

V. S. Kozyr. The quality of calf leather of beef and dual-purpose breeds in the steppe zone of Ukraine

The hides, obtained from the slaughter of beef cattle, are valuable raw materials for the leather industry. Their value is determined by thickness, size, density, elasticity and other technological properties, development of subcutaneous fat and connective tissues which depend on breed, sex, age, conditions of animal keeping, climate, its temperature and humidity conditions, feeding.

5 groups of bull-calves of Ukrainian Beef, Hereford, Aberdeen Angus, Charolais and Simmental breeds (15 head) were formed in accordance with the methods at "Polyvanivka" experimental farm. Ration of feeding was similar for all the groups and consisted of typical feed for steppe zone of Ukraine. In summer green feed in structure of diet was 25%, roughage – 33%, 42% of concentrates and in winter succulent – 23%, roughage – 18%, grain – 41%, herbal pellets of alfalfa – 14%. Access to food was free (feeding space – 1 meter), eating of feed – good (97-98%), they consumed 7.5 feed units and 800 g of digestible protein. The average daily gains of live weight were within 1 kg per head. Clinical and haematological parameters showed that all the bull-calves were physiologically healthy.

The hides of bull-calves at the age of 12 months were classified by weight as heavy (more than 25 kg). Yield of bull-calves' hides of Hereford, Aberdeen Angus and Charolais breeds was the highest at the age of 18 months, Ukrainian Beef and Simmental – at 30 months of age. This figure is not dependent on breeds of animals, but on weight of hides. In accordance with the habitus the hides of Ukrainian Beef, Charolais and Simmental bull-calves were longer, and Hereford exceeded analogues in width. Hides of Ukrainian Beef and Charolais cattle predominated by area.

In our research, the thickness of the hides of animals with age naturally and consistently increased in all standard points: at the elbow from 3.2 to 7.7 mm, at the last rib – from 3.2 to 7.4 mm, on sacrum – 4.7 to 8.8 mm. That is, during the period from 12 to 30 months of age thickening of hides at the elbow was an average of 2.4 times, at the last rib – 2.3 and sacrum – 1.9-fold ($P < 0.99$).

The chemical composition of hides in all the age periods remained stable. But tendency to reducing the proportion of water and increase of the fat content was noticeable with age. The share of protein and ash increased, but much slower.

It is clear that weight of hides, their length and width, area and thickness which characterize the product properties and chemical composition don't determine a high quality of raw hides. In this context we brought the hides of the investigated bull-calves in UkrNIIPK, where they were processed in the chrome-tanned leather for shoe upper at the experimental factory of the institute. The leather had a smooth, flat front surface and was full, soft, elastic, without hairiness in the final form.

The findings indicate the differences between cattle of different breeds on expenditure of raw hides at production of leather for shoe upper by the current technology. More pronounced saving in raw materials was obtained at the processing of hides of Ukrainian Beef and Simmental bull-calves. Class of leather in all the studied groups exceeded the industry average (85.4% – first-class units).

The results of physical and mechanical tests confirmed that the leather, produced from the hides of the bull-calves of the studied breeds, on the basic parameters complied with the requirements of the standard in the industry.

Southern climate of Ukraine does not adversely affect the formation of skin of imported Hereford, Aberdeen Angus and Charolais bull-calves.

The hides of beef bull-calves in all the age periods (even till 30 months) are the raw materials of sufficient quality and first-class leather can be made from it.

Accelerating the development of specialized beef cattle-breeding in the steppe zone of Ukraine can reduce import of leather and thus save certain amount of currency funds.

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