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**SUMMARY**

A study to determine effects of cold water and vitamin C on growth performance in 216 Anak 2000 broiler chickens was carried out during hotdry season in the SW Nigeria. The minimum, maximum and mean temperatures during the experiment were 19.4, 35.8 and 27.6$^{o}$C respectively while the relative humidity was 72.6%. The broilers, Anak 2000 at d 28 were allotted to two groups offered either ordinary water (29.5$^{o}$C) or chilled water (8.0$^{o}$C) for four weeks. Each group was divided into two. Each half received either 0 or 500 mg vitamin C per litre in drinking water in 2 x 2 factorial arrangement. There were 3 replicates with 18 birds per replicate. Data on daily water intake (DWI), weekly feed intake (WFI), final liveweight (FLW), weekly weight gain (WWG), total weight gain (TWG), feed conversion ratio (FCR), percentage survival (SURV), and relative weights of breast meat, liver, spleen, gizzard, drumstick, thigh, heart and wing were subjected to analysis of variance. Water temperature had no significant effect on DWI, WFI, FCR and SURV. However, offering broiler chickens cold drinking water resulted in significantly higher WWG ($p<0.001$), TWG ($p<0.001$), FLW ($p<0.001$) and relative weight of spleen ($p<0.001$) compared to water at ambient temperature. Addition of 500 mg vitamin C per litre water increased significantly the relative weights of breast meat compared to 0 mg vitamin C. Other parameters were affected by vitamin C. There were not interaction between water temperature and addition of vitamin C on growth parameters examined in this study. It can therefore be concluded that offering cold water to broiler chickens during hot-dry season increases weight gain and spleen but reduced wing size. Though addition of vitamin C could not raised growth rate in broilers during hot-dry season, the breast meat yield was improved.

Key words: Heat stress. Feed intake. Weight gain. Feed conversion ratio. Spleen. Wings. Breast meat.