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Effect of Vitamin C Supplementation on Performance of Broiler Chickens in Cambodia

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Abstract

The hot and wet climatic conditions in the tropics limit the high performance and survival of broilers in these regions. In Cambodia heat stress in broiler is experienced nearly all year round, but is more pronounced in the transition period from hot to wet season. An experiment was conducted in the Animal Experimental Station of the Royal University of Agriculture, Cambodia, from June 15 to July 27, 2001, to determine the effect of Vitamin C supplementation on the productivity of broiler chickens. 270 day-old chicks of initial weight 44.49 ± 3.23 under a completely randomised design were divided into 3 groups with three replications and reared on deep litter rice husks for 42 days. All birds were fed a balanced broiler diet ad libitum, however, group A (the control group) received normal drinking water while group B and C were supplemented with Vitamin C dissolved in drinking water at levels of 20 and 40 mg/bird and day respectively. Average weight gains of groups A, B and C of 1281.64 ± 47.4 , 1401.18 ± 51.7 and 1511.87 ± 46.8 respectively were significantly different ($p < 0.01$). There were no significant differences in feed consumption among groups ($p > 0.05$). However, feed conversion ratios of A (2.22 ± 0.01), B (2.11 ± 0.01) and C (2.04 ± 0.01) were significantly different ($p < 0.01$). The broiler mortality was highest in A (8.9%), followed by B (5.6%) and lowest in C (2.2%). It was concluded that supplementation with Vitamin C at 40 mg/bird and day in drinking water reduces the impact of heat stress and improves the productivity of broilers under the environmental conditions of Cambodia.

Keywords: FCR, growth rate, heat stress, mortality, supplementation, Vitamin C