

Elements' content in milk of Simmental cows depending on feeding system

S u m m a r y

The study was conducted in five farms keeping the Simmental cows. In three of them the milk was produced in the traditional system, i.e. in the tether cowhouses with bedding positions. In these farms the cow feeding in summer season was mainly based on a pasture and in winter season – on haylage and maize silage. In both seasons the hay and concentrate feeding was administered. In the other farms the milk production was intensive. Cows were kept in loose cowhouses. Throughout the year the feeding according to TMR system was employed. In each farm in summer and winter season the milk samples were collected from fifteen cows being in second or subsequent lactations. The content of: total protein, fat, casein, macro- (Ca, Na, K and Mg) and microelements (Cu, Fe, Zn and Mn) as well as heavy metals (Pb and Cd) was determined. It was shown that the milk produced in the traditional system was a richer source of calcium and magnesium as well of iron and copper. These results were confirmed in both analyzed seasons, but the significantly higher content of these elements was stated in summer in the milk of cows, fed pasture forage. Milk produced in the intensive system was characterized by the higher content of potassium, sodium, zinc and manganese. In all analyzed milk samples the concentration of lead and cadmium did not exceed the permissible level specified in the Regulation of the Minister of Health from 13th January 2003. It should be noted, however, that higher levels of these metals were found in milk produced in the intensive system.

KEY WORDS: milk / mineral elements / feeding system