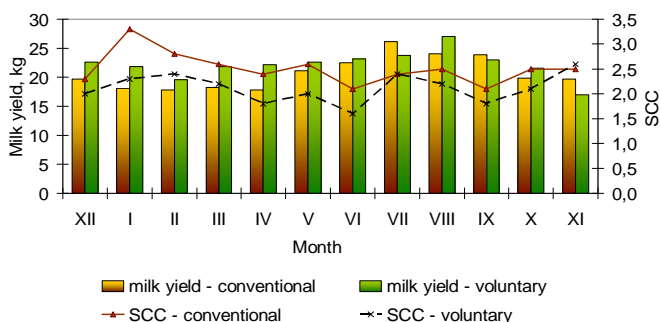


Fig.2. Average milk yield and SCC during research in voluntary and conventional milking system

- The milk composition indices used were protein and fat contents. For the total research period, a statistically significant higher fat content was found in the conventional milking system which was up to 4.80%.
- For protein content, the tendency was opposite. The lowest protein content was in the voluntary milking system in August at 3.31%. In the total period, a higher protein content was found in the conventional milking group and it was highest in September and October at 3.90%.

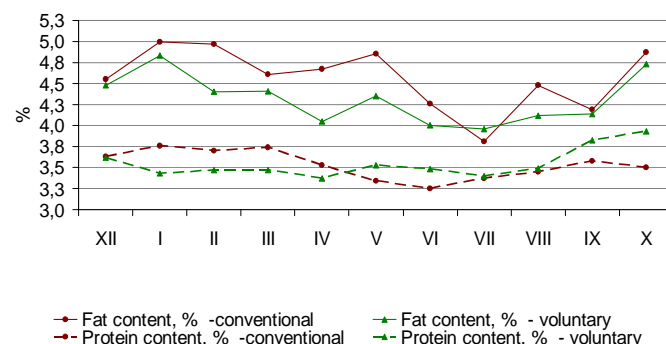


Fig.3. Fig.2. Average fat and protein content during research in voluntary and conventional milking system

Conclusions:

- Average milking frequency was 3 in voluntary and conventional milking system.
- The cows of the research group had good adaptation ability in voluntary milking system and it is about one week.
- The highest milk yield and lowest SCC and fat+protein content were in voluntary milking system.
- The value of calving interval of some cows from both group was increased and it is about 600 day.