



Formulações dietéticas para cordeiros Morada Nova em confinamento, usando o NRC (2007): Pesos e rendimentos de carcaça¹

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Resumo: Objetivou-se com este trabalho avaliar o uso e aplicação de formulações dietéticas para cordeiros Morada Nova, sob terminação em confinamento tomando por base o NRC (2007), sobre os pesos e rendimentos de carcaça. O experimento foi realizado na cidade de Sobral-CE entre dezembro/2013 e fevereiro/2014. Foram utilizados vinte animais, distribuídos em delineamento inteiramente ao acaso, em esquema fatorial 2 x 2 (duas dietas prescritas pelo NRC (2007) - maturidade precoce e tardia, com dois níveis de restrição de nutrientes – 0% e 15%: Proteína Bruta-PB e Nutrientes Digestíveis Totais-NDT). O peso vivo ao abate foi obtido após jejum alimentar e hídrico por 18 horas. Após evisceração retirou-se a cabeça e a parte distal dos membros para obtenção do peso e rendimento de carcaça quente e rendimento biológico. Após resfriamento a 4°C por 24 horas, obteve-se o peso e rendimento da carcaça fria. Os dados foram submetidos à análise de variância e as médias comparadas pelo teste Tukey a 5%. As dietas formuladas conforme o NRC (2007), apresentaram diferenças significativas ($P < 0,05$) para pesos e rendimentos de carcaça com exceção do rendimento de carcaça fria. Já a restrição de nutrientes não influenciou ($P > 0,05$) os pesos e rendimentos de carcaça. A formulação baseada no NRC (2007) para maturidade precoce, reduzindo-se em 15% os teores de NDT e PB, garante o melhor peso vivo ao abate e os pesos e rendimentos das carcaças de cordeiros Morada Nova, sob terminação em confinamento.

Palavras-chave: carne, nutrição e ovinos

Use and application of dietary formulations for Morada Nova lambs under feedlot finishing, based on NRC (2007): Weights and carcass yield

Abstract: The study aimed to evaluate the use and application of dietary formulations for Morada Nova lambs, in feedlot finished based on NRC (2007), on the weights and carcass yield. The experiment was conducted in Sobral-Ceará, Brazil in period from 16th December 2013 to 21st February 2014. Twenty animals were distributed in a completely randomized design in a factorial scheme 2 x 2 (two diets prescribed by the NRC (2007) - early and late maturity, with two levels of restriction of both Crude Protein-CP and Total Digestible Nutrients-TDN – 0% and 15%). Live weight at slaughter was obtained after 18h of food and water fasting. After evisceration, head and distal part of members were removed to obtain weight and hot carcass yield and biological yield. After cooling to 4 °C for 24 hours, weight and yield of the cold carcass were obtained. Data were subjected to analysis of variance and means compared by 5% Tukey test. Diets formulated according to NRC (2007) showed significant differences ($P < 0.05$) for weight and carcass yield with the exception of cold carcass yield. Nutrients restriction did not affect ($P > 0.05$) weights and carcass yield. The formulation based on NRC (2007) for early maturity with reduction of 15% TDN and CP assures the best live weight at slaughter and carcass weight and yield of Morada Nova lambs in feedlot finished.

Keywords: meat, nutrition and sheep

Introduction

The knowledge of nutritional value of feed and the impact of restriction of nutrients in diets provided to lambs (frequent condition in production systems of Brazilian semiarid) can allow better adjustments to dietetic formulations in comparison to that indicated for international systems, such as the NRC (2007). Despite the recommendations of this system have been validated worldwide, a few national information is available for tropical semiarid conditions and many authors discuss if they are really applied for indigenous genotypes, as Morada Nova breed. Furthermore, NRC (2007) takes account two conditions: early and late maturity that can also influence on the



weights and carcass yield, because the nutritional level at which the animal is submitted may modify these parameters (CUNHA et al., 2008). This study aimed to evaluate the use and application of dietary formulations for Morada Nova lambs in feedlot finishing system, based on the NRC (2007), with restriction of 0 or 15% of crude protein and total digestible nutrients, on the weights and carcass yield of this category of animals.

Material and Methods

The experiment was conducted at the Center for Research in Small Ruminants Nutrition in the Experimental Station of Universidade Estadual Vale do Acaraú (UVA) in Sobral-Ceará, Brazil, in the period of 16th December 2013 to 21st February 2014. They were used twenty Morada Nova lambs with four months old and weighing 18.8 kg for termination and average expected weight gain of 200 g/day, distributed in a completely randomized design in a factorial scheme 2 x 2 (two diets prescribed by the NRC (2007) – early and late maturity – with two levels of restriction (0% and 15%) of both CP and TDN in dry matter), resulting in four diets (treatments) with five replications: Diet 1-early maturity without restriction (0%); Diet 2-early maturity with restriction (15%); Diet 3-late maturity without restriction (0%); Diet 4-late maturity with restriction (15%). Diets were fed twice a day, at 08:30 and 16:30 hours. Water and mineral salt were available *ad libitum*. The value of 15% of restriction was determined in the moment of diet's formulation. The values of CP and TDN presented in the Table 1 varied according animal's selectivity.

Table 1. Chemical and proximate composition of the experimental diets according to the NRC (2007)

Proximate composition of the experimental diets				
Food	Diet 1	Diet 2	Diet 3	Diet 4
Hay elephant grass	14.28	42.22	54.96	42.79
Cashew nut meal	0.18	13.16	6.68	-
Corn Germ	45.67	-	-	-
Soybean meal	9.59	6.75	35.09	-
Soybean oil	-	-	2.22	-
Corn	29.35	37.19	-	-
Cotton cake	-	-	-	54.78
Limestone	0.93	0.68	1.05	2.43

Chemical composition of the experimental diets				
Components	Diet 1	Diet 2	Diet 3	Diet 4
Dry matter based (% as fed)	90.5	91.3	91.5	92.5
Crude protein (%DM)	13.0	11.8	21.5	18.7
Ether extract (% DM)	5.2	8.8	7.2	5.8
Neutral detergent fiber (%DM)	26.8	40.2	51.3	53.5
Acid detergent fiber (%DM)	10.5	20.9	28.3	36.6
Total digestible nutrients	76.2	67.2	60.1	47.1

The live weight at slaughter (LWS) was obtained after no intake of food and water for 18 hours. The slaughter occurred by mechanical desensitization at the atlanto-occipital region, and bleeding by sectioning the jugular vein and carotid artery. To obtain the hot carcass weight (HCW) and calculation of the biological yield (BY = (HCW / LWS) × 100), after evisceration, head and the distal part of the members were removed. From this data it was calculated the hot carcass yield (WHR = (HCW / LWS) × 100). After cooling to 4° C for 24 hours was obtained cold carcass weight (CCW) to calculate the cold carcass yield (CCY = (CCW / LWS) × 100) (SILVA SOBRINHO, 2001). Data were subjected to analysis of variance and means compared by Tukey test at 5% of probability.

Results and Discussion

Diets formulated according to NRC (2007) showed significant differences (P < 0.05) on weight and carcass yield with the exception of cold carcass yield. Nutrient restriction did not affect (P > 0.05) weight and carcass yield (Table 2).

The diet formulation according to NRC (2007) to early maturity resulted in weights and carcass yields higher than that obtained in lambs fed diet to late maturity. These results may be due to the higher energy content in early maturity diets according NRC (2007). Higher energy concentrations in diets can influence positively on the weights and sheep carcass yield (SAÑUDO & SIERRA 1986).



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Table 2. Weights and carcass yields of Morada Nova lambs submitted to diets according NRC (2007) with or not restriction of nutrients

Variables	Diets according to NRC (2007)		Restriction of Nutrients		Coefficients of variation (%)
	Early maturity	Late maturity	0%	15%	
Live weight at slaughter (kg)	24.1 ^A	20.8 ^B	22.7	22.2	14.5
Hot carcass weight (kg)	11.9 ^A	9.9 ^B	11.2	10.6	17.1
Hot carcass yield (%)	49.5 ^A	47.4 ^B	49.2	47.7	4.0
Cold carcass weight (kg)	11.7 ^A	9.8 ^B	11.0	10.5	17.0
Cold carcass yield (%)	48.7	46.8	48.4	47.1	4.1
Biological yield (%)	59.1 ^A	57.0 ^B	58.1	58.0	3.5

Means followed by different letters in the same row differ ($P < 0.05$) by Tukey test.

The average hot carcass yield (48.5%) and cold carcass yield (47.8%) were higher than recommended by Silva Sobrinho (2001), which described reference values of hot and cold carcass yield of 46% and 44.5%, respectively.

Conclusions

The formulation based on NRC (2007) to early maturity, reduced by 15% TDN and crude protein, ensures the best live weight at slaughter and weight and carcass yield of Morada Nova lambs in feedlot finishing system.

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