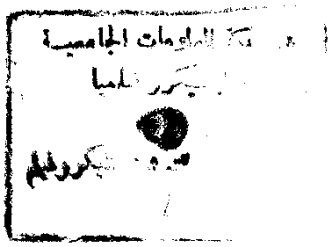
EFFECT OF DIFFERENT LIGHTING AND FEED REGIMES ON PHYSIOLOGICAL AND BIOCHEMICAL VARIABLES IN JAPANESE QUAIL

By

EMAN FARAG EL DALY



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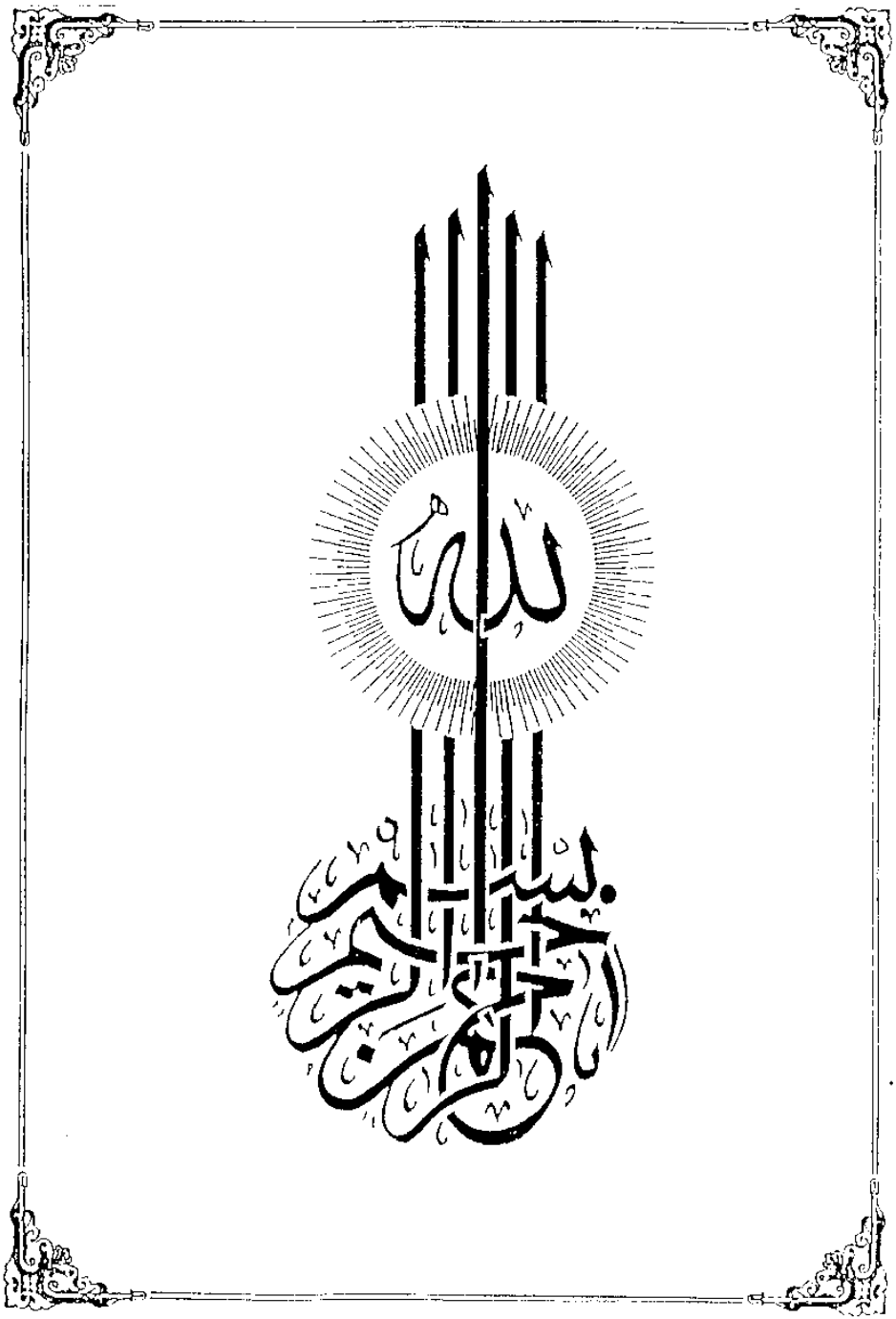

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Abstract

A series of experiments were conducted to assess the growth performance, digestibility of nutrients, carcass components and their chemical composition, blood hormonal and biochemical changes which occurred during the growing period of Japanese quail maintained under different lighting and feed regimes. Three lighting programs : 4L:10D:2L: 8D; 14L:4D:4L:2D, and 14L; 10D. Chicks were fed from one to 42 days of age on three feeding regimes : 100%, 90%, and 80% of the ad libitum consumption.

The results indicated that intermittent light and feed restriction were effective in increasing body weight of both sexes. Both light treatments and the interaction between light

and feed restriction showed highly significant effect on body gain. Light and feed restriction showed highly significant effect on actual feed consumption. Quail pattern of feed consumption differed not only by seasons but also during the growing period. Various light regimes affected significantly feed conversion, however, the results of the effect of feed restriction was conflicting.

Although light had no significant effect on the gastrointestinal tract weight or length, feed restriction and the interaction between body weight and feed restriction and sex significantly affected the length of the gastrointestinal tract. Interaction between body weight and intermittent light, and light and feed regimes significantly affected weight of carcass components. Light and feed restriction are negatively affected the fat content of quail carcass.

Light regimes reduced the level of serum thyroid hormones, however the interaction between light and feed restriction had highly significant effect on T4 and T3/T4 ratio at 6 weeks of age. Positive correlation coefficients (r) were found between T3 and body weight and breast meat yield, but negative correlation (r) between T3 and thigh and liver weight. These studies showed inverse relationship between feed restriction and plasma glucose level at 6 weeks of age. Neither light nor feed or sex and their interactions significantly affected creatine kinase level. But creatine kinase was negatively correlated with body weight and thigh, and positively correlated with breast, liver weights and T3 level.

Key words: quail, light, feed restriction, T3, T4 performance, carcass, glucose, creatine kinase.

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