THE EFFECT OF AGE AND DIETARY AMINO ACID LEVELS ON PROTEIN DEPOSITION IN BROILER CHICKENS

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Enhanced protein deposition is a major objective of both broiler breeding and nutrition programs. In this study the influence of age and digestible lysine intake on protein deposition was examined. The dietary treatments consisted of four levels of apparent ileal digestible lysine (6, 8, 11 and 13 g/kg) with the same energy level, based on wheat, sorghum, canola and soybean meals. All other digestible essential amino acids were balanced using the Illinois ideal protein ratio to digestible lysine (Baker, 1997). In the experiment each diet was fed to 6 groups containing 6 male broilers (Cobb) aged from either 0-18 days in part A or 18-42 days in part B. Carcass composition of de-feathered whole carcasses was used for determining protein deposition and the results are shown in the Figure.

![Graph showing protein deposition](image)

Figure- Protein deposition as a function of digestible lysine intake at 18(A) and 42(B) days of age.

Protein deposition at 18 days was a curvilinear function of digestible lysine intake, and is in agreement with Johnson and Campbell (1991). The maximum daily deposition of 6.5g was estimated from a quadratic model. At 42 days, protein deposition was a linear function of digestible lysine intake, which indicates that protein deposition as a function of digestible lysine intake was constant throughout a wide range of digestible lysine intakes and did not reach a plateau. To optimise dietary amino acid utilisation and lean tissue accretion, protein deposition may become one of the main factors for determining dietary amino acid requirement.


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