Effect of varying dietary fibre and energy levels in multi-fibre source-based diets on growth performance of broiler finisher chickens

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Abstract

There is a need for constant review of empirical data relating crude fibre (CF) tolerance limit of broiler finishers to dietary energy level for optimum performance. On this note, this study was carried out to investigate the effect of varying levels of CF at 4, 8 and 12% and Metabolisable Energy (ME) levels of 2600, 2800 and 3000 ME (Kcal/Kg) in multi-fibre source-based diets maintained around calorie: protein ratio of 140:1 on the performance characteristics of broiler finishers during 5 – 8 weeks of age. Growth response parameters were evaluated and subjected to 3x3 factorial analysis in a complete randomised design and treatment means were separated at 5% probability level. The values of average daily weight gain (ADWG) (46.02 versus 47.49g) and feed conversion ratio (FCR) (3.41 versus 3.18) were maximised (P<0.05) and similar (P>0.05) for the birds on 12% CF diets at 2800 and 3000ME (kcal/kg) respectively. However, these two parameters were poorer (P<0.05) in birds fed diets containing 2600ME (kcal/kg) at the three CF levels. The values of protein efficiency ratio (PER) ranging from 1.37-1.61 were generally similar (P>0.05) across the diets. The superior values of ADWG and FCR at the optimal CF and ME levels indicated that both of them are essential in broiler finisher feeds. However, the feed cost per kg live weight gain were similar (P>0.05) between broilers fed medium and high energy feeds, though, numerically the feed cost was lower at 3000 than at 2800 ME (Kcal/Kg). The findings showed that 12% CF diet at 3000ME (kcal/kg) of feed gave optimum performance in broiler finishers at lower feed cost, thus indicating that broiler finishers can tolerate more than 5% recommended crude fibre.

Keywords: Broiler finisher, crude fibre, metabolisable energy, calorie: protein ratio, performance