

A comparative study of some production traits in two Japanese quail genotypes

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Egypt. Poult. Sci. Vol (33) (IV):1053-1075.

ABSTRACT:

The aims of the present study were to characterize the possible genetic and phenotypic differences associated with the white plumage in Japanese quail compared to the brown quail and estimate the heritability, genetic and phenotypic correlation coefficients for the body weight (BW) and shank length (SL) at one up to 35 days of age and at the age of sexual maturity, age at 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 egg produce in the first month (EN_{FM}), number of egg produce in the second month (EN_{SM}), number of egg produce in the first two months (EN_{FTM}), egg mass of the first month (EM_{FM}), egg mass of the second month (EM_{SM}) and egg mass of the first two months (EM_{FTM}).

The main results are summarized as the following:

1. The brown genotype had significantly heavier BW at one, 21, 35 days of age and at sexual maturity and longer SL at all studied ages except one and seven days of age than the white genotype, however, the two genotypes insignificantly differed for BW at 14 and 28 days of age.
2. The brown genotype matured at earlier age than the white genotype. However, the white genotype had longer days that needed to produce the first 30 eggs and attained the first 10 and 30 eggs at later ages than the brown genotype. The brown genotype showed higher DN_{10} , EM_{10} , EM_{30} , EN_{FM} , EN_{FTM} , EM_{FM} , EM_{SM} and EM_{FTM} than the white genotype.
3. Heritability estimates for BW at different ages, regardless the method of estimation ranged from low to high (0.09 and 0.98) for brown genotype and (0.08 and 0.99) for white genotype.
4. Heritability estimates of SL at different ages ranged from medium to high (0.25 and 0.97) for brown genotype and ranged from low to high (0.01 and 0.93) for white genotype.
5. Heritability estimates regardless the method of estimation for egg production traits ranged from low to high (0.11 and 0.99) for brown genotype and (0.04 and 0.86) for white genotype, respectively.

6. Most of egg production traits, BW and SL are genetically and phenotypically correlated with each other with high and significant values depend on the genotype and the methods of estimates.
7. Results of the phenotypic and genetics parameters of most studied traits, could be used in breeding programs to improve the Japanese quails and produce new genotypes. In conclusion, brown and white genotypes significantly differed for the most studied traits and favoring the brown genotype.

