

Effect of housing system and dietary biotin supplementation on

2- Egg quality traits and some blood constituents

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Abstract

The present study was aimed to investigate the effect of housing system and dietary *biotin* supplementation on productive and metabolic performance of Benha line chickens. A total number of 224 chickens 20 weeks old and mean of body weight $1742 \pm \text{SE}$, were equally divided into two groups. Pullets of the first group were housed in cages of laying battery and pullets of the second group were kept on deep litter laying houses. Chickens of each group were then subdivided into four sub groups according to dietary biotin supplementation. Pullets of the 1st sub group were fed on basal layer diet (control); the 2nd, 3rd and 4th sub groups were fed on basal diet supplemented with biotin at a level of 100, 150 and 200 $\mu\text{g/kg}$ diet, respectively. The results obtained showed that, pullets housed in cages improved significantly relative weights of egg shell and albumin, indexes of egg shape, albumin and yolk, hatchability percentage and chick weight at hatch, it also decreased early, mid and late embryonic mortality, plasma total proteins, aspartate aminotransferase, creatinine and plasma uric acid. However pullets housed on deep litter improved yolk index, Haugh unit, fertility percentage, plasma levels of albumin, globulin and alanine aminotransferase. Biotin supplementation to layer diets at a level of 150 $\mu\text{g} / \text{kg}$ diet increased relative weight of egg shell and albumin, yolk index, fertility and hatchability percentage and decreased early, mid and late embryonic mortality. Chick weight at hatch, egg shape index, relative weight of albumin and plasma level of albumin significantly increased by adding 100 μg biotin to layers diets. It could be concluded that biotin supplementation at a level of 150 and 100 $\mu\text{g/kg}$ in layer diet and reared in battery cages and on deep litter system, respectively seemed to be adequate to achieve the favorable results.

Key words: laying hens, housing system, biotin, Egg quality, blood.