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Effect of Different Dietary Levels of Energy and Protein on Performance and Carcass Characteristics of Native turkey in East Azerbaijan

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Abstract

An experiment was conducted in a completely randomized design with factorial arrangement to investigate the effect of different levels of energy and protein content on the performance and carcass characteristics of east Azarbaijan native turkeys. A total of 378 male and female turkey chicks were divided into 9 treatments and 3 replicates with 14 chicks in each experimental unit in a completely randomized design with 3*3 factorial arrangement. Factors studied including 3 different levels of metabolizable energy and crude protein that used during the 168-day trial period at 6 age stages, 0 to 24 weeks. Experimental diets prepared on the basis of corn grain, wheat grain and soybean meal and fed ad libitum to turkeys. The effect of different energy levels, protein and interactions on performance and carcass traits, energy, protein consumption efficiency and feed cost per Kg weight gain in native turkeys were investigated. Metabolizable energy levels and dietary protein had a significant effect on energy, protein intake efficiency and feed cost ($P<0.05$). By increasing dietary energy and protein levels from control treatment (amounts E2 and P2) at different age levels up to 16 weeks, energy and protein intake efficiency declined significantly, and feed cost increased and the interaction of different energy and protein levels had a significant effect on weight gain ($P<0.05$), so that interaction between treatments of including 2926 kcal energy, 25.27% protein and 2926 kcal energy, 27.93% protein with interaction of treatments of 2660 kcal energy, 27.93% protein and 2926 kcal energy, 26.6% protein is significant difference. At the age of 16-20 week, dietary metabolizable energy level had a significant effect on energy efficiency and feed cost ($P<0.05$), so that with increasing the diet energy from 3040 kcal to 3344 kcal, energy consumption efficiency decreased significantly and feed cost increased. Also, dietary protein level had a significant effect on feed intake, weight gain, feed conversion ratio, energy efficiency, protein intake efficiency and feed cost ($P<0.05$), so that with increasing dietary protein level from 15.68% to 16.46%, feed intake decreased and weight gain, feed conversion ratio, energy and protein consumption efficiency increased and feed cost decreased. Mean comparison of effect of different energy levels, protein and interaction on carcass characteristics, dietary metabolizable energy level had significant effect on weight percent of two wings weight ($P<0.05$), The weight of two wings decreased significantly with decreasing diet energy from 3040 kcal to 2736 kcal

but with increasing dietary energy to 3344 kcal it did not show significant difference in weight percentage of two wings. Also, the interaction between different levels of energy and protein in the diet had a significant effect on weight percent of two thighs ($P<0.05$). At the age of 20 to 24 weeks, dietary metabolizable energy level had a significant effect on energy efficiency and feed cost ($P<0.05$), so that with increasing diet energy from 2821 kcal to 3448 kcal, energy efficiency decreased but feed cost increased significantly. Also, dietary protein level had a significant effect on the amount of protein consumption efficiency and feed cost ($P<0.05$). With increasing dietary protein from 12.64% to 13.97%, feed cost increased. Interaction between different levels of energy and protein had no significant effect on any of the functional properties, energy and protein consumption efficiency, and feed cost ($P<0.05$). The dietary protein levels had a significant effect on breast weight percent age at age 20 to 24 weeks ($P<0.05$). The highest percentage of breast weight was at protein level of 13.3%. Interaction between changes in energy levels and dietary protein had a significant effect on the weight percentage of empty gizzard ($P<0.05$).

Key words: Native turkeys, energy and protein, yield, carcass characteristics.