

Effect of Dietary Crude Protein, Lysine Level and Amino Acid Balance on Performance of Broilers 0 to 18 Days of Age

A. Abdel-Maksoud, F. Yan, S. Cerrate, C. Coto, Z. Wang and P.W. Waldroup

Department of Poultry Science, University of Arkansas, Fayetteville, AR 72701, USA

Abstract :

The present study was conducted to investigate the effects of dietary Crude Protein (CP), lysine and amino acid balance in male broiler diets on performance (weight gain and feed conversion, feed efficiency, protein efficiency ratio). Five test diet series were used: 1) the 23% CP diet; 2) the 21% CP diet; 3) the 21% CP diet plus additional amino acids (21.68% total CP) to provide at least as much of the essential amino acids as present in the 23% CP diet; 4) the 19% CP diet and 5) the 19% CP diet plus additional amino acids (20.31% total CP) to provide at least as much of the essential amino acids as present in the 23% CP diet. For each of the five test diets series, additional Lys was added to provide total Lys levels of 1.10, 1.15, 1.20, 1.25, 1.30, 1.35 and 1.40%. This resulted in a total of 35 final experimental treatments in a 5 x 7 factorial arrangement. Each treatment was fed to 6 replicate pens of 6 male broilers in electrically heated battery brooders from 1-18 days of age. Birds fed the low-protein diets (21%) supplemented with EAAs (21.68% total CP) showed significantly the highest BW and best FCR and FE. There were no significant differences in BW between birds fed control diet (23%) and 19% CP or 19% plus EAAs (20.31% total CP) and 21% CP. FC and PER were significantly affected by dietary protein levels. FCR and FE were significantly improved and BW increased significantly by increasing dietary lysine levels up to 1.25%. An interactions of CP with or without EAAs with dietary lysine level were significant for BW. FCR, FE, FC and PER not significantly influenced by interaction. Thus, our results suggest that maximum body weight could be obtained with a 21% low-CP plus EAA supplementation which was the same as that of the chicks fed high protein diet (23% CP). Optimum dietary lysine level for performance was affected by dietary protein level and amino acid balance.

Key Word :

Crude protein, lysine, amino acid balance, performance

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