

Production and Management Practices of Japanese Quail in a Local Farm Banskhali, Chattogram



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Session: 2015-2016

A production report is submitted in partial satisfaction of the
requirements for the Degree of
Doctor of Veterinary Medicine (DVM)

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A Production Report submitted as per approved style and content

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ABSTRACT

An observational study was conducted on 750 Japanese quail chicks from hatching up to marketing age (0-6 weeks) in a farm at Banskali, Chittagong to evaluate their management, growth and productive performance under litter floor rearing system. The chicks were hatched in the own hatchery of farm where the hatchability rate was 71.42%. The daily amount of supplied ration was fixed and varied in different ages. The birds were reared for 6 weeks (marketing age) and were sold when 120-130 gm weight was achieved. The farming was also profitable in terms of production per birds. It may be inferred that Japanese quail performs well under litter floor rearing in Bangladesh.

Key words: Japanese quail, Hatchability.

Chapter-1

General introduction

Quail is one of the smallest and ongoing domesticated poultry species. There are near about 131 species and 17 to 18 varieties of wild quail endowed all around the world, from them Japanese, Bobwhite, King and Stable quail are most important. Japanese quail are native to Japan. Quails have been being fostered in Japan from the prehistoric time. *Coturnix coturnix japonica* is the scientific name of Japanese quail under the class aves and family Phasianidae (Hashanuzzaman, 2013).

Poultry eggs and meat accommodate close to 38% of total animal protein in Bangladesh. In Bangladesh, the protein utilization from animal source is undoubtedly lower than the other countries of the world. The annual average inadequacy of meat is 3.81 million metric ton and chicken egg inadequacy is 6939 million in numbers (Andrew, 2003). With the fast growing population the requirement for poultry products has been increasing. The development of poultry industry is very important to please the flourishing requirement for poultry products.

The universality of quail husbandry is expanding all around the world. Quail farming for meat and egg is quite popular in Japan, Hong Kong, Korea, China, Singapore, India, Thailand, Malaysia, Indonesia, France, Italy, Germany, Britain, Russia and many other countries of the world. In 1988, quail was made known for the first time in Bangladesh (Das, 2004). For commercial purposes only Bobwhite quail and Japanese quail have been domesticated and these two are commercially available in Bangladesh. Additionally, scientists developed many quail lines e.g. white egg shell line, meat line etc.

In recent time Japanese quail is made known as economic avian species which is ideally appropriate for meat and egg under intensive management as a result of their low maintenance cost, early sexual maturity, higher heat tolerance, higher disease resistance, higher augmented growth, fitness for higher density rearing and higher egg production than that of other poultry species. The environmental and natural condition of Bangladesh is satisfactory for quail rearing. It has short life cycle and production require less capital and land, for this reason quail can be fostered in this country throughout the year with good production (Vali et al., 2005).

In latest years, a huge number of small scale commercial quail farms have been established in Bangladesh to raise quails for consumption. Japanese quail is the smallest poultry species farmed for meat production (Vali et al., 2008). The meat of broiler quail is very delicious and yummy. Broiler quail gains 140-150 gm Body weight within five weeks of age and produce 72.5% carcass for consumption (Das ., 2004).

Prosperity of quail farming depends on scientific feeding, management and disease control of the flocks. Feed dietary energy levels and graded essential amino acid levels has an interrelationship on growth performance and immuno-competence (Kaur et al., 2008). For optimum growth of quail broilers, a diet containing 27% CP with 11.72 MJ ME/ Kg is recommended up to 2 weeks of age & a diet containing 24% protein with the same energy for birds from 3 to 5 weeks (Santos et al., 2011).

The usefulness in quail farming can be achieved by better management. The meat quality and better growth performance of broiler quail (Japanese quail) are promoted by the result of (Kaur et al., 2008 and Vali., 2008) which clearly revealed that the quail farming is an encouraging sector in poultry meat production.

In public sector limited scope is given to a large number of educated people are looking for self-employment. The time has now come for creating alternative employment opportunities for these educated people. The self-employment scheme is one probable answer and quail farming seems to be a promising enterprise in this direction. It is hoped that quail farming will be recognized as popular poultry sector one day in our country.

Objectives of the study were....

- 1 To observe the growth and production performance of Japanese quail under controlled housing.
- 2 To analyze the cost effectiveness of quail farm.

Chapter-2

Materials and Methods

Study area:

The study was conducted at a local Quail farm and hatchery, Banskhali, Chattogram. It has two rearing units and one brooding shed. A total of 700 broiler in addition to 750 more day old chicks were in the farm during this study.

Housing and Management:

Housing system is most important. For commercial quail farming, housing system should be of cage system. In this farm,

Floor space:

The floor management for rearing broiler was 50 feet long and 20 feet wide. The floor space for DOC up to 3 weeks 100 sq. cm per bird and from 3 weeks up to 6 weeks (Marketing age) 170 sq. cm per bird space were given.

Litter Material:

The litter management was good. As litter material wood shaving was used at the depth of 5 cm over the floor.

Incubation and Hatching:

The incubation period vary from 17-18 days depending on several factors such as strain of the species and incubation procedure. A still-air incubator used for incubation purpose, incubation temperature was 38.3°C. Humidity was less than 70%. Eggs were turned three to five times a day by hand.

Brooding:

Chicks were kept in brooder where paper were used as litter material. 95°F temperature was maintained for 24 hours daily from the day of hatching up to 2 weeks.

Temperature schedule:

95°F temperature was maintained during 0-2 weeks of age known as brooding period but as age increased (3-6 weeks) temperature were reduced to 75°F.

Lighting management:

24 hours lighting should be ensured during brooding period (0-2 weeks). After that lighting period reduced on the basis of purpose. For meat production light can be given 23 hours and can be kept in dark condition for 1 hour.

Feeder and Waterer:

1.25-2.5 cm of feeder space need per adult quail bird. Generous amount of feed should be present in feeder but trough should not too full to reduce feed wastage. 0.6 cm drinking space required per bird and clean, fresh water should be provided all time.

Feeding and nutrition:

The birds were supplied pellet feed (Provita feed). During brooding period (0-2 weeks) 2 gm feed were supplied per bird but during 3-6 weeks of age 18.75 gm were supplied per bird. The ME and CP of starter (0-2 weeks) was 3000 Kcal/Kg and 22% respectively and of finisher (3-6 weeks) was 3050 Kcal/Kg and 20% which were lower than the standard ME and CP requirement. Ca% and P% were optimum in feed.

Data analysis:

Data related to the net profit estimation, rearing and management of quail farming according to the quail farmer were collected and compiled and numeric data were analyzed by calculator.

Chapter-3

Results and Discussions

Hatchability: Total number of fertile eggs settled in setter was 980. A total of 700 chicks were hatched on 18th day of incubation.

Table 1: Batch wise hatchability of farm

Batch No	No of fertile eggs	No of hatched chicks	Hatchability
Batch 1	850	570	67.06%
Batch 2	820	580	70.73%
Batch 3	1050	775	73.81%
Batch 4	1030	745	72.33%
Batch 5	1050	730	69.52%
Batch 6	1040	740	71.15%
Batch 7	1000	780	78%
Batch 8	1000	680	68%
Total	7840	5600	
Average	980	700	71.42%

$$\begin{aligned}\text{Hatchability} &= \frac{\text{Total no. of chicks hatched}}{\text{Total no. of fertile eggs settled}} \times 100 \\ &= \frac{700}{980} \times 100 \\ &= 71.42\%\end{aligned}$$

Profitability analysis of quail farming:

Profit estimation of broiler quail farm of 700 birds in a batch, 8 batches per year. So, total birds in a year is 5600.

(based on the data recorded from the farm owners)

A. Cost:

a) Land : Own

b) Feed cost:

Total bird around the year is 5600, average feed intake is 0.02 kg per day per bird up to 40 days = $(700 \times 8 \times 0.02 \times 40) = 4480\text{kg}$.

Cost = (4480×45) Taka [Per Kg 45 Taka]

= 2,01,600 Taka

c) Other cost (Electricity, medicine) = $5000 + 10,000 = 15,000$ taka

Total cost = $(2,01,600 + 15,000)$ taka

= 2,16,600 taka

B. Income = Sold at 50 taka per bird

= 50×5600 taka

= 2,80,000 taka

C. Net profit = $2,80,000 - 2,16,600$ taka

= 63,400 taka per year.

From the technical and economic points of view, quail rearing is enticing as a result of their rapid growth and early onset of lay, high reproduction rates and low feed intake (Seker et al., 2004). 70.48% hatchability of Japanese quail eggs was found in an observational study of Dauda et al., 2014 which was slightly lower than this study of 71.42 % hatchability. In the study, the birds were fed formulated diet containing (20-22) % CP and (3000 -3050) Kcal/Kg ME, both of which were higher than earlier study of Begum and Howlider, 2000 where, 18 % CP & 2800 Kcal/Kg ME were provided but in the study the found value is lesser than the recommendation (3200 Kcal/Kg from 0-6 weeks and 25 % ME in 0-2 weeks) of (Larbier and Leclercq, 1994). After all, the present findings indicate that Japanese broiler quail needs diet containing 3200 kcal ME/kg and (24.5-25) % CP during the first two weeks of age to achieve optimum growth performance. Similarly, dietary level of 3200 kcal ME/Kg and (20.5-21) % CP should be offered at the finisher (3-6 weeks) stages. Birds should also provide appropriate amount of feed in every weeks as mentioned by (Das, 2004). Adult Japanese quail eat between 14 to 18 grams of feed per day (Sakunthala et al., 2010). In an experimental study, Rahman et al., 2010 reported that average daily feed intake of Japanese quails were increased with increasing dietary CP level. Here, although the feed intake (FI) from 4th - 6th weeks were 20 gm average, but in (0-1) weeks it was 2 gm/bird only where, the FI value in 1st week does not support the recommendation by (Das, 2004). Santos et al., 2011 reported that Feed intake was higher in broiler quails than in egg- type quails due to their higher body weight (140-150 gm) as compared to that of egg-type quails (120-140 gm). However, feed intake increased with advancement in age and ranged from 3.1 gm in week 1 to 15.2 gm at the 6th week of age in a study by (Dauda et al., 2014). In the study, the average daily gain (ADG) and live weight gain (LWG) in 1st wk. was 1.43 gm & 10 gm respectively and recorded maximum LWG of 25 gm and ADG of 3.57 gm in between (3-5) weeks of age. The marketing age was (40-45) days after

gaining 130 gm body weight. The average daily gain & live weight gain increased with chronological age up to 5 weeks. Therefore, quail farming is profitable. The findings on growth and productive performance of Japanese quails in this study suggest that although the housing and hatchery management is favorable to the birds but daily feed intake must follow standard Japanese broiler Quail feeding guideline and ready feeds should be checked for ME and CP for their proper maintenance, optimum growth and production. Above all, Quail rearing can serve as an alternative source of protein to the populace, thus adequate publicity is required to propagate the production of this bird to increase animal protein intake in Bangladesh.

Chapter-4

Conclusion and recommendations

Conclusion:

Bangladesh has approximately achieved self-reliance in principal food. But still the country experiencing animal protein deficiency. Quail raising has strong capability for reducing protein deficiency as well as unemployment problem. It has an uncommon advantage of tapping the vast market potential for chicken and duck products, especially in the urban areas. It is now actual time to make quail farming as a major profession for growth of income and viable development. The policy makers should, therefore, take necessary measures which would inspire development of quail farming. Thus, this farming site will quickly spread all over the country which will make an example for this sub-continent. By linking mental strength, physical effort with few basic technical knowledge one can easily become a successful quail farmer. It is no doubt, that quail farming will become one of the main poultry industries of our country in the near future. The major advantage of quail rearing is its low investment compared to other poultry farming. The management system and performance of the studied farm is surprising. However, the quail farming is profitable and it may be an income generating source by mitigating unemployment burden, enrich our poultry meat supply and thus will meet the daily protein requirement of the nation.

Recommendations:

- 1 Further study should be conducted with adequate time.
- 2 Proper management study is recommended.
- 3 Owner should be trained up for scientific way of quail rearing.

Chapter-5

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Acknowledgement

All praises is for Almighty Allah, the creator and supreme ruler of the universe, who enabled the author to complete the work successfully.

The author expresses sincere gratitude, humble respect and immense indebtedness to his supervisor Professor Md. Akhtar Uz-Zaman, Department of Dairy and Poultry Science, Faculty of Veterinary Medicine, Chattogram Veterinary and Animal Sciences University for his guidance, kind co-operation, sincere help, valuable suggestions, constructive criticism and for his active involvement with this study.

The author also expresses his gratitude to all of his teachers and his parents for their unforgettable support, suggestion, criticism and cordial help from the beginning to the last of his study.

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November, 2021

Biography

The author Md. Hasanul Karim, son of Nur Ahmed and Rohima Begum passed his Secondary School Certificate (Dakhil) examination from Baitush Sharf Ideal Kamil Madrasha, Chattogram in 2012 and Higher School Certificate (HSC) examination from Government City College, Chattogram in 2014. Thereafter he enrolled for Doctor of Veterinary Medicine (DVM) degree in Chattogram Veterinary and Animal Sciences University (CVASU), Bangladesh and now is an intern student in this university.