

## EVALUATION OF EGG QUALITY, HATCHABILITY AND CHICK QUALITY OF BROILER BREEDERS MANAGED UNDER DEEP LITTER SYSTEM

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This study was carried out to determine the egg quality, hatchability and chick quality of broiler breeders maintained on deep litter system in open houses. A total of 1115 (288x4) broiler breeder eggs were collected from four parent breeder flocks with different parental ages (B26 (66 weeks of age), B27(47 weeks of age), B28(42 weeks of age) and B29(28 weeks of age)), at Sandalankawa breeder farm, Sandalankawa (NWP), Sri Lanka during the period from January to February 2014. Four flocks from two broiler breeder strains, two from Hubbard flex (B26 and B27) and two from Cobb500 (B28 and B29) were included in the study. All birds were fed with a commercial breeder diet (CP%, 18.1). Both quantitative (weight, length, width and shape index (SI)) and qualitative (presence of quality defects) parameters of eggs were recorded just after receiving at the grading unit. Further, egg weight loss (EWL) during first 18 days of incubation, infertility, hatchability and chick quality parameters (weight and presence of abnormalities) were examined and analyzed by one way ANOVA. There were significant differences ( $p < 0.05$ ) in egg weight, length, width and SI among four batches with B26 producing the highest weight and length while B27 had the highest width and SI. Infertility across the batches were 14.6, 6.0, 11.9 and 10.7% while hatchability was 77.8, 84.5, 80.4, and 83.4%, respectively. Chick weight was significantly varied ( $p < 0.05$ ) among four batches where heavier eggs were produced by older breeders ( $47.35 \pm 4.08$  g,  $46.94 \pm 4.40$  g,  $44.19 \pm 4.52$  g,  $39.40 \pm 3.32$  g, respectively). Eggs from B27 had the lowest percentage of abnormal chicks and the highest percentage of early embryonic deaths compared to B26, B28 and B29 (0.0 vs 2.1, 2.4, 1.8 and 6.5 vs 5.6, 4.6, 3.6, respectively). Inadequate naval healing and deformities in legs were observed as prominent abnormalities. Results obtained from this study revealed that, the age and strain of breeders had significant effects on egg quality, hatchability and infertility percentage. Increased weight of eggs due to increasing parent age resulted in increased weight of day old chicks.

**Keywords:** Broiler breeders, Chick quality, Deep litter system, Egg quality, Hatchability