effect of phytase supplementation on the growth performance, calcium and phosphorus retention and bone mineralization of turkeys

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The most fraction of non-phytate phosphorus in plant-based diets is unavailable to poultries and they do not have sufficient quantities of phytase in their digestive tracts. The aim of the trial was to determine the effect of different levels of a new phytase supplied by BASF SE (Ludwigshafen, Germany) in powder formulation on the performance, Ca- and P-retention and bone mineralization of turkeys. A total of 1008 Converter hybrid male turkeys were allocated into 4 dietary treatments. Diet A: basal diet w/o phytase supplementation, B: w/o inorganic phosphorus and no phytase supplementation, C and D: same as diet B but supplemented with 125 and 250 FTU/kg phytase. The supplementation of the diet B with 125 FTU/kg phytase led to a 5.8% increase of the live weight of the birds. The feed conversion rate of birds fed the diet with phytase supplementation was statistically not affected. Birds fed the diet supplemented with 125 FTU/kg phytase retained 24.8% more P in absolute terms than their NC peers. Birds fed the diet supplemented with 250 FTU/kg phytase retained 17.3% more phosphorus in contrast the birds fed diet B. As a result of 250 FTU/kg phytase supplementation, the amount of retained P increased by 52.6% and relative P retention increased by 8.1%. The parameters of tibia from birds fed the diets with phytase supplementation were statistically not affected. It can be concluded that the 125 or 250 FTU/kg phytase supplemented low P diet can improve the live weight and the P retention in turkeys.

Key words: phytase, turkey, retention