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Evaluation of noble cuts by the body weight and carcass ultrasonography information in Texel

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Body weight (BW) is an important information in sheep production systems, being used as one of the main parameters for the commercialization of animals for slaughter. However, the composition of the BW is directly influencing the economic return. Thus, the objective of this study was to estimate the weight of Sirloin steak (SIR), French rack (FR), shoulder (SH) and boneless leg (LEG) cuts by means of *in vivo* measurements in sheep. Data from 618 male Texel lambs, born between 2008 and 2015, in 2019 and 2021, slaughtered at 300 ± 46.13 days of age, granted by the National Institute of Agricultural Research (INIA) of Uruguay, were used. Two univariate linear models were used to perform the analysis: Model One ($Y_{ijk} = \mu + YEAR_i + AGE_j + BW_k + \varepsilon_{ijk}$) and Model Two ($Y_{ijklm} = \mu + YEAR_i + AGE_j + BW_k + REA_l + FT_m + \varepsilon_{ijklm}$), where: Y = cut weight (SIR, FR, SH and LEG) in grams; μ = mean of each trait Y for the population studied; $YEAR_i$ = fixed effect of the i^{th} year at slaughter; AGE_j = linear effect of the covariate age at slaughter, in days; LW_k = linear effect of the live weight covariate, in kg; REA_l = linear effect of the rib eye area covariate, in cm^2; FT_m = linear effect of the covariate subcutaneous fat thickness, in mm; ε = random error associated with each observation. Data were analyzed using SAS (Statistical Analysis System, Version 9.4) software by the PROC GLM procedure. The solutions for BW, REA and FT of the models were multiplied by market values used in previous studies (US$/kg) of the cuts SIR (16.37), FR (15.70), SH (4.90), and LEG (7.11) to obtain the reference of the economic gain. Age at slaughter had no significant effect for any analysis, as well as FT for FR, SH and LEG ($p > 0.05$). The Model Two R^2 were higher for all cuts, thus better explaining the variation of the data ($p < 0.0001$), except for SH, which presented $R^2 = 0.91$ for both models. These results suggest that REA will have little effect on estimates for SH. The solutions obtained by Model 2 for BW (g/kg) and REA (g/cm^2) for the weight of the SIR, FR, SH and LEG cuts were, respectively: 10,07 ± 0,96 and 23.77 ± 2.77, 16.65 ± 0.91 and 25.98 ± 2.60, 78.61 ± 3.10 and 47.20 ± 8.67, 69.36 ± 3.28 and 105.03 ± 9.35. The estimates for BW, REA and FT in US$/kg for the SIR, FR, SH and LEG cuts correspond to, respectively: 0.16, 0.39 and 0.37; 0.26 and 0.41; 0.39 and 0.23; 0.49 and 0.75. Body weight and rib eye area could be used to evaluate the carcass of Texel sheep to optimize the meat industrialization process for French rack, shoulder and Shank cuts. For Sirloin, in addition to the body weight and rib eye area, the subcutaneous fat thickness should be considered.

Keywords: Lamb Cuts. Carcass quality. Phenotypes. Beef sheep.