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Sex Differentiation of Body Weight in Japanese Quails(*Coturnix japonica*), Post Sexual Maturity

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ABSTRACT

The Research was carried out to compare weights of male and female Japanese quails post sexual maturity. The birds were housed in individual cages of 35cm x 35cm and 35cm high (1 male to 1 female) at FUTO research farm for a period of fourteen weeks. A total of 108 birds (54 males and 54 females) were used for the study. The birds were fed with commercial feed (top feed, layer's ration) for the period of the study (i.e. from 8 weeks old to 21 weeks old). Feed and water were provided for the birds *ad libitum* while body weight data were collected on a weekly basis. Data collected were analyzed. The analysis of weekly body weight data revealed significant changes in the mean body weights of the quails throughout the study. It also showed that the female quails were heavier than the males. For the male quails mean body weight ranged from 131.62g $\pm$ 2.58 at 8 weeks old to 147.46g $\pm$ 1.2 at 21 weeks old while it ranged from 143.26g $\pm$ 2.98 to 161.86g $\pm$ 2.61 respectively for the females thereby suggesting more quantity meat.

Keywords: Japanese quails, body weight, sexual maturity, quantity, different sex

Introduction

Japanese quail (*Coturnix japonica*) is the smallest avian species farmed for meat and egg production (panda and Singh, 1990). They have assumed worldwide importance as laboratory animal (Wilson et al, 1961; Baumgartner, 1994). Quails have several advantages over other avian species which have made them possible to be used widely for biological and genetic studies. These include; small body size, short maturity period, rapid generation turnover, ease of handling large number in a limited space among others. In order to meet up with the increasing demand for animal products, efforts should be directed to rearing animals that are prolific and have short generation intervals such as pigs, poultry and rabbits (Olubajo, 1976). Growth is the most important trait in meat production. The phenomena of growth are usually measured by observing differences in the body weight recorded at different ages and or in body weight gain observed during different growth periods (Cole, 1996).

A knowledge of variation of body weight of male and female quails will give an insight on the proper selection methods of quails for future performance and also suggest better ways to improve body weight of quails to produce more quantity and better quality meat.

Result and Discussion

The mean body weight of the male and female quails and the overall body weight mean of the flock at different ages is presented in table I. There are significant changes in the body weight of the quails throughout the study period. The weekly mean body weight of the whole flock of Japanese quails used for the study showed a positive trend increasing from 137.45g $\pm$ 2.02 at week 8 to 154.66g $\pm$ 1.68 at week 21. This observation is an indication that the birds used for the study were still growing/ gaining weight after sexual maturity.

The observed mean body weight for the female quails was 143.26g $\pm$ 2.98 at week 8 and 161.86g $\pm$ 2.61 while that of the males were 131.62 $\pm$ 2.58 and 147.46g $\pm$ 1.62 respectively. This result depicts that female quails are heavier than males. This is similar to the findings of Shokoohmand *et al.* (2007) and Alkan *et al.* (2010) who studied the effect of sex on body weight of Japanese quails.

Conclusion and Recommendation

The result of the present study highlighted the established phenomenon of growth after sexual maturity. The study also shows that female quails are heavier than the males. Carcass quantity and quality analysis should be carried out to ascertain the sex that will provide more and better quality meat and at what age.

Table 1: Weekly body weight mean for male and female Japanese quails

S/N	Week	Male Body weight/wk $\pm$ SEM	Female Body weight/week $\pm$ SEM	Total Body weight/wk $\pm$ SEM
1	8	131.62 $\pm$ 2.58 ^a	143.26 $\pm$ 2.98 ^a	137.45 $\pm$ 2.02 ^a
2	9	134.58 $\pm$ 2.25 ^{ab}	149.08 $\pm$ 2.22 ^{ab}	141.83 $\pm$ 1.72 ^{ab}
3	10	135.19 $\pm$ 2.74 ^{ab}	149.87 $\pm$ 2.19 ^{ab}	142.53 $\pm$ 1.71 ^{ab}
4	11	135.78 $\pm$ 2.24 ^{ab}	150.47 $\pm$ 2.18 ^b	143.12 $\pm$ 1.70 ^b
5	12	137.39 $\pm$ 2.39 ^{ab}	150.64 $\pm$ 2.18 ^b	144.06 $\pm$ 1.73 ^b
6	13	136.35 $\pm$ 2.42 ^{ab}	150.69 $\pm$ 2.16 ^b	143.49 $\pm$ 1.72 ^b
7	14	138.30 $\pm$ 2.39 ^{ab}	150.82 $\pm$ 2.18 ^b	143.56 $\pm$ 1.70 ^b
8	15	138.62 $\pm$ 2.40 ^{ab}	151.00 $\pm$ 2.17 ^b	144.81 $\pm$ 1.73 ^b
9	16	138.30 $\pm$ 2.36 ^{ab}	150.82 $\pm$ 2.11 ^b	144.90 $\pm$ 1.69 ^b
10	17	139.13 $\pm$ 2.39 ^b	150.98 $\pm$ 2.19 ^b	145.06 $\pm$ 1.71 ^b
11	18	141.26 $\pm$ 2.24 ^b	151.13 $\pm$ 2.19 ^b	146.20 $\pm$ 1.63 ^{bc}
12	19	137.11 $\pm$ 1.37 ^{ab}	165.05 $\pm$ 1.29 ^c	151.08 $\pm$ 1.76 ^{cd}
13	20	139.42 $\pm$ 1.51 ^b	168.43 $\pm$ 1.95 ^c	153.92 $\pm$ 1.87 ^d
14	21	147.46 $\pm$ 1.62 ^b	161.86 $\pm$ 2.61 ^c	154.66 $\pm$ 1.68 ^d

All means of same superscripts ^{a,ab,b} are significantly related at $p > 0.05$

Table 2: Mean Confidence Interval Chart for combined body weight of male and female Quail

S/N	Week	Lower Confidence interval	Lower Confidence interval
1	8	133.46	141.44
2	9	138.41	145.25
3	10	139.14	145.93
4	11	139.74	146.51
5	12	140.63	147.49
6	13	140.00	147.80
7	14	141.15	147.97
8	15	141.39	148.22
9	16	141.15	147.97
10	17	141.63	148.45
11	18	143.00	149.42
12	19	147.60	154.56
13	20	150.22	157.62
14	21	151.32	158.00

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