PROTEASE SUPPLEMENTATION ON LOW PROTEIN DIETS SAVES FEED COST AND LOWERS NITROGEN EXCRETION

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The use of protease offers an opportunity for animal nutritionists to lower crude protein (CP) and amino acid (AA) levels in poultry diets. By doing so, producers can save on feed cost and reduce nitrogen (N) excretion in the environment. A study was conducted to determine the effects of lowering CP and AA in laying hen diet supplemented without and with protease on performance and N excretion. A total of 240 82-week-old Hy-Line Brown hens were randomly allotted to 1 of 3 treatments for 6 weeks: 1) Positive Control (PC, 17% CP), 2) Negative Control (NC, -11% CP and AA), 3) NC + 0.0125% protease (PT). Thereafter, a nitrogen balance study based on total N intake and N output was conducted. Compared to PC, lowering CP and AA in NC diet impaired the overall performance of laying hens. However, the effect was only significant on egg weight P<0.05, -2.7%), but not on egg mass (P<0.10, -7.4%), feed conversion ratio (P<0.11, +6.8%), and egg production rate (P<0.36, -4.7%). Protease supplementation restored performance, recovering +1.2% on egg weight, +4.5% on egg mass, -4.0% on feed conversion ratio, and +3.2% on egg production rate. No differences in performance between PC and PT were observed. Consequently, N output was decreased (P<0.01) in NC and PT relative to PC. Overall, results showed that protease supplementation on low protein diets can be used as a strategy to save on feed cost and lower N excretion while maintaining performance comparable to laying hens fed standard protein levels.