

IMPACT OF GENOTYPE ON CATTLE GROWTH, BEEF CHEMICAL COMPOSITION AND CHOLESTEROL LEVEL

Aldona Baltušnikienė¹, Vigilijus Jukna²

¹*Department of Biological Chemistry, Veterinary Academy, Lithuanian University of Health Sciences
Tilžės str. 18, LT-47181, Kaunas, Lithuania, Phone: +37037362151, E-mail: aldonabalt@lva.lt*

²*Laboratory of Meat Characteristics and Quality Assessment, Department of Animal Husbandry
Veterinary Academy, Lithuanian University of Health Sciences, Kaunas, Lithuania*

Summary. This paper presents data on the impact of genotype on the growth rate and live weight of cattle under 500 days of the age; on the beef chemical composition, intramuscular fat and cholesterol level. The breeds tested included Lithuanian Black and White, Lithuanian Red, Charolais, Simmental, Aubrac and the crossbreds of these purebred cattle with the Lithuanian dairy cows.

Compared with Lithuanian Black and White cattle the highest weight in the purebred group had Charolais (+168.5 kg, $P<0.05$) and Simmental (+110.5 kg, $P<0.05$); in the crossbred group, Lithuanian Red x Charolais (+45.5 kg, $P<0.05$) and Lithuanian Black and White x Simmental (+34.8 kg, $P<0.05$) had the highest weight. Comparable tendency was observed in daily gain: for Charolais it was 168 g ($P<0.01$), for Simmental 118 g ($P<0.05$), for Lithuanian Red x Charolais 87 g ($P<0.01$), and for Lithuanian Black and White x Simmental – 82 g ($P<0.05$), respectively.

Dry matter content in the beef varied from 24.7 % in Aubrac to 26.1 % in Lithuanian Red x Simmental crossbred meat. Significant differences were observed in protein content, but there was no correlation between the dry matter and protein content in the beef from both groups.

The intramuscular fat content in *M. longissimus dorsi* from different genotypes of cattle varied from 1.10 to 2.72 %. The highest levels of intramuscular fat were found in Lithuanian Black and White and Lithuanian Red purebred bull meat, the lowest - in Aubrac and in Charolais purebred bull meat ($P<0.001$).

The cholesterol content in the beef ranged from 48.5 to 57.5 mg/ 100 g. The ranges were lower on 1.1-15.5 % for purebreds and on 6.8-14.4 % for crossbreds compared with Lithuanian Black and White purebreds. The highest cholesterol level was determined in Lithuanian Black and White and Lithuanian Red purebreds. However, significant differences in cholesterol level were observed in beef from Lithuanian Black and White x Aubrac and Lithuanian Red x Aubrac: 11.7 and 14.4 % ($P<0.05$), respectively. Low correlations between the cholesterol content and intramuscular fat content were determined ($r<0.32$).

Keywords: daily gain, protein, intramuscular fat, cholesterol, bull, muscle.