Impact of Some Light Sources on Growth Performance and Sexual Maturity of Female Japanese Quail

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Abstract:

This study aimed to compare economically between the impact of three light sources on the growth performance of Japanese quail. The experiment of this study lasted 56 days and included 126 one day old chicks divided in 3 groups X 3 replicates each of 4 males and 10 females. They were raised in battery cages under similar managerial conditions, subjected to light from 60 watt incandescent, 40-watt fluorescent and 26 watt saving lamps for 8 light hours/ daily with intensity of 14-16 Lux during the first three days and 4-6 Lux during the rest of the experiment. They were individually weighed every week, while the body weight gain (BWG) was calculated biweekly. The averages of female body weight (BW) and age at sexual maturity were determined. Similarly, the averages of feed consumption (FC) and feed conversion ration (FCR) were also determined. At the end of the experiment, 6-fasted females were slaughtered and 6 blood samples per group were taken to determine some blood components and to estimate the carcass quality. The lighting costs included both of the power cost (kw/LE) and the value of the lamp depreciation, (lighting hours / life span of the lamp X lamp price LE). The results revealed that: 1- The average BW of females exposed to light from fluorescent (FLU,T1) was significantly lighter at 2, 4, 6 and 8 weeks than those of the control (INC) and the saving lamps (T2). 2- The average Total BWG (204.76 g) in T1 (flu) decreased significantly than those 214.61 and 216.85g of T2 and the control, respectively. 3- The least average FC (692.30 g) was recorded in T2 (saving) decreasing significantly than those 712.60 and 721.47 g of T1 and the control, respectively. 4- The best average FCR (3.12) was recorded in T2 improving significantly than that 3.42 of T1 and insignificantly than 3.22 of the control. 5- The least average of females BW at sexual maturity (204.48 g) was found in T1 decreasing significantly than those 212.42 and 220.04 g of T2 and the control, respectively. 6- The minimal age at sexual maturity was found in T2 (saving) decreasing significantly than that of the control and T1 (flu). 7- The use of the saving lamps minimized the lighting costs by 56.43% than that of control. Taking in consideration the above mentioned advantages, it could be concluded that the use of saving lamp is highly recommended for raising Japanese Quail birds economically.

Keywords:

Quail – Light Source – Lamps – Sexual Maturity – Female

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