

***The Effect of Edamame Protein Concentrate Feed Additive and Lemuru Fish Oil
Supplementation on the Production Performance of Laying Ducks***

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ABSTRACT

This study was conducted to evaluate the production performance of laying ducks fed diets supplemented with edamame protein concentrate and lemuru fish oil. A total of 75 laying ducks aged 21 weeks were used in this study with five dietary treatments: P0 (without eSPC supplement and lemuru fish oil), P1 (0.5% eSPC supplement and 1% lemuru fish oil), P2 (0.5% eSPC supplement and 1.5% lemuru fish oil), P3 (1% eSPC supplement and 1% lemuru fish oil), and P4 (1% eSPC supplement and 1.5% lemuru fish oil). Each treatment consisted of five replications, resulting in 25 experimental units with three laying ducks per unit. The observed parameters included feed intake, egg production, egg weight, and Feed Egg Ratio (FER). The data were analyzed using a Completely Randomized Design (CRD) followed by Analysis of Variance (ANOVA). If significant differences were detected, Duncan's Multiple Range Test (DMRT) was applied. The results showed that supplementation with edamame protein concentrate and lemuru fish oil had no significant effect ($P > 0.05$) on feed intake, egg production, egg weight, or Feed Egg Ratio (FER). Nevertheless, treatment P3, consisting of 1% edamame protein concentrate and 1% lemuru fish oil, demonstrated the best numerical production performance, with cumulative feed intake of 4899.8 ± 209.60 g/bird, egg production of $74.09 \pm 11.51\%$, egg weight of 1593.8 ± 193.29 g, and the lowest Feed Egg Ratio of 3.10 ± 0.31 compared with the other treatments. The use of 1% edamame protein concentrate combined with 1% lemuru fish oil represented the treatment combination that produced the best numerical production performance in this study. This tendency was presumably associated with the high-quality protein content of edamame protein concentrate and the essential fatty acids contained in lemuru fish oil, which may support metabolic processes and nutrient utilization in laying ducks, although statistically no significant improvement in production performance was observed.

Keywords : *Laying ducks, edamame protein concentrate, lemuru fish oil, production performance*