

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

CARCASS YIELD OF LAMBS FED WITH AMAZONIAN OILSEED CO-PRODUCTS

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Abstract: O objetivo do trabalho foi avaliar o rendimento de carcaça de cordeiros alimentados com coprodutos oleaginosos amazônico em substituição ao milho e farelo de soja. Utilizou vinte e quatro cordeiros distribuídos em delineamento inteiramente casualizado, com quatro tratamentos e seis repetições. O alimento volumoso foi silagem de milho, mais concentrado. Os tratamentos foram controle, PAL (torta de dendê), CUP (torta de cupuaçu) e TUC (torta de tucumã). O período experimental durou 84 dias, com 14 dias para adaptação e 70 dias de confinamento. Ao final, os animais foram abatidos para obtenção das características da carcaça. Os coprodutos de oleaginosas influenciaram o peso de carcaça quente (PCQ) e o peso de carcaça fria (PCF), mas não influenciaram o rendimento de carcaça quente (RCQ) e fria (RCF). Os animais submetidos à dieta controle e com torta de cupuaçu obtiveram os melhores resultados no PCQ com 19,09 e 18,84 kg, respectivamente. Em relação ao PCF, os animais alimentados com torta de tucumã tiveram o menor resultado com 15,56 kg. As tortas de cupuaçu, dendê e tucumã podem ser utilizadas na dieta de cordeiros em substituição de milho e farelo de soja no concentrado sem comprometer o rendimento de carcaça.

Keywords: lipids, nutrition, ruminant, sheep

Introduction

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Lamb farming is an expanding activity in the Northern Region. The herd size has increased gradually. Pará State's has grown from 38% from 201,559 to 280,063 head of lambs, between 2006 and 2016, while Brazil grew by 15% in the same period (IBGE, 2017), showing how important it is the productive chain of lambs in the State.

The meat quality and yield of the lamb's carcass is directly related to the production system. Technological advances related to diet and food management have provided improvements in carcass conformation, which includes the development and profile of muscle mass and the amount and distribution of fat cover (Oliveira et al., 2014).

Several alternative foods have been studied in recent years with the aim of improving carcass yield properties. Among these are Amazonian fruits such as cupuaçu, tucumã, and palm that have relevant economic, technological and nutritional potential. After their processing, cake are obtained and are cheaper than conventional foods, such as corn or soybean meal. Thus, the aim of the paper was to evaluate the carcass yield of lambs fed with Amazonian oilseeds co-products replacing corn and soybean meal.

Material and Methods

The protocol used in this experiment was approved by the Ethics Committee on Animal Use, Federal University of Pará, Faculty of Veterinary Medicine/Campus Castanhal (protocol number 8694141217). Twenty-four castrated lambs with crossbreeding Dorper x Santa Inês with an average weight of 30.05 ± 2.45 kg, were used in a completely randomized design, with four treatments and six replicates. Experimental diets were formulated to have 7% ethereal extract in dry matter (DM) and to be isonitrogenous. The roughage feed was maize silage (400 g kg^{-1} on a DM basis) plus concentrate (600 g kg^{-1} on a DM basis). At the onset of the experiment, lambs were distributed at random into the following treatments: Control, PAL (palm

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kernel cake), CUP (cupuaçu cake) and TUC (tucumã cake). The experimental period lasted 84 days; the first 14 days were for adaptation, and the last 70 days were feedlot and data collection. Diets were supplied daily at 07h30 and 16h30, to allow 20% as leftovers.

At the end, lambs were weighed and fasted for solids for 16 h, and weighed to determine body weight at slaughter (BWS). Lambs were stunned by electronarcosis with a 250 V electric shock for two seconds and then the jugular veins and carotid arteries were sectioned for bleeding, with respect to the procedures that characterize humane slaughter. After evisceration, carcasses were weighed, generating the hot carcass weight (HCW), which was used to determine the hot carcass yield (HCY = $HCW/BWS \times 100$), and transferred to a cold room at 4°C, where they remained 24 h. After this period, the cold carcass was weighed (CCW), which was used to determine the cold carcass yield (CCY = $CCW/HCW \times 100$). To verify the effect of the treatments on the obtained characteristics, an analysis of variance was performed, including initial body weight (kg) as a covariate ($\alpha = 0.05$). The adjusted means were compared by the Tukey test ($\alpha = 0.05$). The characteristics that showed a statistically significant effect for the covariate were analyzed by linear, cubic and quadratic regression models, to select the best model p-values statistically significant ($\alpha = 0.05$) and higher coefficients of determination (R^2).

Results and Discussion

The use of co-products oilseeds influenced hot carcass weights (HCW) and cold carcass weights (CCW) ($P < 0.05$) but did not influence hot carcass yield (HCY) or carcass cold yield (CCY) (Table 1). The animals submitted to a control diet and cupuaçu cake obtained the best results in the HCW variable. In relation to the CCW, the animals fed with a tucumã cake presented lower results.

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The carcass yield lambs vary from 45 to 60% and can be influenced by several factors, including those intrinsic to the animal, as well as by extrinsic factors such as breeding system, feeding, fasting period and cooling conditions.

Table 1 - Performance of lamb's carcasses fed with experimental diets

Variables	Treatment				CV (%)
	Control	CUP	PAL	TUC	
	Kg				
Hot carcass weight	19.09a	18.84a	18.04ab	15.97b	12.78
Cold carcass weight	18.79a	18.51a	17.73a	15.56b	12.91
	%				
Hot carcass yield	50.10	50.06	48.06	48.33	5.11
Cold carcass yield	49.30	49.21	47.25	47.09	4.96

Means followed by the same letters on the lines do not differ significantly by the Tukey test ($P < 0.05$). C.V. = coefficient of variation.

Morais et al. (2011) observed a HCY of 49.03% using cupuaçu cake with 40% inclusion in the concentrate; in the present study, the HCY was 50.06%, whereas the CCY was reduced 3%. In animals with similar HCY, the subcutaneous fat thickness (SFT) probably influenced the variation of CCY because the weight loss by cooling is influenced by the SFT.

Santos et al. (2017) evaluated the carcass characteristics of lambs, where they observed HCY and CCY of 42.75 and 41.56%, 42.09 and 40.78%, respectively, with inclusion palm kernel cakes 15 and 22.5%. In the present study, the results did not corroborate this, as the HCY and CCY were higher, with 48.06 and 47.25% with inclusion of 17.5% in substitution of corn and soybean meal.

The animals fed with tucumã cake showed the lowest weights in the carcass and consequently lower yield. Even the results below the yields were greater than 45%; however, research is limited regarding possible use of this co-product for

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animal nutrition. This work demonstrates the potential of including tucumã cake in the diet of lambs, so future studies can determine greater growth efficiency percentage in the lamb diet.

Conclusion

The cupuaçu cake, palm kernel cake and tucumã cake can be used in the diet of lambs in substitution of corn and soybean meal in the concentrate without compromising the carcass yield.

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