

Effect of dietary energy level on the zootechnical performances of rabbits bred in hot climate

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The aim of this experiment was to determine the effect of dietary energy level on growth performance of rabbit of the local population exposed to heat stress. For this purpose, 48 rabbits of 42 days of age were weighed and allotted to two groups of 24 rabbits each with their mean weight at 855.2 ± 9.1 g. The two lots of rabbits were each fed a 16% iso-proteic tow diet with each containing a different digestible energy level namely: 2,551 kcal/kg for the control group (C), and 2,700 kcal/kg for the group (A). Rabbits of both lots were subjected to high daytime temperatures and humidity of 33 °C and 69% respectively. The animals performances were measured and calculated every week between 42 and 91 days, the carcass yield was determined on 10 rabbits of each group. The results revealed that the zootechnical performances were not influenced by the dietary energy level in the beginning of the test. However, the results show that the live weight, the daily weight gain and the average daily feed intake between the period (70-91 days) of the young rabbits of the group C is significantly higher than those of the group A (+13.1, +16.4 and +19.1%; $P < 0.05$) respectively. Moreover, no significant effect was found on the feed conversion throughout the experiment except for the period 56-63 days, which was significantly higher in the animals of group C (+19,35%; $P < 0.05$). Furthermore, a significant effect was found on the anterior part of the carcass, peritoneal fat and liver; they were lower in group C by (-5, -30 and -41%, respectively), while carcass yield, inter-scapular fat, and intermediate parts were significantly higher in group C (+5, +19 and +33%; $P < 0.05$). No significant effect was found on the yield of the other components of the carcass. In conclusion, increasing the dietary energy level does not improve growth performances and carcass yield of rabbits of the local population under chronic heat stress.

Evaluation of reduced nutrient levels in growing-finishing pig diets

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The aim of this study was to evaluate the effects of a nutritional program with reduced nutrient content, on nutrient ingestion and nitrogen (N) and phosphorus (P) balance in growing-finishing pigs from 25 to 130 kg body weight. Forty gilts and 40 barrows (24.5 ± 1.8 kg) were distributed in a randomized block design with two treatments, 10 replications per treatment, and four animals per experimental unit. The feeding program was in four phases. Two diets were formulated for each feeding phase. One was adjusted using InraPorc® model to minimize the nutrient excess (LN), and the other (SN) was formulated with standard Brazilian recommendations. Nutrient consumption was measured and N and P balance were determined according to intake and retention. Data were subjected to ANOVA with the main effects of treatment, block, sex and interaction between treatment and sex. Over the whole experimental period, there was no statistical difference ($P > 0.10$) between treatments for energy intake (mean of 33.3 MJ ME/d) and average daily gain (0.92 kg/d). Dietary treatments affected ($P < 0.05$) daily lysine (18.9 vs 21.3 g/d), crude protein (352 vs 419 g/d) and P (11.3 vs 12.6 g/d) intake, with lower values for LN pigs. Nitrogen (28.8 vs 38.0 g/d) and P (5.7 vs 6.5 g/d) excretion were lower ($P < 0.05$) for LN pigs, without difference ($P > 0.05$) on body retention ($n = 23.5$ and $P = 4.8$ g/d). This resulted in higher nutrient utilization efficiency in animals that were fed with the adjusted diet. The sex affected ($P < 0.05$) all variables, with the gilts showing lower intake and excretion values than barrows. According to these results it seems possible to reduce the levels of nutrients that are commonly used in Brazil, without affecting the N and P retention. Moreover, nutritional adjustment proves to be an efficient tool to reduce nutrient excretion and, consequently, environmental impacts.