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Economic efficiency of feed additives "Microbond" and "Endox" in the cultivation of Minks

Regina I. Mihailova, Daria A. Valiullina*, Nadia R. Kasanova

Faculty of veterinary medicine, Kazan State Academy of Veterinary Medicine named after N.E. Bauman, Sibirsky tract, 35, Kazan city, 420029, Russia

Abstract.

The objective of the research is to determine economic efficiency of the use of biologically active agents at cultivation of minks. Influence of complex medicine Microbond, which represents a sorbent with pro-biotic action and antioxidant Endox, is studied. During the research it has been established that Microbond and Endox positively influence the weight and measurements of animals, and, therefore, the size and quality of the obtained skins. When calculating economic efficiency of the use of these biologically active agents, it has been established that feeding minks during medicine cultivation Microbond at a dose of 125 mg per head a day, economic effect was 177.3 rubles on the head. The use of antioxidant Endox at a dose of 25 mg per animal a day gives economic effect at a rate of 219.5 rubles per head.

Key words: young growth of minks, Microbond, Endox, fur of minks, economic efficiency.

INTRODUCTION.

One of the main tasks of fur farming today is to meet the requirements of the down and fur industry in high-quality and inexpensive fur raw materials of domestic manufacture. Currently, the main object of fur farming is mink. Brown color, similar to the color of wild minks but significantly darkened in consequence of selection work, is called standard.

The profitability of the fur manufacture is declining because of the low quality of fur production. Losses from reducing the quality of cage furs are estimated at about 20 %, so one of the important problems is to improve the quality of fur raw materials, their primary processing and fur products made from them, increasing the yield and output of fur goods by the rational use of raw materials. Successful solution of these problems largely depends on the increase in the output of the highest quality of mink skins, i.e. skins of a larger area and higher quality [1,2,3]. The quality of the skins is made up of the optimal combination of down and guard hair, uniformity of the hair arrangement along the entire length, greater thickness and length of hair covering.

It is known that the size and quality of furs depend greatly on the proper feeding and keeping animals [4,5].

At the present time, various biologically active agents, including sorbents, antioxidants, and probiotics are used in fur farming to increase the value and safety of feed, increase the growth and development of young stock and have larger size and better quality of skins [6,7]. These agents stimulate metabolism, contribute to greater digestibility of feed nutrients, improve the physiological state of the animal and increase its productivity [8,9].

In view of the foregoing, the effect of new preparations in fur farming on the size and quality of the skin products was studied for the first time. These preparations are antioxidant Endox and feed additive Microbond. Economic efficiency of their use in fur farming is calculated.

MATERIAL AND METHODS.

Scientific and economic experiment was conducted on the basis of the mink farm ZAO “Biruli”. 3 groups of 100 heads in each one were formed according to the method of pairs-analogues from young male minks of a standard dark brown breed.

The animals of the first (control) group received only general ration (GR). Microbond was added at a dose of 125 mg per head per day in the rations of males of the II group, and the animals of the III group received Endox at a dose of 25 mg per 1 head per day in addition to the general ration.

After the experiment completion, all experimental animals were slaughtered. During the period of slaughter, the mass of animals, the length of the body, and the chest girth behind the shoulder blades were determined. The length of the body was measured from the tip of the nose in the midline of the ridge to the root of the tail with a measuring tape, the chest girth behind the shoulder blades was determined with a tape around the animal's body.

Primary processing and dressing of skins were carried out in accordance with the requirements of All Union State standard. The quality of the skins was evaluated by the commission with a description of the defects for each skin. Size and group of defects were determined. Summarizing the results, test of quality was established.

The methodology proposed by Rouvinen K. (1991) was used to calculate the economic efficiency.

RESULTS AND DISCUSSION.

Mass and main measurements of minks at the time of slaughter are presented in the Table 1.

The mass of animals of the experimental groups at the time of slaughter was 2309.4 ± 34.95 g and 2380.2 ± 43.04 g ($p < 0.001$) against 2070.5 ± 38.96 g in the control. Significant differences were also observed in the main measurements of the mink body. Thus, the body length of the animals which received Microbond in addition to the general ration was longer than the control animals by an average of 1.2-1.5 cm ($p < 0.001$), the chest girth behind the shoulder

blades was larger by 0.7 cm (p <0.05) in the II group, and in the III group it was larger by 1.4 cm (p <0.001).

Consequently, the use of the tested preparations has a positive effect on the average mass and linear measurements of commercial young growth of minks.

The results of selection and commission assessment of the quality of obtained skin products are presented in the Table 2.

As the Table 2 demonstrates, the area of skins obtained from animals of the experimental group, the ration of which included Microbond is larger than skins of control animals by 0.93 dm2 or 9.8%, in minks which got Endox skins were larger by 1.12 dm² or 12%. The number of especially large skins in the II and III experimental groups was larger than in the control one by 29.4% and 14.8% respectively. There were more defectless skins in experiments - 77.6 and 84.6% against 76.8% in control.

As a result, the main economic benefit is that the test of skin quality was also higher in the groups of animals that received Endox and Microbond, it was 114.1% and 117.4% respectively, while in the control it was 108.4%.

Thus, the use of Endox and Microbond has a positive effect on the size and quality of the obtained skins products. The economic efficiency of the use of the studied preparations for growing young minks is made up of a higher selling price of skins of experimental animals at the expense of a larger size, taking into account the cost of the preparations.

Economic efficiency of using the complex preparation Microbond at a dose of 125 mg per head per day was calculated on the basis of data on additionally obtained skin products, the cost of the Microbond preparation, as well as 1 dm² of skins. The result is presented in the Table 3.

The Table 3 shows that the daily use of the test preparation in the period of growing commercial young minks of 125 mg per head gives economic effect in the amount of 177.3 rubles per head. The cost of the preparation during the whole period of growing in this case is 2.68 rubles.

The economic efficiency of using the antioxidant Endox at a dose of 25 mg per head per day in rations for feeding young minks is presented in the Table 4.

The Table 4 indicated that the use of Endox in the rations of young minks at a dose of 25 mg per head per day gives significant economic effect due to receiving of additional products, increasing the size of mink skins in the experimental group on an average by 1.1 dm^2 compared to the control group, which gives a significant economic effect - 219.5 rubles for each head. At the same time, the cost of Endox per one head during the whole period of the experiment was 0.51 rubles.

Table 1 – Mass and measurements of the animals at the time of slaughter

Group	Index		
	Body mass, g	Body length, cm	Chest girth behind the shoulder blades, cm
I – control	2070.5±38.96	44.9±0.26	21.6±0.23
II – GR+125 mg of Microbond	2309.4±34.95***	46.1±0.21***	22.3±0.20*
III – GR+25 mg of Endox	2380.2±43.04***	46.4±0.25***	23.0±0.20***

NB: henceforward * - p <0.05; *** - p <0.001

Table 2 – Results of skin selection

Index	Group		
	I – control	II – GR+125 mg of Microbond	III – GR+25 mg of Endox
Skin area, dm^2	9.48±0.153	10.41±0.156***	10.6±0.14***
Especially large skins, %	53.6	83.0	68.4
Defectless, %	76.8	84.6	77.6
Test of quality, %	108.4	117.4	114.1

Table 3 – Economic efficiency of the Microbond use when growing young minks

Index	Unit of measurement	Group	
		I – control	II – GR+125 mg of Microbond
Cost of 1 kg of Microbond	rub	-	210
Cost of 1 g of Microbond	rub	-	0.21
Microbond dose per head per day	mg	-	125
Total spent of Microbond per head	mg	-	12750
	g	-	12.75
Cost of Microbond input per head	rub	-	2.68
Skin area	dm²	9.5	10.4
Difference with control group	dm²	-	0.9
Cost of 1 dm²	rub	200	200
Cost of additional production	rub	-	180
Economic efficiency	rub/head	-	177.3

Table 4 – Economic efficiency of the Endox use when growing young minks

Index	Unit of measurement	Group	
		I – control	III – GR+25 mg of Endox
Cost of 1 kg of Endox	rub	-	200
Cost of 1 g of Endox	rub	-	0.20
Endox dose per head per day	mg	-	25
Total spent of Endox per head	mg	-	2550
	g	-	2.55
Cost of Endox input	rub	-	0.51
Average skin area	dm²	9.5	10.6
Difference with control group	dm²	-	1.1
Cost of 1 dm² of skin	rub	-	200
Cost of additional production	rub	-	220
Economic efficiency	rub/head	-	219.5

CONCLUSION.

Thus, analyzing all the above, it can be concluded that the inclusion of biologically active agents (the complex preparation Microbond at a dose of 125 mg per head per day and the antioxidant Endox at a dose of 25 mg per head per day) in the main ration of young mink has a positive effect on weight and the measurements of animals, which they reach by the time of slaughter, the size and quality of the obtained skins. Therefore, the use of these preparations gives significant economic effect in the amount of 177.3 and 219.5 rubles per head respectively.

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