

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## VALINE REQUIREMENT OF BROILERS RAISED IN HOT-CLIMATE REGION

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When exposed to high environmental temperatures, birds tend to reduce feed intake in order to decrease endogenous heat production. This response could change the partition and utilization of amino acids in broilers' metabolism. The objective of this study was to determine the concentration of dietary digestible valine to maximize performance in growing male broilers raised in hot-climate region. An experiment was conducted at the Experimental Farm of UFMT/Cuiabá. A total of 864 8-day-old Cobb male chicks were distributed in a completely randomized design with six dietary treatments and eight replicates of 18 birds. Treatments were obtained from a basal corn & soybean-meal diet, formulated to reach or exceed birds' nutritional requirements, except for digestible valine, which was kept at 7.87 g/kg. The other five treatments were obtained by adding L-valine into the basal diet, in place of corn starch, to reach digestible valine concentrations of 8.37, 8.87, 9.37, 9.87, and 10.37 g/kg. At day 21, performance variables were determined and analyzed by regressing them against digestible valine concentrations using a linear regression model. Significance was set at  $p \leq 0.05$ . Positive linear effect of valine concentrations was observed on feed intake, corroborating with the hypothesis that antagonisms between branched-chain amino acids may increase their requirement, causing birds to enhance feed consumption. A quadratic effect of valine concentrations was detected on weight gain. Valine concentration for maximum weight gain was estimated in 8.76 g/kg. Concentrations below or above this level significantly impaired this parameter. In conclusion, the estimated concentration of digestible valine to maximize performance in growing male broilers raised in hot-climate region is 8.76 g/kg.

**Keywords:** amino acid, heat stress, nutrition, poultry

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