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## Effect Of Feeding Level On Morphometrics And Commodity Indices Mink Fur.

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### ABSTRACT

After the slaughter of male mink breeds black shorthair, sapphire, pastel and white hedlund following skins indicators were studied: weight of degreased fur (DF), the area of the fur after stretching to the rule (FA), the specific area of fur (one gram area of fur) (SAF). It was determined that the male sapphire, pastel, black shorthair observed a positive correlation with body weight DF (0,63-0,85) and body length with DF (0,55-0,71). This unexpected were the results showing that the increase in DF is not always indicates an increase in FA. Variability among DF mink males had significant limits - from 225 g to 480 g, while the FA does not fluctuate much less - from 854 cm<sup>2</sup> to 1036.8 cm<sup>2</sup>, and the change in skin SAF characterized by 2.16 to 4.48 cm<sup>2</sup>/g. DF correlation with FA has significant breed differences: silver-blue - 0.69 Pastel - 0.28, a black shorthair - (-0.32), Hedlund - (-0.21). At the same time, the correlation DF with SAF mink males of all breeds are highly negative (from -0.89 to 0.99).

**Keywords:** mink feeding, Mustella (Neovison) vison, commodity value furs of mink, area of mink fur, morphometric parameters of mink, breeding mink fur farming.

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## INTRODUCTION

The American mink is widespread and is a popular subject of fur farming. A large number of researchers studied the biological features of this animal. Thus it was found that with an increase in body weight of animals increases feed efficiency in both males and females. It is also found a positive correlation between feed conversion and live weight, feed conversion ratio and area of fur at different ways of content [2, 4]. Sørensen K. et al [7] have analyzed the body weight, skin, subcutaneous fat, mink body length of 30 weeks of age. The conclusion reached by the authors, is that females are fattened faster than males.

Progress to date body size minks increased compared with the wild ancestor of almost 4 times, but are not limiting, as evidenced by the large difference between the performance of different farms and continued from year to year consolidation of animals [1, 3, 5]. In their studies, Nielsen V.H. et al. [6, 8] carried out by the selection of a high weight in November mink group feed ad libitum (FL) and restricted feeding (RF) in two generations. The results show that the choice of FL feeding reveals increased appetite and thus improves the feed conversion ratio, and in the selection of the RF-group effect on improving feed utilization.

The great interest of scientists and practitioners to the problem of increasing the mass of bodies of animals due to the fact that the most important indicator of the production of breeding mink (in addition to the quality of the fur) is the size of the fur. Since it is not possible to conduct the selection of animals for this trait to their slaughter, the main focus of the selection is to increase the weight of the body minks. It is assumed that the trait has a positive correlation with the area of fur. As stated earlier [8], the body weight of animals is highly correlated with the mass obtained from these fur. The aim of this study was to find out how the mass of fur of heading corresponds to its area, measured after stretching skin.

## MATERIALS AND METHODS

The studies were conducted in fur farms LLC "Lesnye kluchi» Stavropol Territory. The object of the study were mink bred on the farm breeds: pastel, sapphire, black shorthair, white hedlund. The study used 10 male mink heads of each breed.

Since the birth of the animals prior to slaughter in November and December into account diet and feeding level. During the autumn slaughter animals in a fur determines the mass of degreased fur (DF), the area of fur (FA) was determined by multiplying the length of the middle head to the base of the tail on a double width, measured in the middle of the length of the fur. Measurements were carried out after stretching fur of hair outside. Stretching and skins fleshing performed on specialized equipment Denmark brand HG production. Display the specific area of fur (SAF) was obtained by dividing the area by its weight. It characterizes the area of one gram of fur.

The resulting material by morphometric parameters were processed with using Microsoft Excel 2007. Statistical analysis package conditional scale proposed Cheddokom (R.E. Chaddock) used to describe the magnitude of the correlation coefficient: less than 0.3 degree of correlation - weak; 0.3-0.5 - moderate; 0.5-0.7 - noticeable; 0.7-0.9 - high; more than 0.9 - very high. The variation of trait (Cv) at a value of less than 33.3% is considered low, more than 33% - strong.

## RESULTS AND DISCUSSION

Feeding of minks on the farm carried out using feeders minkomatic. All major components of minced meet the requirements of quality and security and can be used for feeding minks. Feed studies carried out in laboratory conditions "Feeds and metabolism" of the Stavropol State Agrarian University. Young growth is increasing rapidly mink summer and 5-6 months of age up to the size of adult animals. Order feeding of youngsters - "in plenty", with a nutritious diet is maximum in August - 446.4 kcal / 1 individual in a day.

To determine dependence degreased fur (DF) by fur area (FA), was a comparative analysis of various indicators of mink's furs (table. 1), obtained from males of four kinds of silver-blue, pastel, black shorthair, white Hedlund.

**Table 1: Morphometric and commodity indicators furs of various minks breed**

| Group of animals   | Correlation DF with AF | Indicators | DF, g  | Length of fur, sm | Width of fur, sm | AF, sm <sup>2</sup> |
|--------------------|------------------------|------------|--------|-------------------|------------------|---------------------|
| 1. Silver-Blue     | 0,69                   | M          | 338,6  | 75,3              | 6,2              | 934,7               |
|                    |                        | m          | 21,24  | 1,33              | 0,04             | 22,63               |
|                    |                        | Cv         | 0,19   | 0,05              | 0,02             | 0,07                |
| 2. Pastel          | 0,28                   | M          | 289,8  | 79,3              | 6,31             | 1001,2              |
|                    |                        | m          | 12,40  | 0,70              | 0,04             | 14,58               |
|                    |                        | Cv         | 0,13   | 0,03              | 0,02             | 0,04                |
|                    |                        | p 1-2      | > 0,05 | < 0,05            | < 0,05           | < 0,05              |
| 3. Black shorthair | -0,32                  | M          | 285,9  | 74,1              | 6,13             | 909,1               |
|                    |                        | m          | 13,05  | 1,22              | 0,03             | 19,21               |
|                    |                        | Cv         | 0,14   | 0,05              | 0,02             | 0,06                |
|                    |                        | p 1-3      | < 0,05 | > 0,05            | > 0,05           | > 0,05              |
| 4. Hedlund         | -0,21                  | p 2-3      | > 0,05 | < 0,01            | < 0,05           | < 0,01              |
|                    |                        | M          | 259,4  | 76,8              | 6,2              | 952,8               |
|                    |                        | m          | 7,37   | 0,93              | 0,04             | 16,70               |
|                    |                        | Cv         | 0,09   | 0,04              | 0,02             | 0,05                |
|                    |                        | p 1-4      | < 0,05 | > 0,05            | > 0,05           | > 0,05              |
|                    |                        | p 2-4      | > 0,05 | > 0,05            | > 0,05           | > 0,05              |
| p 3-4              | > 0,05                 | > 0,05     | > 0,05 | > 0,05            |                  |                     |

▪ Note: Significant differences are highlighted.

**Table 2: Dependence of area and specific area of fur of its weight from male minks of different breeds**

| Breed           | Selection                | DF, g  |       | AF, sm <sup>2</sup> |       | SAF, sm <sup>2</sup> /g |      | Correlation DF with AF |       |
|-----------------|--------------------------|--------|-------|---------------------|-------|-------------------------|------|------------------------|-------|
|                 |                          | M      | m     | M                   | m     | M                       | m    | DF                     | SAF   |
| Silver-Blue     | Whole group              | 338,6  | 21,24 | 934,66              | 22,63 | 2,83                    | 0,15 | 0,69                   | -0,89 |
|                 | With a large mass of fur | 415,67 | 32,32 | 992,13              | 44,67 | 2,40                    | 0,15 | 0,58                   | -0,78 |
|                 | With a small mass of fur | 280,33 | 27,69 | 882,47              | 16,27 | 3,21                    | 0,32 | 0,43                   | -0,99 |
|                 | p                        | < 0,05 |       | > 0,05              |       | > 0,05                  |      |                        |       |
| Pastel          | Whole group              | 289,8  | 12,40 | 1001,22             | 14,58 | 3,51                    | 0,15 | 0,28                   | -0,92 |
|                 | With a large mass of fur | 334,00 | 12,77 | 1027,33             | 19,33 | 3,09                    | 0,16 | -0,40                  | -0,95 |
|                 | With a small mass of fur | 249,00 | 7,00  | 1005,20             | 25,47 | 4,05                    | 0,20 | -0,92                  | -0,97 |
|                 | p                        | < 0,01 |       | > 0,05              |       | < 0,01                  |      |                        |       |
| Black shorthair | Whole group              | 285,9  | 13,05 | 909,06              | 19,21 | 3,25                    | 0,19 | -0,32                  | -0,91 |
|                 | With a large mass of fur | 334,33 | 4,26  | 913,20              | 37,54 | 2,73                    | 0,14 | 0,10                   | -0,90 |
|                 | With a small mass of fur | 240,67 | 10,65 | 963,27              | 22,38 | 4,02                    | 0,25 | -0,87                  | -0,95 |
|                 | p                        | < 0,01 |       | > 0,05              |       | < 0,05                  |      |                        |       |
| Hedlund         | Whole group              | 259,4  | 7,37  | 952,84              | 16,70 | 3,70                    | 0,13 | -0,21                  | -0,89 |
|                 | With a large mass of fur | 288,0  | 6,51  | 924,27              | 22,59 | 3,22                    | 0,15 | -0,93                  | -0,99 |
|                 | With a small mass of fur | 234,3  | 1,86  | 954,80              | 7,16  | 4,08                    | 0,06 | 0,18                   | -0,98 |
|                 | p                        | < 0,05 |       | > 0,05              |       | < 0,05                  |      |                        |       |

▪ Note: reliability assessment by Student's test was conducted between animals with large and small mass of skins. Significant differences are highlighted.

By studying the dependence of DF by AF can notice that mink has significant interbreed differences, by this indicator, which varies from 0,69 males of silver-blue mink, to -0,32 males of black Shorthair.

We decided to conduct a comparative analysis of dependence DF by AF in animals with extreme AF indicators within each group. For this data were compare 30% of the animals with most heavy and most light fur. Additionally have been calculated the specific area of fur (SAF) (table 2).

The data analysis of group gray-blue of the males reveal that despite a significant difference in the subgroups by DF and a significant positive correlation between DF and AF, the differences of sub-groups by DF and SAS were not authentic. Analyzing data by males of breed pastel revealed that DF sample of light and heavy fur had significant difference, however by AF difference was not authentic, which in this case explains the significant difference by SAF.

In the group male Black shorthair of breeds was also observed a high negative correlation in animals with little DF between DF and AF, and male of Hedlund breed observed strong negative correlation between these parameters, on the contrary, male with large DF, while in males with a small DF this correlation was slightly positive.

### CONCLUSION

Thus, it is possible to make following conclusion. Feeding the slaughter of animals is plenty. Zootechnical justification for such actions is the assumption about the increase in the area of skin in accordance with the body mass increase. The high negative correlation of DF with SAF reveal that the cost of providing the increase in live weight of animals and, therefore, DF do not pay off the increase of its AF, since the increase in the area due to the increase in mass observed only at the skins with a mass of 400 grams. In males, sapphire, pastel, black Shorthair, there is a positive correlation between weight of the animal with MSH (0,63-0,85) and body length with MSH (0,55-0,71), and the increase in DF is not always indicative of higher AF and, consequently, commodity values. The correlation between DF and AF has significant breed differences. At the same time, the correlation of DF with SAF for males of all breeds Minks highly negative (up to - 0,99 -0,89). Consequently, in three of the five studied groups of animals with a small DF revealed a negative relationship from DF by AF, that probably is the most common regularity. Due to the fact that the dependence of these features varies in different breeds of mink, it is necessary to examine more carefully what determines these attributes, so you can use them in breeding.

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