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Morphometric Parameters Slaughtering Young Mink.

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ABSTRACT

Studied carcasses and fur mink breed of pastel, sapphire, and a black shorthair, 5 samples of each breed, males and females (60 individuals). The live weight of females breed of black shorthair (1246,1 ± 76,29 g) than in females breed of pastel (1084,5 ± 45,2 g) and breed of sapphire (1082,2 ± 34,87 g). Herewith propensity to transfer feed to nutrients fat are females breed of pastel: 179,5 ± 17,36 g (16,27 ± 1,16% of body weight) vs. 211,0 ± 10,84 g and 275,2 ± 26.00 g of the breed of sapphire and black shorthair. Among males the largest individuals breed of pastel (2488 ± 48,5 g), the smallest - breed of sapphire (1737,9 ± 45,3 g). Here with males breed of pastel had the lowest weight of fat (19 ± 0,63%). Most prone to fat are males breed of black shorthair, whose mass of fat is 22,38 ± 0,86%. The studies revealed a line of regularities in the relationship morphometric parameters, which determined after slaughter, with the signs to use in the breeding of minks. When breeding mink to increase body weight, selected from the progeny of producers with low propensity to deposit fat (16%).

Keywords: morphology of mink, morphometric parameters, the American mink, fat, body mass mink.

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INTRODUCTION

American mink Mustela (Neovision) vision - a common object of fur farming. Despite the fact that mink bred in captivity for a long time, practitioners have no clear understanding of how the selection can be carry out to increase the area of skin, one of the most important factors that increase the cost.

As far asit is impossible to carry out the selection of live animals directly from the fur area, to maximize the productivity of the selection of animals is carry out on grounds such as body weight, body length, multiple pregnancy, the quality of fur. The selection of mink for the most weight and body length made to increase the size of the skin. However, it was noted [1] that the weight of mink in September negatively correlated with fertility. In another study, it was noted that in some lines of mink of selected on the basis of body weight in September and the size of the litter, the assimilation of protein, fat and energy was significantly different. The authors conclude that the selection of the size of the body must be carrying out with the use of selection criteria that will avoid the negative effect of increasing fat deposits on the reproductive quality. Therefore, the selection of the size of the body in mink should be perform using such selection criteria that can help you avoid the negative effects of increased fat deposition on the reproductive capacity. [2] Normally, the body weight of mink regulate calorie diet. Females that were keeping at a moderate diet with limited calories had a significantly higher fertility and less DNA damage in nulliparous females [3].

Typically, selection of animals for breeding is carrying out before slaughter in November. However, according to Scandinavian investigators [4] Use for breeding mink high weight in November when feeding ad libitum promotes breeding mink high appetite and high fat deposition, while selection by weight Augusta contributes to obtaining low fat mink [5, 11]. Estimate the total fat deposition in minks may be of fat depots: subcutaneous and omental fat. Studies have shown that body fat is a better predictor of total body fat [6].

Thus, it can be noticing that the authors, who have studied this issue, consider it necessary to select animals for the ability to gain fat mass by the autumn, and on the use of nutrients to build his own body and a set of muscle mass. Unfortunately, the available literature, we found no works devoted to the area, depending on the fur of selected characteristics, in particular the body weight. Thus, as shown by studies [7, 8], mink have great morphological variability, including, depending on the type of color. Thus, breeders have the opportunity to carry out the selection in that direction.

The purpose of this study was to determine the relationship of indicators such as the mass of fur and body weight in mink of different colors and identify these differences in breed's indicators.

MATERIALS AND METHODS

The object of the study were mink (30 individuals of males and females) breed of pastel, sapphire and black shorthair. The young animals selected from the mothers kept under standard environmental conditions, opposite-sex couples (male and female) in the same type of cells. Feeding the animals and the water supply was ad lib. Animal carcasses at 7 months of age were obtaining at scheduled slaughter in November. In mink, posthumously we examined the animal's body weight, the weight of the fur, fat mass and body length.

During the spring slaughter animal were obtained fur (30) of the males breed of pastel, black short-haired, silver-blue and hedlund white mink and females breed of black shorthair. We studied the mass of crude fat-free fur.

By weighing in vivo control groups from June to October, determined the dynamics of growth of young mink. For the weighing was using the portable cells. During the autumn slaughter animals for the furs, determined the absolute and relative weight of the animals, fat-free fur, subcutaneous fat. Determined the length of the body. Body size was determined by weighing and the length of the body measured from the tip of the nose to the root of tail.

The material obtained by morphometric parameters was biometrically processed using statistical analysis package Microsoft Excel 2007.

The value of the correlation coefficient was measuring on a scale proposed by Cheddokom (RE Chaddock): less than 0.3 degree of correlation - weak; 0.3-0.5 - moderate; 0.5-0.7 - a noticeable; 0.7-0.9 - high; more than 0.9 - very high.

It was calculated the coefficient of variation (Cv), which used to compare dispersion characteristics of two or more indicators which has different units of measurement. According to the degree of variation can judge the uniformity of the aggregate, the stability of the individual characteristic values and the typical average. If the value of less than 33.3% - a sign of weak variation. If more - strong. In the latter case, investigated data set is not uniform, its average value recognized atypical and therefore cannot be generalized indicator.

RESULTS AND DISCUSSION

The ultimate goal of breeding work is the formation of parent herd for consumer trends, for fur with high quality (color, length, etc.) and popular size on the market, the lowest cost. In this regard it has been studied some morphometric parameters and established correlations between them of the slaughter's young animals during scheduled autumn slaughter (Table. 1).

When comparing morphometric parameters females mink different color groups establish that the females breed of black shorthair were significantly larger than females breed of pastel and sapphire. Furthermore, they differed high content of fat. It should be noted that the lowest amount of fat was observed in breed of pastel: 179,5 ± 17,36 g versus 211,0 ± 10,84 g and 275,2 ± 26,00 breed of sapphire and black shorthair, respectively. This females breed of pastel has the least propensity to deposit fat, it can be judged by its low relative weight - 16,27 ± 1,16%.

The coefficient of variation suggests that the most consolidated in all considered parameters were minks breed of sapphire. Based on the strong performance Cv by parameters such as the weight of the animal (0.18), the mass of fat (0.28) and other, females breed of black shorthair should be subjected to more rigorous selection of breeding. Apparently, the large variation among the females of this breed are formation of herds manufacturers black shorthair mink by absorption crossing minks with larger mass (local selection) which had brought in 2009, a black short-haired mink (black shorthair) Danish breeding.

In the study of the correlation of different indicators (Table. 2) it should be noted that the correlation between the mass of fur with a mass of animals in all groups are highly positive. At the same time with a long body weight in females breed of pastel and black shorthair correlated moderately and females breed of sapphire this indicator is significantly higher.

An interesting fact is that females breed of black shorthair and pastels influence of body weight on the weight of the skins more important than the length of the body, and the breed of pastel, both selected feature has equal influence. Subcutaneous fat mass in all groups positively correlated to marked and high levels weighing the furs, and particularly with a mass of animals. It should be noted that the length of the body affects the amount of subcutaneous fat in females only breed of sapphire, while females breed of pastel and black shorthair such dependence has not been found.

In general, it should be notice the mink breed of sapphire are sufficiently form with stable correlative links of selected parameters for the main body of the group. Weak correlation of body weight with the fur of animals and the amount of subcutaneous fat in mink breed of pastel and black shorthair suggests incompleteness of breeding work in these groups.

Among males was significant difference of all three species in body weight (Table. 3): the largest males were breed of pastel (2488 ± 48,5 g), most small - breed of sapphire (1737,9 ± 45,3 g). Males breed of pastel were significantly longer (48,5 ± 0.42 cm), while the breed of black shorthair and sapphire has substantially the same length (44,5-45,3 cm). This breed of pastel males had the lowest percentage of fat and significantly larger mass of fur.

Most prone to fat deposition turned mink breed of black shorthair whose fat mass was 22,38 ± 0,86%.

Analysis of variability of different traits of selected shows lower performance of this feature for the length of the body (within 4%), which indirectly indicates the limits are reached based on selection at work in these groups of animals. At the same time relatively high coefficients of variation in terms of the mass of evidence that tribal resources in this direction in the economy have not been exhausted.

For a more complete understanding of the direction selection and breeding work was conducting to study the mutual influence of various morphometric characters. Data are present in the table 4.

As the main products, farm mink is the fur and one of quality indicators by which they are measure, is their area, of particular interest is the impact of the mass and the length of the animal's body weight on the fur. In all groups, the correlation of these parameters is positive, is a prominent, and is on a high level.

There was a different dependence of the percentage of body fat and body mass in different groups of males. Minks the breed of sapphire showed a high positive correlation, minks the breed of skanblek weak positive, and minks the breed of pastel - a weak negative that has a high propensity for large minks the breed of sapphire to the deposition of subcutaneous fat. At the same time, the amount of mink the breed of pastel fat has little effect on the weight of the skins.

CONCLUSION

Thus, minks of different breeds according to various utilizes energy of feed. Live weight of females the breed of black shorthair (1246,1 ± 76,29 g) was significantly higher than in females the breed of pastel (1084,5 ± 45,2 g) and the breed of sapphire (1082,2 ± 34,87 g). At the same time the least propensity to transfer feed nutrients as fat are females the breed of pastel: 179,5 ± 17,36 g (16,27 ± 1,16% of body weight) vs. 211,0 ± 10,84 g and 275,2 ± 26.00 g and the breed of sapphire and black shorthair, respectively. Among males the largest special breed of pastel (2488 ± 48,5 g), the smallest - the breed of sapphire (1737,9 ± 45,3 g). The males breed of pastel had the lowest relative weight of fat (19 ± 0,63%). The males breed of black shorthair more prone to fat deposition whose fat mass are 22,38 ± 0,86%.

The studies revealed a number of regularities the relationship in the morphometric's parameters, which determined after slaughter, with the signs used in the breeding of minks. Thus, it is possible to offer to add the results of post-mortem the statistical analysis of morphometric parameters their parents for assessment in the fur farms minks. When breeding mink to increase the body weight of the offspring to select manufacturers with a low propensity to deposit fat (16%).

Table 1: The morphometric parameters of females of various breeds of mink

Group of Animals (females)	Indicators	The fur, g	The weight of the animal, g	Body length, cm	Subcutaneous fat mass, g	Subcutaneous fat (% of body weight)
Breed of Sapphire	M	135,50	1082,20	38,70	211,00	19,44
	m	3,32	34,87	0,58	10,84	0,68
	Cv	0,07	0,10	0,04	0,15	0,10
Breed of Pastel	M	146,40	1084,50	39,13	179,50	16,27
	m	6,07	45,20	0,59	17,36	1,16
	Cv	0,12	0,13	0,05	0,29	0,21
	p 1-2	> 0,05	> 0,05	> 0,05	< 0,05	< 0,05
Breed of Black shorthair	M	141,50	1246,10	39,05	275,20	21,77
	m	6,85	76,29	0,59	26,00	1,20
	Cv	0,15	0,18	0,05	0,28	0,17
	p 1-3	> 0,05	< 0,01	> 0,05	< 0,01	> 0,05
	p 2-3	> 0,05	< 0,01	> 0,05	< 0,001	< 0,01

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Table 2: Correlation of selected morphometric parameters of females of various breeds of mink

Group of Animals (females)	The correlation of different indicators					
	Fat mass of the animal, %	Mass of subcutaneous fat			Mass of fur	
		Animal weight	Mass of fur	The length of the animal's body	Animal weight	The length of the animal's body
Breed of Sapphire	0,28	0,78	0,52	0,56	0,67	0,66
Breed of Pastel	0,64	0,86	0,70	-0,08	0,87	0,39
Breed of Black shorthair	0,48	0,88	0,64	-0,22	0,87	0,45

Table 3: The morphometric parameters of male mink of different breeds

Group of Animals (males)	Indicators	The fur, g	The weight of the animal, g	Body length, cm	Subcutaneous fat mass, g	Subcutaneous fat (% of body weight)
Breed of Sapphire	M	148,50	1737,90	45,30	372,50	21,22
	m	7,93	84,19	0,54	29,09	0,68
	Cv	0,16	0,15	0,04	0,23	0,10
Breed of Pastel	M	320,30	2488,00	48,50	471,90	19,00
	m	14,43	78,63	0,42	19,93	0,63
	Cv	0,14	0,09	0,03	0,13	0,10
	p 1-2	< 0,001	< 0,001	< 0,001	< 0,01	> 0,05
Breed of Black shorthair	M	219,30	2006,10	44,55	450,90	22,38
	m	10,46	93,75	0,60	30,92	0,86
	Cv	0,14	0,14	0,04	0,21	0,12
	p 1-3	< 0,001	< 0,01	> 0,05	< 0,01	> 0,05
	p 2-3	< 0,001	< 0,001	< 0,001	> 0,05	< 0,05

Table 4: Correlation of selected morphometric parameters in males of different breeds of minks

Group of Animals (males)	The correlation of different indicators					
	Fat mass of the animal, %	Mass of subcutaneous fat			Mass of fur	
		Animal weight	Mass of fur	The length of the animal's body	Animal weight	The length of the animal's body
Breed of Sapphire	0,73	0,96	0,53	0,67	0,63	0,71
Breed of Pastel	-0,20	0,57	0,21	0,26	0,79	0,55
Breed of Black shorthair	0,27	0,82	0,48	0,22	0,85	0,55

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