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Influence of sex on carcass characteristics of male and female Japanese Quails

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Abstract

Japanese quail production is gain more and more popular day by day. The demand for meat form Japanese quails very high owing to its tenderness and unique flavour. Sexual dimorphism is very evident in Japanese quail wherein females are larger and heavier than males at market age of 28 days. The present study evaluates the influence of sex on carcass yield in Japanese quails. The live body weight of female was always higher than males in quails which evidently the reason for higher dressed carcass weight. The same trend is noticed with dressing percent of female quails ($66.39 \pm 5.56\%$) being higher than male quails ($62.88 \pm 3.30\%$). Also significant differences were noticed between offal weights between male and female quails.

Keywords: Japanese quail, carcass yield, dressing percent, offal percent

1. Introduction

Poultry rearing has undergone a dramatic transformation from a mere backyard venture to a billion dollar industry within a very short tenure in India. Chicken (including *desi* fowl) accounts for about 87% of the total poultry population, followed by ducks (7%). The remaining 6% comprises other domesticated poultry species such as quails, turkey, Guinea fowls and geese etc. Among poultry species alternate to chicken, Japanese quail rearing has considerable advantages like low space requirement, short rearing period, good FCR, high disease resistance, low mortality and above all the initial investment to start a quail venture is very low compared to any other species (Abubakar *et al.*, 2007) ^[1]. Quail is known for its tender, tasty and highly acceptable meat. The present study was conducted to evaluate the influence of sex on carcass characteristics of Japanese quail.

2. Materials and Methods

Japanese quail grown under standard management conditions were selected at random for the study. A total of 48 birds including 24 males and 24 females at 4th week of age were utilized for the study. Feed withdrawal for 12 hours period was followed before slaughter. The selected birds were weighed individually to obtain body weight on an electronic weigh scale. Quails were slaughtered by decapitation followed by bleeding for 5 minutes and then feathers were removed along with skin by manual pulling. Carcasses were eviscerated manually and weights of liver, heart, gizzard and alimentary tract were recorded.

Dressing percentage

Dressing percentage was calculated as the ratio of hot carcass weight and pre slaughter weight.

$$\text{Dressing\%} = \frac{\text{Dressed carcass weight}}{\text{Live weight}} \times 100$$

Yield of edible and inedible offal

Per cent yield of edible offal was calculated as the ratio of edible offal (Heart, Liver and Gizzard) and pre slaughter weight. Per cent yield of in-edible offal (Head, Blood, Skin, feathers and feet) was calculated as the ratio of in-edible offal and pre-slaughter weight.

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Statistical Analysis

The descriptive analysis was used to determine the mean and standard deviation. The data obtained were subjected to a t-test at 5% significant level.

3. Results and Discussion

Carcass Yield: The overall mean live weight of female and male quails at 4 weeks of age was 227.48 ± 19.20 g and 217.72 ± 23.56 g respectively as presented in table no 1. Analysis of variance showed that there is significant difference ($P \leq 0.05$) between the sexes at market age. The higher average live weight in female birds support the findings of Bonos *et al.* (2010) [3] but on the contrary to Sandip *et al.*, (2010) [6] and Vali *et al.*, (2005) [9]. The mean dressed carcass weight was 144.59 ± 14.59 g and 143.54 ± 19.12 g in female and male quails respectively. The live body weight of female was always higher than males in quails which evidently the reason for higher dressed carcass weight. The same trend is noticed with dressing percent of female ($66.39 \pm 5.56\%$) being higher than male ($62.88 \pm 3.30\%$).

Table 1: Mean ($\pm$) S.E. of carcass characteristics male and female Quails

Parameters	Female	Male
Live weight(g)	227.48 ± 19.20 a	217.72 ± 23.56 b
Dressed weight(g)	144.59 ± 14.59	143.54 ± 19.12
Inedible offal(g)	72.12 ± 16.75	86.40 ± 19.66
Edible offal (g)	14.76 ± 2.34	15.96 ± 3.23
Dressing percent (%)	66.39 ± 5.56 a	62.88 ± 3.30 b

Edible offal Yield%

Edible offal includes Heart, Liver and Gizzard. The mean values of yield of edible offal are presented in Table 2. The overall mean of Heart, Liver and gizzard in female quails were 2.28 ± 0.66 , 6.16 ± 0.74 g and 6.32 ± 0.93 g which accounted for 1%, 2.71% and 2.78% of the live weight respectively. In male quails it was 2.18 ± 0.28 g, 7.08 ± 2.01 g and 6.7 ± 0.93 g which accounted for 1%, 3.25%, 3.08% of the live weight respectively. The total edible offal weight in females and males were 14.76 ± 2.34 g and 15.96 ± 3.23 g respectively which was 6.49% and 7.33% of the live weight. Though the weights of most organs were higher in case of females than in males, no significant differences were noticed between the sexes with respect to edible offal yield. The results were in agreement with Mohammed *et al.*, (1990) [4], Vali *et al.* (2005) [9], Selim *et al.* (2006) [7] and Sezai *et al.*, (2013).

Table 2: Mean ($\pm$) S.E. of edible offal yield in male and female Quails

Parameters	Female (Percent)	Male(Percent)
Heart(g)	2.28 ± 0.66 (1.00%)	2.18 ± 0.28 (1.00%)
Liver(g)	6.16 ± 0.74 (2.71%)	7.08 ± 2.01 (3.25%)
Gizzard(g)	6.32 ± 0.93 (2.78%)	6.7 ± 0.93 (3.08%)
Total Edible Offal(g)	14.76 ± 2.34 (6.49%)	15.96 ± 3.23 (7.33%)

Inedible offal Yield

The inedible offal includes blood, feather with skin, head, feet and intestines with content. The mean values of yield of inedible offal are presented in Table 3. In female quails the overall mean of Skin with feathers, head, feet, Intestine and Blood were 22.08 ± 8.01 g, 9.3 ± 0.88 g, 4.94 ± 0.48 g, 16.12 ± 3.37 g and 19.68 ± 3.98 g which was 9.71%, 4.09%, 2.17%, 7.09% and 8.65% of live weight. In males, the overall

mean of Skin with feathers, head, feet, Intestine and Blood were 37.88 ± 7.15 g, 8.87 ± 1.03 g, 5.26 ± 0.98 g, 16.80 ± 3.01 g and 17.60 ± 7.47 which accounted for 17.4%, 4.07%, 2.42%, 7.72% and 8.08% of live weight. The Overall yield in females and males were 72.12 ± 16.75 g and 86.40 ± 19.66 which was 31.70% and 39.68% of live weight. Significant ($P \leq 0.05$) differences were noticed in yield of skin and feather and also overall yield between the sexes. The significant ($P < 0.05$) effect of sex on all carcass parameters obtained in the study agrees relatively with the results of Ozcelik *et al.* (1988) [5]; Vali *et al.* (2005) [9]; Selim *et al.* (2006) [7].

Table 3: Mean ($\pm$) S.E. of inedible offal yield in male and female Quails

Parameters	Female (Percent)	Male (Percent)
Skin and feathers(g)	22.08 ± 8.01 b (9.71%)	37.88 ± 7.15 a (17.4%)
Head(g)	9.3 ± 0.88 (4.09%)	8.87 ± 1.03 (4.07%)
Feet(g)	4.94 ± 0.48 (2.17%)	5.26 ± 0.98 (2.42%)
Intestine(g)	16.12 ± 3.37 (7.09%)	16.80 ± 3.01 (7.72%)
Blood(g)	19.68 ± 3.98 (8.65%)	17.60 ± 7.47 (8.08%)
Total Inedible offal(g)	72.12 ± 16.75 b (31.70%)	86.40 ± 19.66 a (39.68)

Conflict of Interest

Not available

Financial Support

Not available

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