

## **Carcass Studies of Japanese Quails (*Coturnix coturnix japonica*) Reared in Hot and Humid Climate of Eastern India**

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**Abstract:** Carcass quality traits of Japanese quails (*Coturnix coturnix Japonica*) reared under deep litter system in a commercial farm in hot and humid climate of Eastern India have been presented, the birds were fed self formulated ration during the trail. The average weight of the slaughter for the male and the female birds were 216 and 251 grams respectively, the average dressing percentage, weight of abdominal fat was higher for the male birds, while the weight of the gastrointestinal tract and liver was higher for the female birds.

**Key words:** Japanese quail • Carcass traits • Hot and humid climate

### **INTRODUCTION**

Nowadays Japanese quails are to be found in all the continents. A number of lines, breeds and varieties have been developed for different production purposes. The biggest number of birds is to be found in South-East and East Asia, most often used for egg production Minvielle [1]. The prevailing breeds in Europe and the USA are those of the combined egg and of the meat production type. The percentage content of edible meat in Japanese quail is very high. The birds are relatively easy to rear and suffer from very little maladies. They consume relatively less feed and require less space. The effect of temperature and humidity is significant on the weight of certain vital organs of the Japanese quails, Abd El-Gawad *et al.* [2] The present study was carried out to determine the carcass traits of quails reared in hot 'B-1/87, Kalyani, Nadia, West Bengal, India 741235. and humid climate of India.

### **MATERIALS AND METHODS**

The data under investigation pertains to Japanese quails reared in a commercial farm in eastern India. The birds were reared in the summer season, the average mean maximum temperature was assessed to be  $35.2 \pm 3.5$  degree centigrade the minimum temperature was assessed to be  $27.5 \pm 2.8$  degree centigrade, the average relative humidity was assessed to be 88.6% with a range of 85-92 %, during the experimental process. The birds were slaughtered at 50 days of age, during their period of growth the average

temperature varied between 32-37.5 degrees centigrade and the average relative humidity was 92%. The birds were reared on rations containing 70% maize, 14% de oiled soybean cake, 3% sesame cake, 4% sunflower cake, 2% broken rice, 5% broken wheat, 1% sugar and 1% commercial mineral mixture. The birds were reared on deep litter system. The birds were kept off feed for twelve hours prior to slaughter, so that their organs were free from undigested feed. At the end of the experiment the birds were slaughtered by humanely to ensure complete bleeding. Individual birds were weighed on an electronic balance prior to slaughter and all the organs were also weighed separately. The means and standard error for the different traits were calculated along with the correlations between different important carcass traits and also regression equations were calculated to predict the different traits on live weight basis. The fat from the body was scraped off and weighed separately. The statistical analysis were carried out as per standard methods as suggested by Snedecor and Cochran, [3].

### **RESULTS AND DISCUSSION**

The least square means and standard error for the different carcass traits are presented in Table 1. The figures show that the average weight before slaughter (WS) of the males are lesser than those of the females, the results find similarity with the findings of Vali *et al.* [4] in Range quail (*Coturnix ypsilophorus*) and Japanese quail (*Coturnix coturnix Japonica*), Selim Kul *et al.* [5] on Japanese quails, Genchev *et al.* [6] for Faraon and

Table 1: Least square means for different slaughter traits in quails, figures in parenthesis indicate percentage values with respect to live weight

Sl No	Trait	Males	Females
		Mean (grams)± S.E	Mean(grams)± S.E
1	Weight before slaughter (WS)	216.66±5.58	251.08±6.855
2	Weight after slaughter (WAS)	210.055±5.26	244±6.865
3	Weight of the head (WHd)	10.33±0.395 (4.76)	10.30±0.221 (4.10)
4	Weight of the Skin and feather (Wf)	13.89±1.5 (6.41)	12.91±1.69 (5.14)
5	Weight of the legs (WLg)	5.4±0.16 (2.49)	6.13±0.29 (2.44)
6	Weight of the carcass (uneviserated) (WEC)	163.05±4.41 (75.3)	195.04±5.29(77.7)
7	Weight of the liver (WLi)	2.19±0.25 (1.01)	5.95±0.40 (2.36)
8	Weight of the GI tract (WGi)	12.39±0.40 (5.71)	23.73±0.95 (9.45)
9	Weight of the reproductive organs (WR)	7.17±0.51 (3.30)	7.43±0.58 (2.95)
10	Weight of the eviscerated carcass (WC)	140±3.67 (64.61)	149.47±4.3 (59.53)
11	Weight of the eggs (WE)	N/A	9.73±1.148 (3.87)
12	Weight of the abdominal fat (Waf)	8.77±0.86 (4.04)	1.89±0.193 (0.752)

Table 2: Correlations between different carcass traits in female (upper diagonal) and male (lower diagonal) quails

Traits	WS	WEC	WLi	WC	WE	Waf
WS	1	0.922**	0.191	0.861**	0.337	0.009
WEC	0.929**	1	0.104	0.884**	0.285	-0.016
WLi	0.316	0.208	1	0.175	-0.314	0.350
WC	0.869**	0.952**	0.115	1	0.200	-0.041
WE	N/A	N/A	N/A	N/A	1	-0.687**
Waf	0.042	0.299	-0.228	0.396	N/A	1

\*\* P&lt;0.01

Table 3: Regression equation for determining the marketable carcass weight of the different with respect to live weight in both the sexes

SNo	Trait	Sex	R <sup>2</sup>	SE	Y= a+ b (x)
1	WC	♂	0.755	7.94	Y=16.288+0.572 (x)
2	WC	♀	0.741	10.69	Y=14.32+0.538 (x)

English-White breeds of quails. The values for the weight of the liver too are higher in the female birds in comparison to the male birds; the figures find similarity with the findings of Selim Kul *et al.* [5] Ozcelik *et al.* [7] and Ayasan *et al.* [8]. The weight of the gastrointestinal tract (WGi) too was higher in the females in comparison to the male birds. It is seen from the Table 1 that the carcass weight of the female birds were higher than the male birds, the findings are in consonance with the results obtained by, Caron and Minvielle, [9], Ayasan *et al.* [8], Kirmizibayrak and Altinel, [10], Toelle *et al.*, [11] Minvielle *et al.* [12,13].

The average dressing percentage, i.e. percentage of the eviscerated carcass with respect to the live weight also suggest that the values were higher for the male birds in comparison to the female birds, the findings are in consonance with the findings of Selim Kul *et al.* [5] Vali *et al.* [4] Minvielle *et al.* [13], Caron and Minvielle, [9]. The weight of the abdominal fat (Waf) too was higher in the males in comparison to the female birds. The values

pertaining to Waf values on percentage basis is higher than the values obtained by Genchev *et al.* [6] the same can be attributed to the genetic make up of the strain and also due to better nutritional regime. The values pertaining to the correlation coefficient between the different carcass traits in female and male quails are presented in Tables 2. It transpires from the table that the WS values are significantly correlated with WEC and WC in both the male and female sexes, the results are in consonance with the findings of Toelle *et al.* [11]. The WEC values are significantly correlated with WC for both the sexes. The Waf values and WE values show a significant but negative correlation, the same may be attributed to the fact that the abdominal fat occupies space which would otherwise be available for the development of the yolk needed for egg production. The results pertaining to the regression equations and coefficient of determination values (R<sup>2</sup>) for different economically important carcass traits calculated on the basis of WS have been presented in Table 3.

The values pertaining to the different carcass traits find similarity with the results obtained by various workers. It is also concluded that egg production of the birds may be compromised if the birds have higher abdominal fat, hence nutrition have to be regulated for the same.

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