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Effect of different dietary energy / protein ratio on meat production performance of Golpayegan Native Chickens

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Abstract

This study was conducted to determine the effect of different dietary protein to energy ratio on performance and carcass characteristics of Golpayegan native chickens from 1 to 63 d of age. Five experimental diets were formulated to have 5 ratio of ME to CP, respectively in each phase: 159(diet A), 149 (diet B), 139(diet C, as a control diet agree with NRC), 129(diet D), and 119(diet E) in starter phase (1 to 21 d); 180,170,160,150, and 140 in grower phase (22 to 42 d) and 197,187,177,167, and 157 in the finisher phase (43 to 63 d). A total of 500 one-day-old native chickens in a completely randomized design were randomly divided into 25 experimental pens, 20 chickens in each pen, and each diet was offered to 5 replicates at random. The results showed that feed intake (FI) has affected by ME/CP ratio during 0-42 days($P < 0.05$), but there was no any effect for 4-6, 7-9 and 0-9 weeks of old. Average daily gain and body weight (BW) have affected by ME/CP ratio during starter, grower, finisher, and overall experimental periods ($P< 0.05$). The highest (1026 g) and the less (943 g) BW at 63 d age was belonged to diet E with the lowest ME/CP ratio and diet B with 10 unit ME/CP ratio more than control diet, respectively. Feed conversion ratio (FCR) was affected in starter and grower periods ($P < 0.05$). In starter period diet E showed the best FCR(1.88) , and for grower period diet B and diet D had the best(2.36) and the worst(2.56) FCR, respectively. FI and FCR were not affected by the treatments in overall experimental periods. Effect of diet ME/CP was significant on protein and energy conversion ratio (PCR and ECR, respectively). The results showed that protein conversion ratio increased significantly ($P< 0.001$) with high-CP diet (0.53 for diet E vs. 0.43 for diet A). In starter period diet A had the best PCR(0.38) and for grower period diets A and B had the best PCR (0.39), also in finisher period these two diets(A , B) were the better and showed the significant difference(32 %, $P < 0.05$) in comparison of the other treatments(diets C,D and E). The highest ECR in starter period were belonged to diets D (5.5) and E (5.7), and their differences were significant ($P < 0.05$) with the other diets (A, B and C). For grower period diet B and diet D showed the highest (6.50) and the lowest (7.31) ECR ($P < 0.05$). However, carcass yield, breast meat yield, thigh yield, abdominal fat, and

alimentary tract weights were not affected by the treatments. In conclusion, dietary ME/CP ratio of 119, 170 and 177 are recommended for starter, grower and finisher periods, respectively for Golpayegan native chickens.
Keywords, Golpayegan Native Chickens, Energy, Protein, Meat production, Carcass charactrestics