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## The influence of non-nutritional factors on health-promoting components of cow milk

### S u m m a r y

The aim of study was to examine the influence of non-nutritional factors like lactation number and phase, milk yield and fat content on the health-promoting components contents of cow milk. The investigations were carried out on 429 cows maintained in the traditional system (pasture-barn) from which 811 milk samples were collected in the period of 2001 to 2003. In the milk samples content of functional fatty acids: C 4:0 (BA - butyric acid), C 18: 1 *cis* (OA - oleic acid), C 18: 1 *trans*11 (TVA - trans vaccenic acid), C 18:2 *n-6* (LA - linoleic acid), C 18:2 *c9/11* (CLA - conjugated linoleic acid), C 18:3 *n-3* (LNA -  $\alpha$ -linolenic acid), C 20:4 *n-6* (AA - arachidonic acid), C 20:5 *n-3* (EPA - eicosapentaenoic acid), C 22:5 *n-3* (DPA - docosapentaenoic acid), C 22:6 *n-3* (DHA - docosahexaenoic acid) was examined using gas chromatography method. Analysis of fatty acids content in succeeding lactations showed that lactation number, significantly influenced LA, CLA and LNA content only. Milk of cows in the 4 lactation contained most of CLA (0,654 g/100 g of fat) while of those in 5\* and further lactations the most of LNA (0,691 g/100 g of fat). Significant effect of lactation phase on functional fatty acids level in milk was observed for OA and AA only. After the initial period (7-30 days) when the level of OA was relative high (23,408 g/100 g of fat) significant decrease ( $P<0,05$ ) was noticed which intensify up to 91-121 days of lactation (22,309 g/100 g of fat). AA content also decreased ( $P<0,05$ ) during the energetic deficiency period (30-60 days of lactation) but then increased again reaching the maximum level between 121-150 lactation days (0,125 g/100 g of fat). Lactation phase did not influence significantly the CLA level. The highest content of this acid was observed up to 30 days and between 121-150 days after calving (0,625 and 0,658 g/100 g of fat respectively). From cows of reasonable milk production (up to 6000 kg) the highest content of CLA in milk (0,650 g/100 g of fat) was found. It proofs the usefulness of ecological dairy farms development. Relationships between milk fat content and majority of examined fatty acids were negative except of BA and AA.