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Selection of high egg production in Taiwan native chicken inbreeding lines Taisui No. 1 (1)

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Abstract

Egg production is an important economic source of commercial layers, and also an important trait that directly affects the economic benefits for breeders and commercial broiler producers. To improve the egg productive performance of inbreeding lines of Taiwan native chickens and establish a high egg number yield breeding technology platform, four inbreeding lines of Taiwan native chickens (Taisui No. 1), L7, L9, L11 and L12, were selected for high egg production. Chickens were selected based on two traits, including: the body weight of the individual chickens at 16 weeks of age (BW16) and egg numbers produced by the hens up to the 40 weeks of age (EN40) for breeding newer generations. After five generations of selection, the average 16-week-old body weight of roosters and hens were increased significantly ($P < 0.05$), and the average age at first egg (AFE), average egg weight at first egg (EWFE), average egg weight at 40 week of age (EW40), and EN40 in hens were improved significantly ($P < 0.001$). Moreover, the hens' EN40 of line L7, L9, L11 and L12 in the G4 generation were 99.6, 90.0, 99.5 and 89.4 eggs, respectively, which were higher than those in the G0 generation, increased by 39.1, 51.5, 37.8 and 36.1%, respectively. The average BW16 and EW40 did not decrease due to the increase in EN40. In this trial, we used a small ethnic group of native chicken with pedigrees and the independent elimination method to conduct the program for selecting high egg production in native chickens. It can indeed effectively increase EN40 of hens and improve BW16 of chickens. And it can be used as a breeding technology platform for private breeders to improve egg production of hens.

Key words: Chicken, Body weight, Laying performance, Selection.

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