

A Case Study on Farm Formulated Layer Feeds

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Considering the high prices of commercial poultry feed, small-scale farmers tend to formulate their own poultry feeds. However, whether these feeds meet the required nutritional levels of poultry is poorly documented. Thus, the aim of this study was to evaluate the nutritional quality of farm-formulated layer feeds from three provinces and assess crude protein (CP) compliance with NRC 1994 standards. Layer feed samples were collected from small-scale farms across Western, North-Western, and North-Central Provinces (5 samples per province). A structured questionnaire was used to assess farmers' knowledge on feed formulation requirements and also of nutritional standards. Proximate analysis following AOAC methods determined CP, crude fiber (CF), crude fat (EE), ash, dry matter (DM) and organic matter (OM). Statistical analysis employed One-Way ANOVA for inter-provincial comparison, with NRC standards used as benchmarks for CP (15%) and dry matter (90%). North Central Province exhibited the highest ($p<0.05$) protein content ($21.7\pm0.68\%$) exceeding North-Western Province ($18.9\pm0.68\%$) but similar to Western Province ($20.1\pm0.68\%$). Critically, all three provinces substantially exceeded the NRC (1994) recommended level of for laying hens in production. However, the DM content was according to the recommended level in all three provinces. North-Central Province had the lowest ($p<0.05$) EE ($5.4\pm0.48\%$) compared to Western ($7.2\pm0.48\%$) and North-Western ($7.5\pm0.48\%$) Provinces. All respondents (100%, $n=15$) lacked awareness of NRC (1994) nutritional standards for layer feeds. Majority (60%) of the farmers obtained knowledge of feed formulation from a hired consultant, 20% through browsing the internet while the other 20% of the farmers obtained knowledge from the market formulas. None of the surveyed farmers had received formal training in feed formulation nor attended agricultural extension programs related to poultry nutrition in the last five years. This case study demonstrates critical protein over-formulation across all provinces, causing economic inefficiency and unnecessarily increased feed costs confirming the urgent need for targeted extension services to provide evidence-based feed formulation trainings.

Keywords: Feed cost, Feed formulation, NRC standards, Proximate composition, Small-scale layer farming