

Alternative Housing Systems: Influence on Blood Profile of Egg-Type Chickens in Humid Tropics

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Abstract : General well-being of animals is of paramount interest in some developed countries and of global importance hence the shift onto alternative housing systems for egg-type chickens as replacement for conventional battery cage system. However, there is paucity of information on the effect of this shift on physiological status of the hens to judge their health via the blood profile. Therefore, investigation was carried out on two strains of hen kept in three different housing systems in humid tropics to evaluate changes in their blood parameters. 108, 17-weeks old super black (SBL) hens and 108, 17-weeks old super brown (SBR) hens were randomly allotted to three different intensive systems Partitioned Conventional Cage (PCC), Extended Conventional Cage (ECC) and Deep Litter System (DLS) in a randomized complete block design with 36 hens per housing system, each with three replicates. The experiment lasted 37 weeks during which blood samples were collected at 18th week of age and bi-weekly thereafter for analyses. Parameters measured are packed cell volume (PCV), hemoglobin concentration (Hb), red blood counts (RBC), white blood counts (WBC) and serum metabolites such as total protein (TP), albumin (Alb), globulin (Glb), glucose, cholesterol, urea, bilirubin, serum cortisol while blood indices such as mean corpuscular hemoglobin (MCH), mean cell volume (MCV) and mean corpuscular hemoglobin concentration (MCHC) were calculated. The hematological values of the hens were not significantly ($p>0.05$) affected by the housing system and strain, so also the serum metabolites except for the serum cortisol which was significantly ($p<0.05$) affected by the housing system only. Hens housed on PCC had higher values (20.05 ng/ml for SBL and 20.55 ng/ml for SBR) followed by hens on ECC (18.15ng/ml for SBL and 18.38ng/ml for SBL) while hens on DLS had the lowest value (16.50ng/ml for SBL and 16.00ng/ml for SBR) thereby confirming indication of stress with conventionally caged birds. Alternative housing systems can also be adopted for egg-type chickens in the humid tropics from welfare point of view with the results of this work confirming stress among caged hens.

Keywords : blood, housing, humid-tropics, layers

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