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Prediction of carcass composition *in vivo* by slaughter weight and ultrasound measurements in Churro Galego BraganÁano local breed lambs

V. Cadavez[1], A. Teixeira[1], R. Delfa[2] and S.Matos[1]. [1]Escola Superior Agrária de BraganÁa, Apdo. 172, 5301-855 Bragança - Portugal. [2]Unidad de Tecnologia en Producción Animal, SAI-DGA, Apto. 727, 50080 Zaragoza - España.*

Forty Churro Galego BraganÁano local breed lambs (20 females and 20 males) with an mean live weight of 19.3 kg (10 to 28.5 kg) were scanned by ultrasound to determine *M. Longissimus dorsi* depth (MLDD), subcutaneous fat thickness (SFT) between the 12th-13th dorsal vertebra (D12), 1st-2nd (L1) and 3rd-4th (L3) lumbar vertebra and breast bone tissue thickness (BBT) at 2nd (S2), 3rd (S3) and 4th sternebra. Lambs were slaughtered after 24-h fasting. Carcasses were cooled at 4 °C for 24 h. and halved carefully. The left side was divided into eight standardised commercial joints: leg, chump, loin, ribs, anterior ribs, shoulder, breast and neck. Each joint was then dissected into muscle, subcutaneous fat, intermuscular fat and bone.

The in vivo ultrasound measurements plus slaughter weight were fitted to predict carcass tissue composition by stepwise regression analysis.

All the developed models were highly significant ($P<0.001$) and explained 60, 76, 64 and 74% of the muscle, subcutaneous fat, intermuscular fat and bone variation, respectively. The models residual standard deviations were lower than 20 g kg^{-1}.

Paper S3.2

Carcass characteristics and chemical composition as affected by genetic groups and guar treatments in lambs

A.I.A. Suliman, K.M. Marzouk, H.A. Hassan, M.A. Gabra and S.T.M. Fahmy. Dept. of Anim. Prod., Fac. of Agric. Minia Univ., and Anim. Prod. Res. Inst., Egypt.*

Thirty two Chios and crossbred (Chios x Ossimi) lambs were used in this study. They were divided into 4 groups each of 8 lambs. A four treatments were imposed by replacing 0, 25, 50 and 75% of concentration mixture by guar on a dry matter basis. The feeding period was prolonged for 18 weeks where the lambs achieved the marketable weight (42-45 kg) that was considered as final weight. No significant effects were found for treatments on body weight, weights gains, feed consumption and feed conversion ratio. Although, 75% guar treatments had the highest value for daily gain and the lowest values for feed consumption and feed conversion when compared to other treatments. A significant effects of treatments were observed on leg, chine and ends cuts. Also, treatments had a significant effects on dissection fat of 9,10,11 ribs cut and fat thickness covering longissimus dorsi. Differences among guar treatments for chemical composition cut were not significant. On one hand, total fat and tail fat tended to be greater ($P<0.01$) in the crossbred. On the other hand genetic groups did not differ in the weights of individual whole sale cuts.