Growth performance of broiler starter chickens fed varying levels of fibre and energy in multi-fibre source-based diets

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Abstract

There is dearth of information on the crude fibre (CF) tolerance limit of broiler chickens for optimum performance in relation to dietary metabolisable energy (ME) level in the tropics. Hence, this study examined the CF-dietary energy relationship in multi-fibre source-based broiler starter diets at fixed calorie: protein ratio of 123:1. Two hundred and sixteen day-old unsexed Obamarshal broiler chicks were allotted to nine treatments at 24 birds each with three replicates per dietary treatment and fed for 28 days with diets containing ME levels of 2600, 2800 and 3000 ME (kcal/kg) and CF levels of 4, 8 and 12% per energy level to determine their optimal inclusion levels. Live weight, average daily gain (ADG), feed intake, feed conversion ratio (FCR), protein intake, protein efficiency ratio (PER), calorie intake, fibre intake, water intake, water intake: feed intake, water intake: weight gain, faecal output and mortality rate were evaluated and analysed statistically using 3x3 factorial arrangement and significant means separated by Duncan's Multiple Range Test at P<0.05. Results of this study indicated that ADG (28.25 and 28.69g), FCR (1.95 and 2.06) and PER (2.26 and 1.97) were optimized (P<0.05) and similar (P>0.05) in broiler starters fed diets containing 8% CF at 2800 and 3000 ME (kcal/kg) respectively. However, these parameters were lower (P<0.05) in broiler starters fed diets containing 2600 ME (kcal/kg) at the three CF levels. Feed cost per kg weight gain was least in broiler starters fed 8%CF diet at 2800KcalME/kg and relatively better than at 8%CF-3000Kcal ME /kg diet. Conclusively, optimum growth and minimal feed cost were obtained with broiler starters raised on diet containing 8% CF at 2800ME(kcal/kg).

Keywords: Broiler starter, crude fibre, metabolisable energy, growth