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Short communication

A comparison of some production performance traits in parent Japanese quail among four close-bred stocks

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ABSTRACT

The aim of study was to evaluate production performance traits among four close-bred stocks (CBS) of Parent Japanese quail at Avian Research and Training (ART) Centre, UVAS, Lahore for the duration of 4 weeks. For this 144 birds from four CBS i.e., Major, Kaleem, Saadat and Zahid having 36 birds of each were maintained at standard managerial conditions. Data were collected regarding feed intake (g), body weight (g), production %, and FCR / g egg mass, average egg weight (g) and livability %. Statistical analysis of data in Completely Randomized Design through one-way ANOVA technique while comparison of means using Duncan's Multiple Range test with the help of SAS 9.1 revealed significant differences among four CBS. CBS had significant effect on feed intake (g), body weight (g), FCR/g egg mass, average egg weight (g). However, no significant effect of CBS on livability % was also observed in present study. It is concluded that there is significant differences among four CBS of Japanese quail in terms of production performance traits.

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1. Introduction

The Japanese quail due to its easy maintenance, higher growth rate, short generation interval (3-4 generations / year), better egg production and high resistance to disease make it a complete research model in the

field of science (Lohani and Ahmad, 2013). A lot of research work was done to improve its economical traits but such a systematic study of different strains or close-bred stocks of Japanese quail is still silent. So present study was planned to evaluate production potential of Japanese quail among four different closed bred stocks.

2. Materials and methods

Present study was conducted at Avian Research and Training Centre, University of Veterinary and Animal Sciences, Lahore, Pakistan to evaluate some production performance traits among four close-bred stocks of Japanese quail parent for the duration of 4 weeks. Birds were maintained at standard managerial conditions fed with quail breeder diet according to NRC (1994).

2.1. Parameter studied

Average Feed intake / birds: - it was calculated by averaging the daily feed intake / bird with the help of electrical weighing balance capable of measuring up to 0.5g.

Body weight: - it was recorded at the start of experiment with the help of weighing balance capable of measuring up to 5g accuracy.

Production %: - It was recorded to evaluate production potential of bird.

FCR / g egg mass: - it was calculated by dividing feed intake into egg mass.

Average egg weight (g): - it was recorded simple averaging daily egg weight (g).

Livability %: - it was calculated to examine livability pattern of bird.

2.2. statistical analysis

Data were analyzed according to Completely Randomized Design (CRD) through one-way ANOVA technique (Steel et al., 1997). For further interpretation of data General Linear Model (GLM) Procedures were used. Comparison of means were worked out using Duncan (1955)'s Multiple Range (DMR) test with the help of SAS (Statistical Analysis System) 9.1 for windows.

3. Results and Discussion

Means and standard error of production performance traits is presented in Table 1.

3.1. Feed intake / bird (g)

In the present experiment, significant differences were observed in feed intake / bird / day among four close-bred stocks (CBS); CBS Z had the highest feed intake (34.12 g) whereas lowest in M (29.81 g). That might be due to genetic variation among different close-bred stocks. Similarly, in another study (Jatoi et al., 2013) significant differences in feed intake among different strains of Japanese quail was observed.

3.2. Body weight (g)

Significantly higher body weight (330.17g) in CBS M as compared to Z (280.33g) might be attributed to better utilization of feed in CBS M as compared to K, S and Z. Similarly, significant effect of strains on body weight was observed among different local and imported strains of Japanese quail (Jatoi et al., 2013).

Table 1

Comparison of Production Performance Traits among 4 Close Bred Stocks of Japanese quail.

CBS parameters	Major	Kaleem	Sadaat	Zahid	P-Value
Feed intake / bird (g)	29.81 ± 0.45 ^c	32.57 ± 0.42 ^b	31.66 ± 0.57 ^b	34.12 ± 0.29 ^a	0.0001
Body Weight (g)	330.17 ± 11.26 ^a	320.00 ± 8.35 ^a	284.67 ± 11.84 ^b	280.33 ± 9.05 ^b	0.0044
Production %	81.17 ± 2.11 ^a	79.71 ± 1.77 ^a	78.01 ± 1.81 ^{ab}	73.35 ± 1.28 ^b	0.0291
FCR / g egg mass	2.11 ± 0.03 ^c	2.36 ± 0.03 ^b	2.38 ± 0.05 ^b	2.88 ± 0.03 ^a	0.0001
Average egg weight (g)	14.14 ± 0.08 ^a	13.77 ± 0.03 ^b	13.29 ± 0.21 ^c	11.86 ± 0.03 ^d	0.0001
Livability (%)	98.16 ± 0.66	96.74 ± 0.55	96.94 ± 0.91	97.20 ± 1.25	**NS

Note: - Different superscripts on values represent significant differences among their means (P≤0.05)

** Non-Significant.

3.3. Production %

In the present scenario significant differences were observed in production % among four close-bred stocks; CBS M had the highest (81.17%) production % whereas the lowest in Z (73.35%). This could be due to better efficiency of feed use for egg production in CBS M. Similarly, significant effect of strains on production % was observed between two strains of guinea fowl (Bernacki et al., 2013).

3.4. FCR/ g egg mass

Significantly improved FCR / g egg mass in CBS M as compared to CBS Z might be attributed to higher egg production in CBS M indicating that bird produced more number of eggs at the cost of decreased feed consumption. However, no significant effect of strains on feed efficiency was observed between two strains of quail (Sakunthala Devi et al., 2012).

3.5. Average egg weight (g)

In the present study, significant differences were observed in average egg weight among four close-bred stocks; CBS M had the highest egg weight (14.14g) followed by CBS K (13.77g), S (13.29g) and Z (11.86g). That might be due to higher body weight of CBS M, as there is positive association between egg weight and body weight. However, in another study (Vali et al., 2006) non-significant difference in egg weight was observed between two strains of quail. No significant effect of CBS on livability % was observed in current experiment.

4. Conclusion

It is concluded that CBS had significant effect on production performance traits in Japanese quail parent. However, no significant effect of CBS on livability % was observed in present study.

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