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Effects of Egg Storage Duration on Egg Weight Loss, Hatching Results, and Poult Quality Characteristics in Native Bronze Turkeys

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Abstract

This study investigated the effects of pre-incubation egg storage duration on egg weight loss, hatchery performance, and selected poult quality parameters in turkey eggs. Eggs collected from a breeder flock were stored daily for 10 days in a storage room maintained at 16°C and 75% relative humidity. Based on the loading sequence, eggs stored for 0–5 days and 6–10 days were separated into two experimental groups representing 5-day and 10-day storage periods, respectively. A total of 746 eggs were used in the study, with equal numbers allocated to each group. On day 25 of incubation, eggs were reweighed to determine weight loss and subsequently transferred to hatching baskets. The results showed that extending the storage period significantly affected egg weight at transfer and increased both absolute (g) and relative (%) weight loss during incubation ($P<0.01$). The relative weight loss was higher in eggs stored for 10 days (13.7%) than in those stored for 5 days (12.5%). Hatchability of fertile eggs and hatchability of set eggs were adversely affected by prolonged storage, decreasing from 81.2% to 69.7% and from 75.1% to 63.8%, respectively ($P<0.01$). Evaluation of embryonic mortality revealed that longer storage duration significantly increased early and mid-term embryonic mortality rates as well as the proportion of contaminated eggs ($P<0.01$). However, storage duration had no significant effect on late embryonic mortality, pipped-but-unhatched embryos, total late embryonic mortality, or fertility rate ($P>0.05$). Likewise, poult quality traits, including poult weight, poult length, shank length, shank diameter, and poult quality score, were not influenced by storage duration ($P>0.05$). In conclusion, extending the pre-incubation storage period of turkey eggs from 5 to 10 days increased egg weight loss and contamination rates and, more importantly, elevated early and mid-term embryonic mortality, resulting in substantial reductions in hatchability and overall hatching performance. Therefore, careful management of egg storage duration is essential to achieve optimal hatchability in Native Bronze Turkeys.

Keywords: *Native Bronze Turkey, Egg Storage Duration, Hatchability, Egg Weight Loss, Poult Quality.*

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