

# INCREASING THE PRODUCTIVITY OF MINK BY USING L-CARNITINE IN THEIR DIET

---

Kharlamov K.V., Demina T.M., Rastimeshina O.V

*Scientific Research Institute of Fur Farming and Rabbit Breeding Industries,  
Rodniki, Moscow Region*

Pseudo-vitamin amino acid L-carnitine ( $\alpha$ -Trimethyl- $\beta$ -hydroxybutyrobetaine) is widely used in animal and poultry farming for the support of metabolism and productivity in agricultural animals and poultry. In intensive methods of animal production the use of L-carnitine as an additive to feed could be highly economically significant.

The purpose of the current research was to define the influence of L-carnitine on the physiological conditions, growth speed and reproductive abilities mink, analyse the benefit of using it as an aid to increasing productivity in mink rearing. To define the aforementioned, the following was carried out: the dose of L-carnitine for growing young mink was defined, its influence on the following was analysed: feed consumption and digestion, the state of the organs of the digestive system, the intensity of young growth and the reproductive abilities of mature animals.

Novelty of conducted investigations: the influence of L-carnitine on the physiological condition, growth rate of young and productivity of mink was established, the practicability of its use in mink breeding was analysed. Practical utility of the work: the possibility of the use of L-carnitine for the increase of mink productivity was established.

The study of the influence of L-carnitine on the physiological condition, growth rate and productivity of mink (standard dark brown, sapphire, scanblack and scanbrown) was carried out in the laboratories and at the experimental farm of the Scientific Research Institute of Fur-Bearing Animal and Rabbit Breeding Industries of the Russian Academy of Agricultural Sciences, on fur farms of the Moscow and Tver Regions.

The experiment was carried out on 858 mink kits and 123 adult minks of the reproductive herd.

For the calculation of the influence of L-carnitine on mink physiological conditions and productivity the following doses were tested: 10, 20, 30, 40, 50, 70 mg/kg of live mass.

As a result of the experiment it was found that the use of L-carnitine as a part of the diet for growing young in June – August with the dose 30 mg/kg of live mass in 4 – 5 courses, 6 – 7 days each with a 7 – 8 day break between courses has a positive effect on the productivity of the animals, ensuring:

– an additional 21 roubles extra profit off one pelt due to the increase in the number of large (sizes 0-000) and defect-free pelts by 1,5% and 7,1% respectively,

as well as the fall in feed consumption by 1,5%;

– an increase in the sexual activity of the animals in oestrus: females allow for more coitus than the control group by 12%, success of mating attempts increase by 18% in females and 28% – in males.

The inclusion of L-carnitine in the diet of young mink had a positive effect on the overall physiological condition: the use of nutrients from feed is more efficient, more nitrogen is deposited in the body, the possibility of fatty liver infiltration is significantly lowered.

The use of L-carnitine for growing young mink was most effective in extremely high daytime temperatures (28-30°C). In which case the productivity of the animals in the experimental group was sufficiently higher than in the corresponding control group: the live mass of the kits after the last course of L-carnitine administration (28<sup>th</sup> of August) – 239 g higher ( $p < 0,01$ ); relative gain over the period of the experiment – 20,8%; liveability of the kits – increased by 5%; pelt size – 35.2 cm<sup>2</sup> ( $p < 0,05$ ); the number of defect-less pelts – by 27%.

A new method of feeding mink with the use of L-carnitine was developed for practical use.