ABSTRACT

An on-farm experiment was conducted to evaluate productive, physiological and reproductive performance of two selected Fayoumi chicken lines (PP and GG) together and in comparison to control chickens (RR). Using 1200 birds from three lines of Fayoumi chickens (200 ♂ + 200 ♀ of each line) of 4-month old to evaluate productive, physiological and reproductive performance of two selected Fayoumi chicken lines (PP and GG) together and in comparison to control chickens (RR). The studied traits were live body weight, egg production-related traits, mortality rate, egg components, exterior and interior egg quality, semen characteristics, hatching parameters, relative organ weights, rectal temperature, respiration rate, blood plasma constituents, haematological parameters haematimetric indices and economical efficiency of egg production.

The results showed that GG line gave the highest live body weight, egg weight, egg albumen and hatch chick weight as well as the lowest shell thickness and shell density. The PP line was sexually matured at earlier age and had the highest egg production %, egg number, sperm motility %, sperm concentration, total sperm count, hatchability, total protein, globulin and relative economical efficiency as well as the lowest dead embryos %. However, no significant differences were obtained in relative organ weights, oviduct length, semen pH value, total sperm abnormalities %, fertility %, yolk % and shell %, egg specific gravity, egg shape index, yolk index, Haugh unit, plasma metabolites and plasma hormones among the different lines.

Briefly, the results revealed that GG line showed a significant improvement in body weight; however, PP line showed a significant improvement in egg production traits. This information will be useful to develop Fayoumi-based new chicken breed. Based on results of the present study, it can be concluded that GG line is suitable for growth; however, PP line is suitable for egg production. Hence, further research is needed to determine the daily requirements of various Fayoumi chicken lines in order to let birds express their genetic potential and the possibility (in the future) of using PP and GG in the development of new strains with high production, adaptation and reconciling the high resistance of the disease.

Key words: Fayoumi chickens, egg production, egg quality, fertility, hatchability, plasma constituents.