

EFFECTS OF FAT-RICH OIL CAKES ON CHEESE FATTY ACID COMPOSITION, AND ON CHEESE QUALITY

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Summary. Feeding fat to dairy cattle has been described frequently as an appropriate means to improve the favourable fatty acid (CLA) content of milk products, especially that of cheese. The objective of this study was to determine the effect of fat-rich oil cakes used in Estonia on milk and cheese quality. The experiment was conducted with Estonian Holstein dairy cows according to 4×4 Latin square design. The cows were fed *ad libitum* grass silage, 8 kg concentrate consisting of barley and oat meal, soybean meal and cold pressed oil cakes as fat sources (0.5 kg crude fat per animal per day) – rapeseed (RC), linseed (LC), gold of pleasure (*Camelina sativa*) cake (GP) and soybean meal (SBM) as the non-fat control variant – and a mineral-vitamin supplement. The inclusion of fat-rich cakes in the diet affected the overall fatty acid composition of cheese. Diets rich in unsaturated fats increased long-chain unsaturated fatty acids in milk and cheese fat, CLA included. Processing the milk into cheese did not alter the overall fatty acid profile. The dietary source of fat had a significant effect ($P<0.05$) on milk coagulation time and curd firmness. There were no significant effects on the experimental cheese estimates of dry matter and fat, or on the fat content in dry matter. Fat source had a slight effect on the overall quality score and texture/colour parameter of the experimental cheese ($P<0.05$). The quality score for fat source tended to decrease as follows: LC>SBM>RC>GP. The taste panelists found no flavour and no taste differences in cheese among treatments (except between LC and GP), although the presence of specific flavour (above perceptible level) was much higher in GP than in other treatments. The experimental results suggest that fat supplementation affects cheese fatty acid composition, milk coagulation parameters and cheese quality properties, depending on the degree of saturation the fat supplement.

Key words: dairy cattle, fat supplementation, cheese quality, fatty acid.