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DESCRIPTION OF BULL LEATHER RAW MATERIAL OF DIFFERENT GENOTYPES

Kurbonova Shakhnoza Ergashevna
Senior teacher of Samarkand veterinary medicine institute, doctor of philosophy in agricultural sciences (PhD).
E-mail: shqurbonova@gmail.com Cell: +998-93-703-48-01
Gapparov Shovkhiddin Tajievich
Teacher of Samarkand veterinary medicine institute.
E-mail: gapparovsavkidin@gmail.com Cell: +998-93-461-61-67
Egamberdieva Zebo Komilovna
Teacher of Samarkand veterinary medicine institute.
E-mail: zebokomilovna@mail.ru Cell: +998-97-408-96-46

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Abstract:

The article presents data on the quantitative and qualitative leather-processing indicators of fattened bulls of different genotypes, obtained at 18 and 21 months old.

Keywords: Leather raw material, light industry, footwear, breed, genotype, hybrid, heavy leather, leather thickness.

INTRODUCTION.

The leather covers many vital functions in the animal's body. In particular, the leather is a protective shell against mechanical damage to the organs beneath it, microorganisms that cause dryness and disease, poisoning, insect bites.

The leather is also important as an organ that controls heat exchange in the body and protects it from the harmful sunlight effects. The leather is a mirror of various physiological and pathological processes in the body, depending on its condition it is possible to draw conclusions about the animal's health. As a result of external environmental influences on the leather, the animal's body resistance increases, hardens and affects overall health. In addition, the leather is involved in the exchange of gases in the body to a certain extent, that is, a certain amount of carbon dioxide is released through the leather and oxygen is absorbed.

Leather raw material is considered as an important slaughter product. Its weight is on average 7-8% of the cattle live weight before slaughter. In the footwear manufacture, thick leathers weighing not less than 25 kg are used for the technical leather and furniture upholstery manufacture. They are required to be sufficiently strong, mature, 4-4,5 cm thick and relatively flat thickness over the entire surface of the leather [1].

The quality, composition and technological properties of cattle leather of different breeds differ significantly from each other.

It is known that meat-oriented cattle breeds are thicker than dairy and dairy-meat cattle. In cross-breed hybrid cattle, the leather quality is better, elastic and has a flat thickness on the surface. The older cattle leather is rougher, the thickness is not uniform across the leather surface, while in young cattle the leather is elastic and the thickness is uniform.

The results of special studies and the practice of leather processing enterprises show beef cattle at 14-15 months, and dairy and co-breeding cattle at 16-18 months produce large and heavy leathers when the pre-slaughter live weight exceeds 360 kg.

According to many studies results the leather quality is also affected by factors such as the conditions of keeping cattle, parasitic blood-sucking insects in pastures, fattening and slaughter technology, cattle type, animals transportation for slaughter [2].

Among the products obtained from cattle, leather occupies an important place and is a valuable raw material for light industry enterprises that produce leather. It is mainly used in the shoes, clothes, straps, bags manufacture.

Despite the widespread use of artificial raw materials currently used in various leather substitutes, the light industry demand for this valuable natural raw material has not been fully met. The main source of high quality leathers is fattened young cattle. Leathers as a product are mainly divided into small light and large heavy leathers. All of the leathers obtained in the 18- and 21-month control sessions of our study fell into the large and heavy leathers category. It is known that when cattle leathers weigh more than 25,0 kg, they are group I large and heavy leathers

RESEARCH MATERIALS AND METHODS.

The study of the quantity and quality of young cattle leathers belonging to different genotypes and slaughtered at different ages was conducted at the cattle farm of "Juraniyaz Toshpulatov" farm in Sherabad district of Surkhandarya region. Five bulls were separated from each groups in which the leathers indicators of fattened and slaughtered young cattle of different ages were formed. In this case, group I – purebred black-and-white bulls, group II - Swiss, group III - black and white cows were bred with Holstein bulls ½ black-and-white bulls of the Holstein genotype, and group IV bulls of the ¼ black-and-white and ¾ Holstein genotype. The leather raw materials performance was compared with the current State Standards. The obtained data were processed biometrically [3].

RESEARCH RESULTS.

Information on the bull leathers performance in the experimental group is given in Table 1 below.

Analysis of the table shows that leather weight in all groups ranged from 28,9 to 31,5 kg in the 18 month control volume. Intergroup differences were identified for this indicator. In particular, the heaviest leather was obtained from group IV bulls, they beat their peers of groups I, II, III in proportion to: 2,6 kg (P<0,01) or 9,0 %, 0,8 kg (P<0,05) or 2,6 %, 0,5 kg (P>0,05) or 1,6 % left behind.

In the control slaughter at 21 months old, the group IV bulls leathers were superior to their peers in groups I, II, and III in weight, respectively: 1,5 kg (P<0,05) or 4,5 %, 1,4 kg (P<0,05) or 4,2 %, 0,2 kg (P>0,05) or 0,6 %. The relative weights of the leathers ranged from 7,1–7,9% and 6,8–7,3%, respectively, at 18 and 21-month control bulls.

The leather length, its surface and the waist thickness are one of the main quality indicators.

The longest leather in the 18-month follow-up was in bulls in experiment group IV, according to this indicator, they beat their peers of groups I, II, III, respectively: 5,0 cm (P<0,05) or 2,8 %, 6,6 cm (P<0,01) or 3,7 %, 1,3 cm (P>0,05) or 0,7 % left behind.

In the 21-month follow-up, this indicator was dominated by first-generation crossbreed bulls in group III and bulls in experimental groups I, II, and IV, respectively: 9,6 cm (P<0,01) or 5,3 %, 7,9 cm (P<0,05) or 4,3 %, 0,9 cm (P>0,05) or 0,5 % higher

Table 1
Quality indicators of bull leather in the experimental group (X±Sx)

Indicators	Groups (n =5)							
	I		II		III		IV	
	The age at which the control slaughter was performed, in months							
	18	21	18	21	18	21	18	21
Leather weight, kg	28,9±0,31	33,4±0,51	30,7±0,42	33,5±0,30	31,0±0,41	34,7±0,80	31,5±0,49	34,9±0,73
The leather ratio to live weight before slaughter, %	7,1	7,3	7,3	6,8	7,6	7,0	7,9	7,3
Leather length, cm	180,7±1,6	186,6±1,6**	179,1±2,1	182,4±2,1*	184,4±2,7	190,3±2,06	185,7±1,9	189,4±1,6*
Leather width, cm	176,7±1,7	181,3±1,4**	178,0±1,5	190,1±1,7*	183,0±1,9	191,9±1,7	184,0±1,7	190,1±2,1*
The leather surface, dm^2	282,0±2,9	294,0±2,14	283,0±3,10	298,1±3,6	285,6±2,3	300,0±1,6	304,3±2,3	310,1±2,9
Waist thickness of leather, mm	4,71±0,04	5,07±0,06	5,10±0,04	5,28±0,04	5,17±0,07	5,40±0,18	5,10±0,05	5,31±0,05
Leather type	I	I	I	I	I	I	I	I

*- P<0,05; **- P<0,01

The leather width is also an important indicator in determining its quality. In both control units on this indicator, the first and second generation crossbred generations achieved a more positive result than the others. In particular, the leather width was 184,0 cm in 18-month-old control bulls in group IV bulls according to this indicator, they are bulls of groups I, II, III, respectively:7,3 cm (P<0,01) or 4,3 %, 6,0 cm (P<0,05) or 3,6 %, 1,0 cm (P>0,05) or 0,5 % left behind.

In the 21-month control follow-up, the predominance was in group III cross-bulls, which were 191,9 cm. In other words, they correspond to their peers: 10,6 cm (P<0,01) or 5,8 %, 1,8 cm (P<0,05) or 0,4 %, 1,8 cm (P>0,05) or 0,4 % higher.

It is known that the larger the leather surface area, the more quality and more products are obtained. According to this indicator in the 18- and 21-month-old control herds, mixed group IV animals predominated and the surface area of their leather was 304.3 and 310.1 dm2, respectively and bulls in experimental groups I, II, III, respectively: 22,2 dm^2 (P<0,01) or 12,2 %, 21,3 dm^2 (P<0,01) or 7,5 %, 18,7 dm^2 (P>0,05) or 6,5 % left behind.

The difference at 21 months is as follows:16,1 dm^2 (P<0,01) or 5,5 %, 12,0 dm^2 (P<0,05) or 4,0 %, 10,1 dm^2 (P>0,05) or 3,4 %.

Researchers say that the thicker the leather, the better its brand and the better the product. With this in mind, we determined the waist thickness of the leather in our study and made sure that there was a positive correlation between the leather weight and its thickness [4].

In particular, the thickest leather in the 18- and 21-month-old control bulls was in the first-generation mixed-bull bulls in experiment group III, measuring 5,19 and 5,40 mm, respectively. According to this indicator, they are in proportion to their peers of groups I, II, IV: 0,48 mm (P<0,01) or 10,2 % and 0,33 mm (P<0,01) or 6,6 %, 0,9 mm (P>0,05) or 1,8 % and 0,30 mm (P<0,01) or 5,9 %, 0,9 mm (P<0,05) or 1,8 % and 0,30 mm (P>0,01) or 5,9 % left behind.

CONCLUSION.

A study of quantitative and qualitative indicators of bull leathers of different genotypes shows that the bulls leathers slaughtered at 18 and 21 months old are heavy-duty leathers and are a high raw material for the industry. In our study, a significant inter-group statistical difference was found in all leather raw materials indicators obtained from bulls in the experimental group, in which purebred bulls had a slight advantage over purebred animals. The results obtained in our study are consistent with many researchers data who have conducted research in this area [5], [6].

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