Correlated response to selection for some egg performance traits in egg line of Japanese quail

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Abstract

Estimation of correlated response to selection in female line of Japanese quail after a short term selection experiment was conducted. The total number of 547 female (275 selected and 272 control) Japanese quail included in the selection experiment of selection depended on aggregate breeding values based on animal model BLUP. Correlated selection response estimates were favorable for all the studied traits and significant (-0.38, -9.89, -12.86, -16.64, -5.08 and -8.24) for FEW, AGE_{10}, AGE_{30}, AGE_{60}, DN_{30} and DN_{60}, respectively. Estimates of heritability were moderate for EM_{10}, EM_{30}, EM_{60}, AGE_{10} and AGE_{30} (0.17 to 0.30) but low for AGE_{60}, DN_{30} and DN_{60} (0.01 to 0.10). Genetic correlations between the selection criteria traits (AFE, BW_{SM} and DN_{10}) and the studied egg production traits were positive and ranged from 0.25 to 0.97, 0.24 to 0.95 and 0.06 to 0.98 for AFE, BW_{SM} and DN_{10}, respectively, while phenotypic correlations ranged from 0.12 to 0.89, 0.01 to 0.34 and 0.06 to 0.87 for the same traits. Favorable

genetic response obtained for egg traits could be an indicator appropriate of selection criteria for improving egg production performance in Japanese quail.

Keywords: Japanese quail, selection response, genetic parameters, correlation