Alterations in some plasma constituents, growth and egg production traits due to selection in three genotypes of Japanese quail

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ABSTRACT

The present investigation was carried out to estimate the effects of genotype and sex on growth and laying performance and assess the variations in plasma constituents in the tested genotypes and their relations with productive traits after four generations of selection. Data of growth and laying performance on 1440 females and males of Japanese quail were taken from the three quail genotypes: maternal (MG), long shank length (LSG_{28}) and control (CG) genotypes. Genotype significantly affected all studied growth productive traits, favouring selected genotypes. The LSG_{28} surpassed MG in total protein, albumin (Alb), globulin (Glob), triglycerides and Alb/Glob ratio and lowered both cholesterol and total lipids (TL). Sex significantly favoured females, which had higher body weight, longer shank length at 35 days of age and higher body weight gain during the period from 1 to 35 days of age. Females showed significantly higher concentrations of both Alb and TL than males. The MG exceeded LSG_{28} in fertility and hatchability per cent. Correlations for both growth and productive traits with plasma constituents revealed inconsistent trends in either magnitude or direction. Four generations of selection resulted in substantial phenotypic improvements in most growth and productive traits, as well as plasma constituents studied in LSG_{28}, and favored MG in maturity, days needed to produce the first ten eggs, higher egg production per cent and heavier egg mass.

Key words: Alterations, egg-related traits, growth, Japanese quail and plasma constituents.