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Performance Characteristics of Turkeys Fed Full-Fat Soybean or Soybean Meal Based Diets Supplemented with Varying Levels of Protease Enzyme and Related Feed Costs

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Abstract

Full-fat soybean and soybean meal are two major products of soybean processing used in livestock feed formulation. Enzyme-mediated improvement of feed digestibility has a direct effect on the amount of feedstuffs needed to satisfy nutritional requirements of animals, reduce manure output and cost of production. This study sought to evaluate the performance characteristics and cost benefits of turkeys fed either full-fat soybean (FFSB) or soybean meal (SBM) based diets supplemented with a commercial protease enzyme at varying levels. A total of 300 fifty-six day old unsexed British United turkeys were used in this study, they were allotted on weight equalisation basis to 6 treatment groups, 5 replicates of 10 birds each. Two practical diets were formulated according to NRC, 1994 using FFSB or SBM and other conventional feedstuffs to meet the requirements for each phase; protease was supplemented at 3 levels (250 ppm, 500 ppm and 750 ppm). Feed and water were offered *ad-libitum* during the 56 days feeding trial divided into grower (56-84 days) and finisher (84-112 days) phases. Data analysis was done using ANOVA in a Completely Randomised Design. At the grower phase, feed cost per kg weight gain (N474.43) of birds fed SBM diets was lower than those fed FFSB diets (N497.26), while the reverse was the case at the finisher phase; SBM (N584.44) and FFSB (N517.26). Feed cost per kg diet increased ($p < 0.05$) with enzyme supplementation at both phases. At the grower phase, there was no significant difference between the cost per kg diet of FFSB or SBM while at the finisher phase, SBM diets were more expensive ($p < 0.05$). Birds fed SBM diets had higher daily weight gain (122.65g) and better FCR (3.14) than those fed FFSB (116.57g: 3.30) at the grower phase. At the finisher phase, turkeys fed FFSB based diets had higher daily weight gain and better FCR (125.07g: 3.53) compared with those fed SBM based diets (119.52g: 3.91). No significant difference ($p > 0.05$) was observed as a result of varying levels of enzyme supplementation on performance indices. It was concluded that SBM based diets were better for growing turkeys, while FFSB based diets were better for turkeys at the finisher phase as it reduced the feed cost per kg diet and increased the weight gain.

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