

## THE IMPACT OF RUMEN-PROTECTED FAT ON RUMEN FERMENTATION ACTIVITY, MILK YIELD AND MILK QUALITY IN DAIRY COWS

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**Summary.** Optimization of dairy cow rations plays a key role in the dairy industry in Lithuania as well as in the other EU countries. For that purpose, various feed additives are being developed and brought into use. For researchers and farmers it is of great importance to have data on the impact of such new feed additives on animal health, nutrition and performance, quality of animal products and feed conversion. Presently special fat additives (rumen-protected fat) are being used increasingly for energy balancing of dairy cow diets. A trial was carried out in order to determine the efficacy of the fat additive "NLM 66" which had been newly introduced into the Lithuanian market. The trial aimed at investigation of the impact of the tested additive on the rumen fermentation activity, digestibility of organic matter, milk yield, milk composition parameters and somatic cell count (SCC).

The experiment was carried out parallel in two dairy farms with two analogous groups of dairy cows in each: control (Group 1) and experimental (Group 2). Over the trial period equal conditions for both groups were ensured, animals were fed diet of the same feeding value. For the energy balancing of the experimental animals (Group 2), diet supplemented with the fat additive "NLM 66" and mixed with concentrates was used. Depending on the milk yield and energy demands of the tested animals the amount of feed additive reached up to 7 % (0.4 kg/day/animal). The diet used in controls (Group 1) contained no rumen-protected fat.

The results of the present study revealed that supplementation of diet with the rumen-protected fat "NML 66" (Group 2) resulted in 10% milk yield increase compared to controls ( $p < 0.05$ ). However, there was no significant impact on milk quality parameters, SCC and rumen fermentation activity.

**Keywords:** protected fat, rumen fermentation parameters, milk yield, milk quality, dairy cows.