Effect of different levels of Stocking Density and Dietary Sodium Bicarbonate (NaHCO3) on Perforinance,MeatQuality and Organ Weights of Broiler Chicken

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This study was conducted to determine the effectiveness of different levels of $NaHCO_3$ and different stocking densities on performance and meat quality of broiler chicken. A total of 360, 19-day-old broiler chicks were randomly allocated in to 6 experimental units in a 2 x 3 factorial arrangement of two different stocking densities as D_1 (Standard density: 1.2 ft^2 bird'") and D_2 (High density: 0.85 ft2 $bird^{-1}$ and three levels of $NaHCO_3$ (0%, 0.3%, 0.5%). Each treatment consisted with 5 replicates. Data were subjected to factorial analysis using the General Linear Models procedure of two-way ANOVA of statistical analysis system. The highest ($P < 0.05$) daily weight gain of broilers was recorded from D_1 (59 g $bird^{-1}$ day^{-1}), 0.3% $NaHCO_3$ (69 g $bird^{-1}$ day^{-1}). The highest ($P < 0.05$) average daily feed intake was recorded from D_2 (112 g $bird^{-1}$ day^{-1}), 0.5% $NaHCO_3$ (116 g $bird^{-1}$ day^{-1}). Favourable ($P < 0.05$) feed conversion ratio was obtained from D_2 (2.31) and 0% $NaHCO_3$ (3.06). The highest ($P < 0.05$) pH value was recorded from D_1 (5.53) and 0.3% $NaHCO_3$ (5.51) and lowest ($P > 0.05$) from D_2 (5.35), 0% $NaHCO_3$ (5.30). Highest ($P < 0.05$) redness of breast meat was recorded from D_1 (12.49), 0.3% $NaHCO_3$ (12.37). The highest ($P < 0.05$) relative weight of intestine was recorded from 0% NaHCO3 (4.67). Highest ($P < 0.05$) liver weight was recorded from 0.3% $NaHCO_3$ (2.60). In conclusion, dietary supplementation of 0.3% $NaHCO_3$ has better effects on growth performance of broilers regardless of the stocking density.

Keywords: Stocking density, NaHCO3, Average daily weight gain, Average feed intake