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Ovinocultura Inteligente: Inovação e Sustentabilidade

Commercial cuts from the carcass of crossbred Dorper lambs finished in feedlot with diets containing sucrose

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The intake of readily-fermentable carbohydrate influences the proportion of short-chain fatty acids (SCFA) produced in the rumen. In this way, an increased production of butyrate occurs from sucrose fermentation. This SCFA has potential to stimulate the growth of ruminal papillae, increasing the absorption of nutrients, and affect the carcass tissue development, especially fat deposition. Thus, the aim of this study was to evaluate the effect of diets containing sucrose on the weight and yield of carcass cuts of lambs finished in feedlot. The experimental procedures were approved by the Animal Care and Use Committee of UFPR, Palotina Campus, under protocol number 043/2016-CEUA/Palotina. Twenty-four non-castrated male crossbred Dorper lambs with four months of age and 26.06 ± 3.78 kg of body weight (BW) were used. The trial was set out in a completely randomized design with four treatments and six replicates. The treatments consisted of a diet without sucrose (Control) and the inclusion of 1.5, 3.0, and 4.5% of sucrose in the concentrate feed, on a dry matter (DM) basis. The diets were composed of 40% Tifton 85 hay (*Cynodon* spp.) and 60% pelleted concentrate feed, and contained 17.7% crude protein and 62.3% total digestible nutrients, on a DM basis. Lambs were fed *ad libitum* in individual pens for 56 days, and slaughtered with 43.43 ± 4.58 kg BW. After cooling at 4 ºC for 24 hours, carcasses were cut into halves in the caudal–cranial direction, with the left half sectioned into six commercial cuts: shoulder, breast + flank (BF), leg, loin, ribs, and neck. These cuts were individually weighed and, then, their relative yields to the left half carcass were calculated. The data were analyzed by regression in which the sucrose level in the concentrate feed was the independent variable. Sucrose inclusion not affected ($p > 0.05$) the cuts weight, with mean values of 1.814, 1.331, 0.783, 1.482, 1.223, and 3.027 kg for shoulder, BF, neck, ribs, loin, and leg, respectively. Except for shoulder, the cuts yield was also not influenced by sucrose, with mean values of 13.80, 8.10, 15.31, 12.63, and 31.35% for BF, neck, ribs, loin, and leg, respectively. Sucrose led to a quadratic effect ($P = 0.043$) on shoulder yield ($SY = 18.3978 + 0.8919S – 0.2026S^2$; $R^2 = 0.182$), for which the maximum value (19.38%) is reached with the inclusion of 2.2% DM of sucrose in the concentrate feed. This effect is probably related with an increased fat deposition in the shoulder between 1.5 to 3.0% DM of sucrose. The weight of carcass cuts is not affected, however, the shoulder yield of feedlot crossbred Dorper lambs is increased with the inclusion of up to 2.2% DM of sucrose in the concentrate feed.

Keywords: Cuts yield. Fat deposition. Readily-fermentable carbohydrate. Shoulder.