Effect of Non-Genetic Factors on Growth and Ready to Cook Yield of Japanese Quails

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Abstract

Growth is one of the important economic traits, in which the Japanese quail may serve as a model bird for growth, body weight and feed conversion efficiency studies. Hence, the present study was aimed to study the effect of non-genetic factors on growth in quails by collecting data from an organized slaughter house. The quails were fed with standard starter and finisher ration up to 5 or 6 weeks of age and slaughtered. The data on total live and dressed weight, weight gain, Average Daily Gain (ADG) and Ready to Cook Yield (RCY) were recorded. Season of hatching had a highly significant (P<0.01) effect on body weight at slaughter, weight gain and average daily gain. The higher values were observed in quails hatched in north-east monsoon followed by south-west monsoon, winter and summer seasons and quails up to 35th day were found to have higher average daily gain (4.18g) and ready to cook yield (61.99 per cent). Hence the optimum age of slaughter in quails could be around 35 days or 5th week of age.
Key words: Japanese quail, slaughter age, growth study and non-genetic factors on growth

Introduction

Japanese quail *(Coturnix coturnix japonica)* is a small hardy bird, raised primarily for meat production. It has distinct features such as early sexual maturity, short generation interval, high rate of lay, rapid growth, good feed efficiency, ready for market at 4 to 5 weeks of age with comparatively less space requirements than the domestic fowl. Moreover, quails could be considered as a good source of quality low cost animal protein to eliminate the protein deficiency of man. Growth is a trait of prime importance to the poultry industry and the Japanese quail may serve as a model bird in demonstrating growth, body weight and feed conversion efficiency

especially in growth studies. In this background, the present study was aimed at to determine the effect of non-genetic factors on growth and weight at market in quails.

Materials and Methods

Data on 18,126 day-old quail chicks, reared in 120 batches at Post-Graduate Research Institute in Animal Sciences (erstwhile Livestock Research Station), Kattupakkam during the period from 2006 to 2008 were collected. The quails were fed with standard starter and finisher ration up to 5 or 6 weeks of age and slaughtered at 35th or 42nd day. The data on total live and dressed weight, weight gain, Average Daily Gain (ADG) and Ready to Cook Yield (RCY) were considered for the analysis. The season of hatching and age at slaughter were taken as fixed non-genetic factors to analyze their influence on the body weight, weight gain, average daily gain and ready to cook yield by least-squares analysis (Harvey, 1989).

Results and Discussion

Season of hatching had a highly significant ($P<0.01$) effect on body weight at slaughter, weight gain and ADG. In all the traits, higher values were observed in quails hatched in north-east monsoon followed by south-west monsoon, winter and summer seasons. Restricted day light availability during monsoon resulting in lesser movement of quails could be attributed as a reason for higher body weight in north-east monsoon group. Legare *et al.* (1986) also observed that restricted photoperiod yielded heavier carcass in quails. The age at slaughter was a significant source of variation ($P<0.01$) for ADG and RCY. Yalcin *et al*. (1995) observed that body weight and eviscerated weight were affected by the age at slaughter. Quails up to 35th day were found to have higher ADG (4.18g) and RCY (61.99 per cent). Hence, the optimum age of slaughter in quails could be around 35 days or 5th week of age. However, Sekar *et al*. (2007) observed the rate of live weight gain started decreasing after 28 days of age and the feed required for each gram of weight gain exhibited steep increase after 42 day in quails and recommended the optimum slaughter age in quails at 42 days of age. Similarly, Full (2000) also reported that the slaughter age was 6 weeks of age. The reduction in the age at slaughter in present study could be due to difference in management, quality of ration and probably due to improved growth rate and ADG by selection.

Table 1 - Least-squares means (± SE) of body weight at slaughter, weight gain, average dailygain and ready to cook yield of quails slaughtered at 35th and 42nd day

Effect	Body weight at slaughter (g)	Weight Gain (g)	Average Daily Gain (g)	Ready to cook yield (%)
Overall Mean	168.84 ± 1.61 (120)	159.34 ± 1.61 (120)	4.18 ± 0.04 (120)	61.02 ± 0.35 (120)
Season of hatching	**	**	**	NS
Winter (January-February)	167.09 ± 4.12 (16)	157.59 ± 4.12 (16)	4.14 ± 0.11 (16)	61.98 ± 0.89 (16)
Summer (March-May)	157.71 ± 2.73 (33)	148.21 ± 2.73 (33)	3.90 ± 0.07 (33)	60.33 ± 0.59 (33)
South-West monsoon (June-September)	172.02 ± 2.30 (44)	162.52 ± 2.30 (44)	4.28 ± 0.06 (44)	60.31 ± 0.50 (44)
North-East monsoon (October-December)	178.52 ± 2.94 (27)	169.02 ± 2.94 (27)	4.40 ± 0.08 (27)	61.46 ± 0.64 (27)
Age of slaughter	NS	NS	**	**
35th day	171.10 ± 2.60 (43)	161.60 ± 2.61 (43)	4.18 ± 0.07 (43)	61.99 ± 0.57 (43)
42nd day	166.57 ± 1.76 (77)	157.07 ± 1.76 (77)	3.74 ± 0.04 (77)	60.05 ± 0.38 (77)

Figures in parentheses indicate batches of quail slaughtered in respective classes

** Significant at P<0.01; NS – Not Significant

Conclusion

In the present study, optimum age of slaughter in quails could be around 35 days or 5th week of age, because it found to have higher average daily gain and ready to cook yield.

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