

## Comparison of Carcass characteristics of sexed Japanese Quails (*Corturnix corturnix japonica*)

Alamuoye O.F<sup>1</sup>, Ojo J.O<sup>2</sup>

<sup>1,2</sup>Department of Animal Production and Health Sciences, Ekiti state University, Ado-Ekiti, Ekiti State, Nigeria

### \*Corresponding Authors

Name: Alamuoye O.F

Email: [oluwatoyin.alamuoye@yahoo.com](mailto:oluwatoyin.alamuoye@yahoo.com)

**Abstract:** This study was designed to compare carcass characteristics of cut-parts of 98 days old, Japanese Quails (*Corturnix corturnix japonica*) of different sex. The average live weight of male (138.06g) was lower ( $P>0.05$ ) than female (158.10g). The highest carcass composition was found in breast portion of male bird (14.48%) with the least obtained from the leg portion of female bird (0.47%). The dressing percentage of the female quails were significantly ( $P<0.05$ ) higher than the male quails at 98days.

**Keywords:** carcass characteristics, Japanese quails, aged and sex

### INTRODUCTION

Nigerian's demand for animal protein is highly greater than its supply in their meals. In order to combat this problem, livestock industry should endeavor to increase their production capacities especially in the poultry sector. Poultry production has been identified as one major means of solving the problem of low animal protein intake, eggs and poultry meat as the most economically produced animal protein[1].

The quest to increase animal protein in the diet of every Nigerian, the production of lesser known micro livestock as source of cheap meat should be exploited. One of such is the production of Japanese quails. Japanese Quails (*Corturnix corturnix japonica*) is small size avian; the raising of the bird is getting its popularity in Nigeria poultry today because of its early maturing and prolific rate. Quail can be kept in a limited space, with small capital and favorable short day length[2]. It possessed short generation interval, high feed efficiency that results into fast growth rate[3]. Quail is known for its tender, tasty and highly acceptable meat[4]. The present study is aimed at investigating the carcass characteristics of aged, Japanese quails (*Corturnix corturnix japonica*) of different sex.

### MATERIALS AND METHODS

Location of study, Experimental birds and their management, The study was conducted at the poultry unit of Teaching and Research farm of Ekiti State University, Ado- Ekiti, Nigeria. A total of fifty, four-week old Japanese quails comprising of 25males and 25females were fed with commercial grower's diet (17%CP and 2860.61Kcal/Kg ME). The birds were kept separately in cages, feed and clean water were provided ad-libitum for the period of 98 days. The body weights

were determined for individual birds and wing branded at beginning of feeding period.

### Carcass characteristics

Ten Japanese quails were randomly selected from each group after feed withdrawal for 12hr. The selected birds were weighed individually to obtain body weight. The birds were properly bled and scalded by manual removal of feather after dipping in hot water for about three minutes. The carcasses were manually eviscerated, hot carcass weight determined. Left side of the carcasses was dissected into major cut-parts and calculations of dressed percentage were estimated according to method of Alkan *et al.*; [5]. Visceral organs were excised, weighed separately and percentage weight calculated relative to live body weight.

### Statistical Analysis

All data obtained were obtained in triplicate. 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.

### RESULTS AND DISCUSSION

#### Carcass yield:

Table-1 shows the average live weight and dressing percentages of male and female quails respectively. The average live weight of female was significantly ( $P<0.05$ ) higher than male bird. The higher average live weight in female birds support the findings of Bono *et al.* [6], but on the contrary to Sandip [7] and Vali *et al.*[8] in Range quail (*Coturnixy ptilinopus*) and Japanese quail (*Coturnix corturnix japonica*) respectively. The values obtained for average live weight in the study for male and female quails were lower to the value (234.7g) obtained by Kluczek [9] for Pharaoh Quails. The carcass weight was higher in

female (151.27g) than male (133.96g) this agreed with Sandip[7], Ayansan *et al.*[10], Minvielle *et al.* [11-12]. The dressing percentage was higher in female (76.51%) than male (73.55%), these were higher than the range values (58.3-61.8%) obtained by Maiorano *et al.*:[13] for quails and 63.7-66.1% values of Wilkanowska and Kokoszynski [14] for Pharaoh Quail.

#### Carcass characteristics:

Table 2a and 2b show the carcass composition of cut-parts and visceral organs in percentage relative to live weight. Both carcass composition and visceral organs percentages differed significantly ( $P < 0.05$ )

between male and female birds, except for composition of lung, heart and kidney that showed no significant difference. 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.*[15]; Selim *et al.*[16]; Vali *et al.*[8] that all female cut-parts and most internal organs were higher ( $P < 0.05$ ) than the male quails. The study disagrees with the report of Ayorinde[17], Aksit *et al.*[18], Genchev *et al.*[19] that there was no significant difference between sex in respect to carcass traits. The carcass composition can be influenced by sex and age[20].

**Table-1. Live weight (g) and dressing yield (%) of male and female Japanese quails**

Parameter	Male		Female	
	X±SD	SEM	X±SD	SEM
Live weight(g)	138.06±11.49 <sup>a</sup>	3.63	158.10±19.49 <sup>b</sup>	6.16
Carcass weight(g)	133.96±11.60	3.67	151.27±17.83	5.64
Carcass yield(g)	101.74±11.27	3.57	120.63±18.03	5.70
Dressing percentage (%)	73.55±2.33 <sup>a</sup>	0.74	76.51±4.09 <sup>b</sup>	1.29

X±SD – Mean± Standard deviation, a,b means within row with significant difference( $p < 0.05$ )

**Table 2 a: Carcass characteristics (%)**

Traits	Male		Female	
	X±SD	SEM	X±SD	SEM
Drum stick	3.48±0.39 <sup>b</sup>	0.12	6.79±0.75 <sup>a</sup>	0.24
Thigh	3.35±0.68 <sup>b</sup>	0.21	4.59±0.49 <sup>a</sup>	0.16
Shank	1.55±0.29 <sup>b</sup>	0.01	2.22±0.25 <sup>a</sup>	0.08
Neck	3.84±1.52 <sup>b</sup>	0.48	5.25±0.60 <sup>a</sup>	0.19
Head	4.89±0.66 <sup>b</sup>	0.21	7.80±0.70 <sup>a</sup>	0.22
Wing	3.60±0.50 <sup>b</sup>	0.16	4.24±0.68 <sup>a</sup>	0.21
Leg	0.47±0.09 <sup>b</sup>	0.03	0.73±0.06 <sup>a</sup>	0.02
Breast	10.84±1.84 <sup>b</sup>	0.58	14.48±2.56 <sup>a</sup>	0.81

X±SD – Mean± Standard deviation, a,b means within row with significant difference( $p < 0.05$ )

**Table 2 b: Visceral Organs relative to percentage of live weight (%)**

Traits	Male		Female	
	X±SD	SEM	X±SD	SEM
Small intestine	2.90±0.36 <sup>a</sup>	0.11	3.09±0.21 <sup>b</sup>	0.07
Ceaca	4.85±0.81 <sup>a</sup>	0.26	6.11±1.21 <sup>b</sup>	0.38
Gizzard+proventriculus	3.51±0.59 <sup>a</sup>	0.19	4.34±0.74 <sup>b</sup>	0.23
Liver	2.34±0.25 <sup>a</sup>	0.79	3.00±0.57 <sup>b</sup>	0.18
Lung	1.33±0.24	0.08	1.51±0.48	0.15
Pancreas	0.14±0.05 <sup>a</sup>	0.02	0.46±0.26 <sup>b</sup>	0.08
Spleen	0.14±0.10 <sup>a</sup>	0.03	0.08±0.02 <sup>b</sup>	0.01
Heart	1.84±0.34	0.11	1.35±0.26	0.08
Kidney	0.72±0.06	0.02	0.61±0.11	0.04

X±SD – Mean± Standard deviation, a,b means within row with significant difference( $p < 0.05$ )

#### Acknowledgement

The authors express their gratitude to the Head of Poultry Unit, Teaching and Research farm of Ekiti State University Ado- Ekiti, Ekiti State for the provision of facilities for raising the birds and equipment for carcass determination.

#### CONCLUSION

Since the dressing percentage in both male and female Japanese quails were of good percentage and the carcass composition obtained for female quail was considerably higher than the male of the same aged, male quail needs to be genetically improved for carcass yield.

---

## REFERENCES

1. Awobajo OK, Skinrolabu AA, Mako AO, Igboanu AO, Olatokunbo OT; The mortality rate of two different breeds of broilers after brooding stage to maturity, 2007. *Middle-East Journal of Scientific Research* 2(1):37-42.
2. Robbins GES; Quails, their breeding and management. *World Pheasant Association (WPA)*, 1981; 1-10.
3. Naveen KA, Arun CS; Diseases of quails, *Poult. Adviser*, 1992; 25(8): 43-48.
4. Abubakar M, Doma UD, Ngele MB, Bello AT, Marcus JS; Performance and carcass characteristics of Japanese Quails (*Coturnix coturnix japonica*) fed rumen contents based balanced diets, *Journal of Researches in Agricultural Sciences* 2007; 1(2): 1-5.
5. Alkan S, Karabag K, Galic A, Karsli T, Balcioglu MS; Determination of body weight and some carcass traits in Japanese quails (*Coturnix coturnix japonica*) of different lines. *Kafkas Univ. Vet FakDerg* 2010; 16(2): 277-280.
6. Bonos EM, Christaki EV, Florou-Paneri PC; Performance and carcass characteristics of Japanese quail as affected by sex or mannan oligosaccharides and calcium propionate *South African Journal of Animal Science* 2010; 40 (3): 173-184.
7. Sandip B; Carcass studies of Japanese Quails (*Coturnix coturnix japonica*) reared in hot and humid climate of Eastern India. *World Appl. Sci. J.* 2010; 8(2): 174-176.
8. Vali N, Edriss MA, Rahmani HR; Genetic Parameters of Body and Carcass traits of two quail strain quail. *Int.J. Poultry Sci.*, 4(5): 296-300.
9. Kluczek S; The period of forming mycoflora of the yeast-like during the raising of the quails. *The works of the Commission of Agricultural and Biological Sciences BTN*, 2009 ;B66: 21-29.
10. Ayasan T, Baylan M, Uluocak AN, Karasu O; Effects of sex and different stocking densities on the fattening characteristics of Japanese quails (*Coturnix coturnix japonica*) *J. Poultry Res*, 2000; 2(1) : 133-139.
11. Minvielle F, Hirigoyen, E, Boulay M; Associated effect of Roux plumage color mutation on growth , carcass traits, egg production and reproduction of Japanese quail, 1999. *Poult. Sci.* 70, 1679-88.
12. Minvielle F, Gandermer G, Maeda Y, Leborgoyen G, Boulay M; Carcass characteristics of a heavy Japanese quail line under introgressions with the Roux gene. *Br. Poult. Sci.*, 2000; 41: 41-45.
13. Maiorano G, Elminowska-Wenda G, Mika A, Rutkowski A, Bednarczyk M; Effect of selection for yolk cholesterol on growth and meat quality in Japanese quail (*Coturnix coturnix japonica*). *Ital. J. Anim. Sci.* , 2009 ;8: 457-466.
14. Wilkanowska A, Kokoszyński D; Comparison of slaughter value in pharaoh quail of different ages. *Journal of Central European Agriculture*, 2011; 12(1): 145-154.
15. Ozcelik M, Poyraz O, Akinci Z; The effect of sex on slaughter and carcass characteristics in quails, *Firat University J. Institute of Health Sci.*, 1988; 12(2): 133-39.
16. Selim K, Ibarhim S, Ozge Y; Effect of separate and mixed rearing according to sex on tattering performance and carcass characteristics in Japanese quails. (*Coturnix Coturnix Japonica*). *Arch Tierz, Dummerstort.* 2006; 49(6): 607-614.
17. Ayorinde KL; Evaluation of the growth and carcass characteristics of the Japanese quail. *Nig. J. Anim. Prod.*, 1994; 21(2):119-126
18. Aksit M, Oguz I, Akbas Y, Altan O, Ozdogan M; Genetic variation of feed traits and relationships to some metal production traits in Japanese quail (*Coturnix coturnix japonica*). *Arch Geflugelkd* 2003; 67(2): 76-82.
19. Genchev A, Mihaylova G, Ribarski S, Pavlov A, Kabakchiev M; Meat quality and composition in Japanese quails. *Rakia J. Sci.* 2008; 6(4):72-82.
20. Rondelli S, Martinez O, Garcia PT; Sex effect on productive parameters, carcass and body fat composition of two commercial broilers lines. *Brazilian Journal of Poult. Sci.* 2003; 3:169-173.