

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

CALCIUM AND PHOSPHORUS BALANCE OF LAYING HEN DIETS WITH CALCAREOS ALGAE LEVELS FROM DIFFERENT PARTICLE SIZES

Elis Regina de Moraes GARCIA^{*1}, Laura Ramos de AVILA¹, Gislaíne da Cunha ANDRADE¹, Renata PUCHETA¹, Gustavo Ruivo SALMAZZO¹, Charles KIEFER², Tiago Junior PASQUETI¹

*corresponding author: ermgarcia@uems.br

¹Universidade Estadual de Mato Grosso do Sul, Aquidauana, Mato Grosso do Sul, Brasil

²Universidade Federal de Mato Grosso do Sul, Campo Grande, Mato Grosso do Sul, Brasil

Due to the requirement for the total calcium (Ca) to be expressed and the low cost of limestone, Ca has been used in large quantities in laying hens diets. The sources of minerals commonly used in poultry nutrition, which are necessary in order to meet the requirement of Ca in feed, are inorganic compounds from rocks such as limestone and dicalcium phosphate because they are abundant and less costly. On the other hand, the great advantage of organic sources, such as calcareous algae (*Lithothamnium calcareum*), is that they are renewable sources of Ca, whose extraction does not cause environmental impact. The search for alternative sources of more bioavailability of minerals is extremely important for animal performance to be maximized and the costs and damage to the environment to be minimized. The aim of this study was to assess the effects of the calcareous algae (CA) inclusion levels of different particle sizes in the diets on the Ca and phosphorus (P) balance of laying hens. A total of 210 laying hens (Dekalb White), housed at 68 weeks of age, were used. The experiment was carried out in completely randomized design, in a factorial scheme 3x2 (CA levels x particle sizes), with five replicates and six birds per experimental unit. The treatments consisted of a control diet (without addition of CA) and three levels of CA inclusion (1, 2 and 3%) of different particle sizes (0.128 and 1.114 mm). The Ca and P balances were determined by the total excreta collection. The data were submitted to the variance analysis for the effects of the factors studied to be verified by using the Tukey test ($P < 0.05$) to compare the means. For the comparison of the treatments with the control group, the Dunnett Test ($P < 0.05$) was used. The levels and the different particle sizes of the CA did not influence the consumption of Ca (g bird^{-1} per day). Nevertheless, the consumption of P (g bird^{-1} per day) increased with the supply of 3% fine particles CA. The inclusion of up to 2% of fine particle CA decreased excretion and, consequently, improved Ca retention. The use of 2 and 3% of fine particles CA reduced excretion and it consequently increased P retention. It was concluded that the inclusion of 1 and 2% and 2 and 3% of fine particles CA in white-egg layers diets improves the Ca and P retention, respectively.

Key words: bioavailability, limestone, *Lithothamnium calcareum*, minerals

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