

LITHUANIAN BEEF CATTLE POPULATIONS AND MEAT QUALITY OF THEIR HYBRIDS

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Abstract. The aim of this study was to perform a comparative evaluation of the most common beef cattle populations in Lithuania and meat quality of their hybrids of. The experiment was carried out both with the meat of pure-bred bulls of Limousin (LI), Charolais (CH), Angus (AN), Hereford (HE), Simmental (SI) breeds and with the meat of the Lithuanian Black&White and Limousin (LBWxLI) and Charolais (LBWxCH) crossbreeds. The bulls were not castrated. All groups of bulls were fed and kept under the same conditions up to 500 days of age. For research a sample from the longest dorsal muscle (*musculus longissimus dorsi*) at the last two ribs was taken. The differences of the content of dry material in meat between the analyzed groups were not significant. The highest content of proteins in the meat of pure-bred bulls was observed in (LI) breed whereas the lowest in the (HE) breed. The difference amounted to 2.15 percent ($p<0.05$). The highest content of proteins was registered in the meat of crossbreeds (LBWxCH) (by 1.63 percent higher than in the pure-bred (CH) bulls. The content of intramuscular fat was highest in the meat of (HE), and the lowest in the meat of (SI) ($p<0.05$). Among other groups the differences of intramuscular fat content also were statistically significant. Meat color L^* was brightest in (SI) breed, whereas darkest in crossbreeds (LBWxCH) ($p<0.01$). The meat of bulls of (LI) and (CH) breeds was lighter ($p<0.05$) and was marked by 3.93–4.55 percent higher water binding capacity than (AN) and (HE) meat ($p>0.05$ – <0.05). The most tender meat was of (AN) bulls, whereas the hardest of (LBWxCH) hybrids. The difference amounted to 1.02 kg/cm² ($p<0.001$). The correlation coefficients between the daily gain in the period from 210 to 500 days with the meat quality indices were not significant. The correlation coefficient between oxyproline amount and meat hardness was $r=0.435$ ($p<0.05$). A similar positive correlation coefficient was between the color L^* and protein content and negative between the protein content and drip loss ($p<0.05$). High negative correlation coefficients were ($r=-0.772$) between the color L^* and meat pH and between of the color b^* and water binding capacity ($r=-0.625$; $p<0.001$). Between the color b^* and cooking loss the correlation coefficient was high positive ($r=0.649$, $p<0.01$).

Keywords: bulls, meat quality, pure-bred, crossbreed correlation.