Evaluation of growth rate, age at sexual maturity, survival and egg production potential of C.P.R.S. Brown and White layer lines at early stages

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Use of layer lines with high genetic potential for growth and egg production is essential for economic viability of layer operations. A base population of R.I.R. and White Leghorn strains was subjected to several years of intense selection and breeding in the Central Poultry Research Station (C.P.R.S.) in Kundasale to develop Brown (BL) and White (WL) layer lines to produce day-old chicks for poultry producers. Objective of this study was to evaluate the lines with respect to weight gain from birth to 56 days of age, age at sexual maturity, egg production and survival up to 8 months of age.

Random sets of eggs of the two lines were incubated separately (on the same date) and performance recording of the resulting chicks was carried out after wing banding. The chicks were kept in individual cages after brooding and the standard dietary guidelines for layers were followed under intensive conditions. Vaccination and deworming were performed as recommended. Effect of line on each of the growth at different ages, sexual maturity, and production parameters was determined by ANOVA procedure using SAS software.

Effects of both line and age factors were significant on body weight and egg production ($P<0.05$). Mean body weights of WL at the ages of 1, 7, 14, 21, 28 and 56 days were 33.11, 62.95, 97.41, 162.71, 213.21 and 416.10 grams, respectively. The respective means for the BL were 33.13, 63.47, 98.34, 173.49, 234.33 and 545.89 grams. The growth of BL was significantly superior to WL since 21 days of age ($P<0.05$). Age at sexual maturity of WL (135 days) was significantly superior to that of BL (141 days). Egg production of WL up to 8th month of age (37.7 g/day) was higher than that of BL (36.09 g/day). Mortality percentages of both lines up to 8th month of age were less than 5 percent. The pedigrees of both lines showed some resistance to coccidiosis. Performance at the early stages of WL and BL lines show their superior potential as egg- and dual-purpose lines, respectively.

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