



Tropentag, September 14-16, 2022, hybrid conference

“Can agroecological farming feed the world?
Farmers’ and academia’s views”

Assessment of performance and egg quality of laying hens fed black pepper and red pepper additives

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Abstract

With the increasing demand for poultry products over the world, poultry farmers want to improve the productivity of their flocks. This challenge has necessitated poultry nutritionists to offer certain nutritional strategies for improved productivity. Feed additives have been recommended as one of such strategic options and plant materials known as phytogenics are being extensively investigated. The objective of the study, therefore, was to assess the performance and egg quality of laying hens fed black pepper and red pepper additives. A total of 210 laying hens at 24 weeks of age were allotted seven dietary treatments in a completely randomised design. Each treatment had 30 birds each, replicated three times to give 10 birds per replicate. The formulated diets included: a control diet with no additives; Treatments 2 and 3 had 1% and 1.5% black pepper powder; Treatments 4 and 5 had 1% and 1.5% red pepper powder; Treatment 6 had a mixture of 0.5% each of black pepper and red pepper, while treatment 7 had a mixture of 0.75% each of black pepper and red pepper. All data collected were subjected to a one-way analysis of variance, using the general linear model procedure of SAS (2012). From the results obtained, the hen day percentage was significantly highest in hens fed the diet with 1% red pepper (83.40%) and the least from hens in the control (65.56%). The control treatment also recorded significantly least performances in egg mass (48.76 g/bird/day) and feed conversion ratios (2.58 and 2.30). Shell thickness was least (0.43mm) in hens fed the diet with 1.5% red pepper, while the thickest shell measurement (0.50mm) was recorded in Treatment 6. The highest Haugh unit of 103.77 was obtained from Treatment 4, while the least value of 96.66 was obtained from the control. Yolk colour was significantly improved in the treated groups as against what was obtained from the control. It can be concluded that black pepper and red pepper, having improved the measured parameters in comparison to the control group, hold great potential as dietary additives that can help improve the performance and egg quality of commercial laying hens.

Keywords: Black pepper, egg quality, feed additives, laying hens, performance, red pepper