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Assesment of bovine milk fat quality from the view of human health

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A desirable fatty acids profile in milk contributes to the production of milk with higher added value. The aim of the study was to evaluate the quality of milk fat from the view of human health from cow's milk under on farm conditions. The study was performed on individual milk samples collected from four dairy farms breeding Holstein cows. The diets used on those farms were based on maize silage, hay and supplemental mixtures containing rapeseed oil and cake (Farm 1), extruded full-fat soybean (Farm 2), rapeseed cake + extruded full-fat soybean (Farm 3) or flaxseed + soybean meal (Farm 4). Milk samples were taken from four average yielding cows per herd and were analysed on the content of fatty acids in milk fat. Samples of feedstuffs were taken at the same time as milk samples and were analysed on the content of dry matter (DM) and basic nutrients. Based on the fatty acid profile sums of SFA, MUFA, PUFA, n-3 and n-6 FA were calculated as well as following indices of milk fat quality: atherogenic (AI), thrombogenic (TI), health-promoting (HPI) and hypo-/hypercholesterolaemic index (HH). Content of SFA ranged from 61.29 (Farm 1) to 68.36 (Farm 3). The highest content of MUFA was in milk from Farm 1 (31.71) and lowest in milk from Farm 3 (27.59). Content of PUFA was similar in Farms 1 and 3 and higher in Farms 2 and 4. AI ranged from 1.89 (Farm 1) to 2.77 (Farm 3). TI was similar in Farms 1, 2 and 4 ranging between 2.36 and 2.58 and high in Farm 3 being 3.56. The highest HPI was found in milk in Farm 1 and lowest in Farm 3. HH index was high in Farms 1 and 2 being 0.93 and 0.84, respectively and low in Farms 3 and 4 (0.53 and 0.59, respectively).

Keywords: dairy cows, fatty acid profile, indices, n-3/n-6 ratio

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