Relationship between grassland management and bovine milk quality

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Bulk-tank milk was collected every second month (in 2007) from 32 farms in Middle Norway to examine the effect of grassland management and farming system on milk composition. Sixteen farms with organic farming system were paired with 16 farms with conventional farming system. In both farming systems, 9 farms had short-term rotational grassland and 7 farms had long-term grassland. Milk fatty acid (FA) composition and milk concentration of α-tocopherol, β-carotene, retinol, phytoestrogens and selenium were analyzed. Only small differences were found in milk composition from farms with different grassland management, except for the concentration of phytoestrogens and selenium that were highest on farms with short-term grassland. Milk FA composition, milk concentration of phytoestrogens and selenium were strongly affected by farming system. Milk from organic farming had higher concentration of phytoestrogens, selenium and higher proportion of C18:3n-3, short-chain FA, long-chain FA, saturated FA and lower proportion of C18:0, C18:1n-9, C18:2n-6 and lower n-6/n-3 FA ratio than milk from conventional farming.

Fatty acid profile in organic and conventional milk

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The aim of the study was to investigate average and seasonal differences in fatty acid (FA) composition of conventional and organic milk in Estonian dairy farms. Milk samples (n=214) were collected during the period from April 2006 to October 2007 twice a month from bulk-tanks at each farm. All milk samples were analyzed for milk FA composition. Six farms were divided into two groups according to the production system (4 conventional and 2 organic dairy farms). In conventional farms cows were kept in cubicles and were fed silage-based total mixed ration throughout the year. In organic farms cows were grazed from May to October and received silage-based diets during the winter period. Milk FA content was significantly different in organic compared to conventional farms. Organic milk contained more n-3 FA and conjugated linoleic acid (CLA) but less n-6 FA. There were great differences between all the farms investigated. The average content of all analysed milk FA were significantly different (except the content of CLA) also between the two organic farms.