effect of phytase supplementation on the performance, egg quality, calcium and phosphorus retention and bone characteristics of layers

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Phytase supply of a cereal grains and oilseed based diet is known to improve P digestibility due to release of phytate bound P. The purpose of the trial was to determine the effect of two dosages of a bacterial 6-phytase on the performance, egg quality, Ca and P retention as well as bone mineralization in laying hens. A total of 304, 26 and 36 week-old Tetra SL layers were allocated into 4 dietary treatments. Diet A: basal diet, B: like A but w/o inorganic phosphorus and no phytase supplementation, C and D: like B butsupplemented with 100 and 200 FTU phytase per kg. Diet B and C fed birds had a significantly lower body weight at the end of the trial. FI and FCR were not affected by the treatments. There was no effect on the number of eggs in any of the two monitored periods. Egg weight and egg mass were reduced by the P deficient diet in the last two weeks by 4.9% and 11.8%. The reduction in P excretion was 44% in P deficient group. Ca retention was reduced by low P supply even if phytase was supplemented. The relative P retention was significantly improved by diet C and D to 27.2 and 27.1% compared to 19.8% for both of the other treatments. It can be concluded that the supplementation of an iP free diet with 200 FTU/kg might improve P retention in up to 30-week-old layers without negative impact on performance and production parameters.

Key words: phytase, layer, retention