

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

EFFECT OF THE ZINC ON DUODENAL MORPHOMETRY OF JAPANESE QUAIL IN THE INITIAL PHASE IN TWO THERMAL ENVIRONMENTS

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Zinc has been used in the diet of birds for several physiological functions, including growth, as well as immune and antioxidant defense in response to thermal stress. In addition, zinc has effects such as increased proliferation of crypt cells, improving turnover and repair of epithelial cells and maintaining integrity of the intestinal mucosa. In view of the hypothesis that zinc attenuates the negative effects of heat stress on birds, the objective was to evaluate zinc levels in the diet of Japanese quail from 1 to 42 days of age in two thermal environments on duodenal morphometry. The work was developed at the Bioclimatology, Ethology and Animal Welfare Research Unit of the Agricultural Sciences Center of the Federal University of Paraíba, Campus II, Areia-PB. A total of 500 female quail of the *Coturnix coturnix japonica* line, with initial weight of ± 7 g, were distributed in a completely randomized design in a 5 x 2 factorial scheme, with five levels of zinc in the diet (30; 60; 90; 120; 150 mg/kg of feed) and two environmental conditions (thermal comfort and heat stress) with five replicates per treatment. For histological analysis, samples of approximately 3 cm of the medial portion of the duodenum and a liver fragment of ten animals per treatment were collected. Afterwards the samples were submitted to histological routine to make the slides and stained with hematoxylin and eosin and analyzed by light microscopy. The variables studied were height of villi, depth of crypt and relationship vilosity: crypt. There was interaction of the levels of Zn and the environment on the relationship vilosity: crypt of the duodenum of birds at 21 days of age; the unfolding showed a linear decreasing effect as the Zn level increased in the comfort environment. At 42 days of age, the level of 150 mg-Zn presented the best relationship: duodenal crypt, the birds kept in thermal comfort also presented better relationship vilosity: crypt. The level of 150 mg-Zn in the Japanese quail diet promotes better rates of duodenal morphometry.

Keywords: *Coturnix coturnix japonica*, heat stress, vilosity: crypt.

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