I-INTERNATIONAL MEETING OF ANIMAL SCIENCE IN SEMI-ARID REGIONS
Universidade Federal do Agreste de Pernambuco – UFAPE
July 03rd to 05th, 2024, Garanhuns-PE

Nutrition and production of non-ruminants

Lemon residue as a partial replacement for starter feed on the weight of male and female slow-growing chickens

Francisco Elísio M. de Oliveira Filho*[1], Lairton S. C. Pontes[1], Silvana C. B. Leite[1], Cláudia G. de Abreu[1]
[1]Universidade Estadual Vale do Acaraú, Sobral/Ceará, Brasil
* elisiofilho04@gmail.com

Lemon processing generates a great amount of waste, as the juice industry only uses 40 to 50% of the fruit's total weight, discarding the rest as an agro-industrial byproduct. This significant volume highlights the importance of effective strategies for managing and using these materials, using sustainable and innovative approaches to deal with the environmental and economic impact of these wastes. Tahiti lemon residue (TLR) is rich in several essential components for animal health, such as pectin, soluble sugars, fiber, essential oils, organic acids, carotenoids, amino acids, vitamins, minerals and flavonoids, presenting great potential to be included in animal diets. The initial phase of chicken farming is fundamental to the success of poultry farming, as at this stage the birds are much more susceptible to environmental challenges and the weight of the birds at the end of the initial phase has a high correlation with the slaughter weight. Therefore, this research was conducted to evaluate the effect of using TLR as a partial replacement for starter feed on the body weight of slow-growing chickens, male and female, at 28 days of age. To this end, an experiment was conducted in the Poultry Sector of the Experimental Farm of the Universidade Estadual Vale do Acaraú – UVA, Sobral-CE, using 250 chicks of the Mesclado lineage (Globoaves) with one day of age, males and females, distributed in completely randomized design, with five treatments (TLR levels: 0; 1.5; 3; 4.5 and 6%), five replications of 10 birds each. The basal ration used was formulated to meet the nutritional requirements of slow-growing chickens. The birds received water and feed *ad libitum* throughout the experimental period. At 28 days, in each plot, males and females were weighed separately, obtaining the average weight of each sex in each experimental plot. In the statistical analysis, sex was considered as a factor, carrying out the analysis of variance considering the 2 x 5 factorial model (2 sexes: male and female and 5 TLR levels: 0, 1.5, 3, 4.5 and 6%). Polynomial regression analysis was also performed. Male chickens weighed 602, 603, 609, 590 and 517g and females weighed 513, 558, 509, 441 and 421g, for replacement levels of 0, 1.5, 3, 4.5 and 6% of the feed with TLR, respectively. There was no interaction ($P<0.05$) between bird sex and dietary TLR levels on bird body weight. However, males had a higher body weight ($P<0.05$) than females (584g vs 491g). There was also an effect of the feed replacement levels with TLR, which quadratically influenced ($P>0.05$) the weight of the birds at 28 days, estimating the best weight with the use of 1.42% of TLR in the diet, by equation $Y= 561.906 + 14.551x - 5.113 x2$, $R^2 = 0.98$, for both sexes. It is concluded that male chickens from the slow-growing Mesclado lineage have a higher body weight than females already at the end of the initial breeding phase and it is recommended to use 1.42% of the TLR to replace feed at this stage, for males and females.
Keywords: free-range chicken, agro-industrial waste, sustainability

Financial support: We would like to thank for the financial resources of FUNCAP and CNPq made available to carry out this research.