

## **EFFECT OF QUANTITATIVE EARLY FEED RESTRICTION ON GROWTH PERFORMANCE AND FAT DEPOSITION IN BROILERS**

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The fast growth rate of broilers' is associated with high body fat deposition and nutritional studies have indicated that early feed restriction induces the metabolic programming. This experiment was conducted to study the effect of feed restriction at early age on growth performance and fat deposition in broilers. Two hundred, Cobb-500 day-old chicks were randomly assigned into five treatments with four replicates in a completely randomized design. Treatments were T1: *ad-libitum* feeding (control), T2 and T3: 75% and 50% of *ad-libitum* feeding from day 7 – 14, respectively, T4 and T5: 75% and 50% of *ad-libitum* feeding from day 14 - 21, respectively. All birds were fed with *ad-libitum* before and after the completion of the respective restriction periods, adapting two phase feeding program. Growth performances were recorded weekly and carcass quality parameters and serum lipid profile were measured at slaughtering on the 38<sup>th</sup> day. Feed intake was significantly lower ( $p < 0.05$ ) in T3 and T5 ( $2.9 \pm 0.04$  kg) compared to the birds in the control group ( $3.2 \pm 0.04$  kg). However, no differences ( $p > 0.05$ ) were observed in weight gain, feed conversion ratio, and dressing percentage among the treatments. Abdominal fat (13 - 17 g) and muscle crude fat (1.9 - 2.5%) contents in birds fed with restricted diets from day 7 - 14 were significantly lower ( $p < 0.05$ ) compared to the control ( $27 \pm 2$  g and  $5.06 \pm 0.6\%$ , respectively). There was no influence ( $p > 0.05$ ) of treatments on carcass cuts or organ weights, muscle protein content, and serum lipid profile. According to the cost benefit analysis, profit earned per bird from T3 (LKR 187.00) was higher compared to the control (LKR 173.00). In conclusion, 50% feed restriction during day 7 - 14 is a better solution to reduce the fat deposition without interfering on growth performances of broilers with lower cost.

**Keywords:** Abdominal fat, Carcass quality, Lipid, Restricted feeding