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Haematology and Serum Biochemical Profile of Laying Chickens Reared on Deep Litter System with or without Access to Grass or Legume Pasture under Humid Tropical Climate

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Abstract : There has been a growing interest on the effects of access to pasture on poultry health status. However, there is a paucity of data on the relative benefits of grass and legume pastures. An experiment was conducted to determine the effects of rearing systems {deep litter system (DL), deep litter with access to legumes (LP) or grass (GP) pastures} haematology and serum chemistry of ISA Brown layers. The study involved the use of two hundred and forty 12 weeks old pullets. The birds were reared until 60 weeks of age. Eighty birds were assigned to each treatment; each treatment had four replicates of 20 birds each. Blood samples (2.5 ml) were collected from the wing vein of two birds per replicate and serum chemistry and haematological parameters were determined. The results showed that there were no significant differences between treatments in all the parameters considered at 18 weeks of age. At 24 weeks old, the percentage of heterophyl (HET) in DL and LP were similar but higher than that of GP. The ratio of H:L was higher ($P<0.05$) in DL than those of LP and GP while LP and GP were comparable. At week 38 of age, the percentage of PCV in the birds in LP and GP were similar but the birds in DL had significantly lower level than that of GP. In the early production phase, serum total protein of the birds in LP was similar to that of GP but higher ($P<0.05$) than that of DL. At the peak production phase (week 38), the total protein in GP and DL were similar but significantly lower than that of LP. The albumin level in LP was greater ($P<0.05$) than GP but similar to that of DL. In the late production phase, the total protein in LP was significantly higher than that of DL but similar to that of GP. It was concluded that rearing chickens in either grass or legume pasture did not have deleterious effects on the health of laying chickens but improved some parameters including blood protein and HET/lymphocyte.

Keywords : rearing systems, stylosanthes, cynodon serum chemistry, haematology, hen
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