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Effect of Dietary Energy on Performance, Egg Component, Egg Solids, and Egg Quality in Bovans White and Dekalb White Hens During Phase 2

Kun Yuan[2)], Guangbing Wu[1)], Matilda M. Bryant[1)] and David A. Roland, Sr.[1)]

1) Department of Poultry Science, Auburn University, USA
2) Department of Biological Sciences, Auburn University, USA

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A 4×2 factorial experiment of four dietary energy levels (2,776, 2,820, 2,864 and 2,908kcal/kg) and two strains (Bovans White and Dekalb White) was conducted to determine the influence of dietary energy on performance, egg composition, egg solids, and egg quality of two strains of commercial Leghorns during Phase 2 (from 40 to 51 week of age). This experiment lasted 12 weeks. Bovans White hens (*n*=768) and Dekalb White hens (*n*=768) at 40 week of age were randomly divided into 16 treatments (8 replicates of 12 birds per treatment). Bovans hens had significantly higher egg production, percent egg yolk, Yolk/Albumen ratio, whole egg solid, and crack eggs than Dekalb hens while Bovans hens had significantly lower egg weight, feed conversion, egg specific gravity, percent shell, Haugh unit, shell thickness, and yolk color than Dekalb hens. With increasing dietary energy hens linearly adjusted feed intake from 105.0 to 101.7g/hen/day to achieve a constant energy intake so that the same amount of dietary energy (5.2kcal) was used to produce 1g of egg. Increasing dietary energy had significant effects on feed conversion, percent yolk, percent albumen, Yolk/Albumen ratio, and dirty eggs. Based on feed conversion, increasing dietary energy to 2,864kcal ME/kg by the addition of poultry oil might be sufficient for optimal performance of laying hens during Phase 2 (wk 40 to 51).

Keywords: egg composition, energy, feed conversion, feed intake, strains

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