

Influence of Age of Hen and Storage Time of Eggs on Embryonic Mortality in Broiler Grandparent Breeders

D.A. Satharasinghe¹, C. Ekanayake², J.M.K.J.K. Premarathne¹ and N.G. Gregory³

¹*Faculty of Veterinary Medicine and Animal Science, University of Peradeniya*

²*Faculty of Animal Science and Export Agriculture, University of Uva Wellassa*

³*Royal Veterinary College, University of London*

The poultry industry is the only well-established commercial livestock sector in Sri Lanka and it contributes around 70% to the Sri Lankan livestock production. There is a scarcity in the availability of breeder stocks in the country. Fluctuations in the market demand for chicks lead to storage of eggs. Viability of fertile eggs can be affected by the age of hen and storage time. The objective of this study was to assess how the hen's age and storage length affect the embryonic death as this information is very valuable for broiler breeder farms.

The study was carried out using broiler breeder grandparent flocks of Cobb 500. Eggs of hens of different ages were used: 30-39, 40-49 and 50-59 weeks. Collected eggs were stored for 1-8, 9-16 and 17-24 days in a cool room at 16 °C with 75% Relative Humidity (RH). Fertile eggs were incubated at 37.5°C and 53% RH. The hatching performances were assessed by candling eggs at the 18th day of incubation. Incubation was completed on day 21 and all chicks were removed from the hatcher.

In all age groups of hens, embryonic mortality was significantly higher in storage period 17-24 days than storage period 1-8 days (8.37% and 3.8% respectively). Early-embryonic deaths were significantly associated with storage period ($P < 0.01$) but not with flock age ($P = 0.8$). Mid-embryonic deaths were not significantly different among any storage or age group. There was a significant association of late-embryonic deaths with flock age and storage period ($P < 0.01$). The results of the study suggest that the best performance was evident with eggs from younger hens which were stored for less than 9 days.