Genetic and phenotypic correlations of body weight, shank length and some egg production-related traits in two Japanese quail genotypes differing in plumage colour.

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ABSTRACT:

This study was carried out to identify the white plumage in Japanese quail and compare it with the brown-type quail for possible genetic and phenotypic differences associated with the plumage colour, estimate the genetic and phenotypic correlation coefficients between both body weight (BW) and shank length (SL) at different ages from hatch up to 35 days of age based on weekly intervals and the age at the first egg (AFE), number of days needed to produce the first 10 eggs (DN_{10}), number of days needed to produce the first 30 eggs (DN_{30}), age at first 10 eggs (AGE_{10}), age at first 30 eggs (AGE_{30}), egg mass of the first 10 eggs (EM_{10}), egg mass of the first 30 eggs (EM_{30}), number of eggs produced in the first month (EN_{FM}), number of eggs produced in the second month (EN_{SM}), number of eggs produced in the first two months (ENF_{TM}), egg mass for the first month (EM_{FM}), egg mass for the second month (EM_{SM}) and egg mass of the first two months (EM_{FTM}) which individually recorded by bird.

The main results are summarized as the following:

1- The brown genotype had significantly heavier BW at the ages 21, 28, 35 day and at sexual maturity, where longer SL at 7 and 21 day of age than the white genotype. The white genotype had significantly heavier BW at one day old than the brown genotype.

2- The brown genotype matured at earlier age than the white genotype ($P \leq 0.05$) by 6.08 days. However, the white genotype had longer days that needed to produce the first 30 eggs($P \leq 0.05$) by 8.66 days and attained the first 10 and 30 eggs at later ages (27.32 and 38.34 days of age) than the brown genotype. The brown genotype showed numerically higher estimates($P \geq 0.05$) for DN_{10},

EM_{10}, EM_{30}, EN_{FM}, EN_{FTM}, EM_{FM}, EM_{SM} and EM_{FTM} than the white genotype.

In conclusion, the results of the present study indicated that there were significant differences between the two genotypes, brown and white in the phenotypic and genetic parameters of most studied traits favoring significantly the brown quail for growth traits except BW1 and numerically egg production-related traits (DN_{10}, EM_{10}, EM_{30}, EN_{FM}, EN_{FTM}, EM_{FM}, EM_{SM} and EM_{FTM}) than the white quail that could be used in breeding programs to improve these genotypes.

Key words: Genetic, phenotypic correlations, body weight, shank length, egg production-related traits, Japanese quail, plumage colour.