

## EFFECT OF EGG STORAGE TEMPERATURE AND DURATION ON EGG FERTILITY, HATCHABILITY AND CHICK QUALITY IN CROSSBRED NAKED NECK CHICKEN

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Egg fertility and hatchability are influenced by both egg storage temperature and storage duration before incubation. Therefore, this study aimed to investigate the effects of different egg storage durations under different temperature conditions on the fertility and hatchability of crossbred naked neck chicken eggs and the quality of chicks in terms of chick weight, chick weight per egg weight, chick length, chick length per egg weight and shank length. A total of 1,440 eggs were collected from 50-week-old *Karandagolla* – naked neck crossbred chicken, cleaned, disinfected, and assigned ninety eggs per group. Each group of eggs was weighed and stored at different pre-incubation durations (1, 3, 7, and 10 days) under four temperatures (18°C, 22°C, 24°C, and room temperature (RT)) to establish 16 treatments. After storage, eggs were incubated for 21 days and candled three times to verify living embryos. Data on chick quality were collected and analyzed after hatching. Eggs stored at 18°C for 7 days showed the significantly highest egg fertility ( $91.11\% \pm 0.81$ ) and hatchability ( $93.90\% \pm 1.42$ ). Egg fertility was significantly affected ( $p < 0.05$ ) by storage duration however egg fertility of 3 days stored eggs was not significantly different ( $p = 0.115$ ). Egg hatchability also differed significantly ( $p < 0.05$ ). Egg storage at 18°C maintained fertility for up to 7 days and hatchability for up to 10 days, whereas room temperature storage caused fertility to decline after 3 days and hatchability after 1 day. Eggs stored at 18°C yielded the significantly highest values for chick weight ( $33.77 \pm 1.32$  g), chick weight-to-egg weight ratio ( $0.686 \pm 0.003$ ), chick length ( $15.83 \pm 0.26$  cm), chick length-to-egg weight ratio ( $0.33 \pm 0.003$ ) and shank length ( $1.98 \pm 0.04$  cm). All chick quality parameters were significantly affected by storage temperature ( $p < 0.05$ ). Overall, storing eggs at 18°C for a maximum of 7 days is the optimal combination of storage temperature and duration for enhancing egg fertility, hatchability, and chick quality.

**Keywords:** Fertility of chicks, Hatchability of chicks, Pre-incubation conditions, Quality of chicks