DIRECT AND CORRELATED RESPONSES TO SHORT-TERM INDEX SELECTION FOR SOME ECONOMIC TRAITS OF JAPANESE QUAIL.

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ABSTRACT: A selection experiment was conducted at the Poultry Research Center, Faculty of Agriculture, Fayoum University using a total number of 4923 birds of three successive hatches as a base population producing 655 females (333 for the selected line and 322 for the random bred control line) through four successive generations. The main results are summarized as follows:

1. There were significant differences due to generation effect for all BW's tested and all egg production-related traits studied, except at BW_{35} and AGE_{30}. All BW's from 7 up to 35 days of age and all egg production-related traits -except BW_1- were significantly affected by line favouring the selected line compared to the control line.

2. In the control line, average phenotypic response per generation for ASM and AGE_{10} showed fluctuations over generations, estimated by regression of phenotypic means on generation numbers were significantly positive for ASM and AGE_{10} (2.17 and 2.18 days). Significant positive changes for BW's at seven, 14, 21, 28 and 35 days of age being 0.79, 4.55, 6.84, 7.58 and 4.36g, respectively and AGE_{30} (1.96 days) however, negative significant changes were shown for $EM_{10,}$ EM_{30} and EM_{60}(-3.10, -9.69 and -15.96g) .

3. In the selected line, the average phenotypic response per generation of multi-trait selection index estimated by the regression of generation means on generation number in ASM, BW_{SM}, DN_{10} and AGE_{10} were significantly negative being -0.86 day, -3.30g, -0.25 day and -0.99 day, respectively, but was positive for BW_{14} (+1.97g).

4. Negative correlated significant changes were shown for all egg production-related studied traits (EM_{30}, EM_{60}, DN_{30}, DN_{60}, AGE_{30} and AGE_{60} being -3.98,-8.55,-1.41,-3.26,-2.06 and -4.07, respectively), except EM_{10} (1.75g, $P \leq 0.01$). The average genetic response per generation in ASM, BW_{SM}, DN_{10} and AGE_{10} were -3.74days, -3.06g, -0.22day and -4.12 days, respectively.