

Extension Folder No. 40/2010

Quail Production and Management Technology



ICAR RESEARCH COMPLEX FOR GOA

ELA, OLD GOA - 403 402, GOA, INDIA

Quail (*Coturnix coturnix japonica*) Production and Management Technology

Quail is also popularly known as "Bater". They are hardy and easy to handle, and adopt easily to diversified agro-climatic environments. With increasing cost of production and competition among broiler and layer farmers, some alternative and equally competitive farming has become very essential for the survival of the farmers. Further, the demand for fast food has increased tremendously. In this situation, quail farming proves to be an ideal venture for the poultry farmers who desire to increase their profit through diversification. The following unique characteristics of Japanese quails make them very important over farming of other poultry species.

Important specific characteristics of Japanese quails

1. Japanese quail weighs 8-9g from hatching egg weight of 10-11g
2. Average body weight at 5-6 weeks is 180-200gms and adult body weight is 200-250g
3. Females are heavier than males
4. The female is characterized by long and pointed feathers with black speckles on the throat and upper breast. The males have rusty brown throat and breast feathers.
5. Sexually active males also have a cloacal gland, a bulbous structure located at the upper edge of the vent which discharges a white foamy material.
6. Very fast multiplier because of short generation interval and completes 3-4 generation per year.
7. Prolific layer: lays 280-300 eggs per year
8. Early sexual maturity: 6-7 weeks
9. Minimum floor space requirement i.e. 8-10 quails can be housed in a space required to house one broiler/layer chick.
10. Low feed requirement: 25-30 gram per quail/day
11. Early marketing age for table delicacy: 5-6 weeks
12. High nutritive value of egg and meat
13. **Quail eggs are low in cholesterol content than chicken egg.**
14. **Quail meat is low in fat and cholesterol content and is an ideal food for infants, children, adults, old people and those attempting to control their weights.**

Incubation and Hatching

The hatching quail eggs should be collected from the breeders between 10-30 weeks of age. Care must be taken in collecting and handling of eggs because they are thin shelled and may crack easily. For optimum fertility the parents should be 12-24 weeks of age. One male should mate to 1-3 females and eggs should be collected for hatching 4 days after the introduction of males to females. The eggs should be clean, normal in shape with sound shell and uniform size. The eggs should be disinfected by fumigation with formaldehyde gas (mixture of 40 ml of 40 per cent commercial formalin and 20 gram of potassium permanganate for each 2.8 cubic meter air space) for 10-20 minutes and should not be stored more than a week in a cooler maintained at 13°C and 75 % relative humidity (RH). The incubation period for quail eggs is about 18 days.

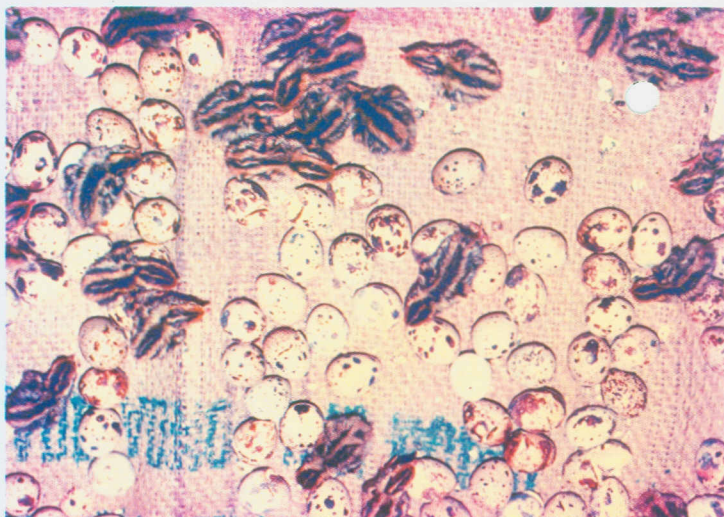


Quail eggs selected for hatching

Fertile eggs are loaded with broad end up because hatchability decreases when the narrow end is placed up. Incubators are provided with devices for automatic turning of eggs, at least 8 times or more during a day. No turning is required after 15 days of incubation. When incubation and hatching is done in the same machine, eggs are held in the upper trays for 15 days and lower trays for 3 days. The incubation temperature varies from 99.5°F to 100.5 °F.

Dry and wet bulb thermometers are used to measure humidity. The dry bulb reading should be 98 °F and wet bulb reading should be 92°F during hatching period. The quail chicks should be hatched on 18th day.

For obtaining better hatch and healthy chicks, the incubators and hatcher should be neat, clean and free



Hatching of day old quail chicks

from microbial load and should function properly. Before setting eggs in the incubator the incubator should be checked thoroughly for any defect. They should be properly cleaned, disinfected and fumigated to kill disease organisms. The practice of cleaning, disinfection and fumigation of eggs before storing and after transfer of eggs to the hatcher reduces the incidence of spread of diseases. Fumigation is usually done with formaldehyde gas. Potassium permanganate may be kept in a glass or earthenware container and formalin is poured over it. Fumigation is done at the end of the working hours preferably in closed rooms.

Brooding and Rearing

Quails can be reared either in cages or on floors or a combination of both. Thus, the options for rearing systems are option I. Brooding (0-3 weeks), rearing (4-8 weeks) and laying (8 weeks onwards) in deep litter, option II. Brooding, rearing and laying in cages and option III. Brooding in battery brooder and both rearing and laying in deep litter. The optimal rearing environment and floor, feeder and water space requirements are shown in Table 1.



Cage brooding of quail chicks

Table 1. Temperature, humidity and space requirement

	Starter	Grower	Layer/Breeder
Temperature (°C)	37-38	21-22	21-22
Relative humidity (%)	60-65	55-60	55-60
Floor space (Sq.Cm)	75	110	150
Feeder space (Lin.Cm)	2	2.5	3
Water space (Lin.Cm)	1	1.5	2

Quail chicks are brooded under 24 hr light up to 2-3 weeks of age which may be reduced to 12 hr by the end of 3 weeks and thereafter 12 hr photoperiod is adequate up to 5 weeks of age. About 14-16 hr photoperiod is recommended for laying quails.

Both Battery and Floor system of brooding and rearing can be employed with satisfactory results. Battery brooding up to 3 weeks of age, however, appears to be better than floor brooding due to the small size of the chick. The floor should be preferably covered with corrugated paper so as to provide better foothold since high mortality occurs initially due to spraddled legs. The starting temperature should be 37 °C and gradually reduced (at the rate 3°C in every 4 days) to 22°C by the end of 3rd week. For each chick 75 cm² of hover and 75 cm² of run space is allowed in battery brooder for better performance. The feeder and water space requirement during this period are 2-3 cm and 1-1.5 cm, respectively (Table 1) . Floor, feeder and water spaces should be increased with advance in age. Males and females should be reared separately. Females should be housed in laying cages at about 6 weeks of age. Continuous light should be provided for the first 48 hours. This can continue if birds are to mature earlier. Otherwise 12 hr light and 12 hr darkness may be followed during the growing period. Quail broilers are marketed at about 5-6 weeks of age. Eight hrs of light and 16 hrs of darkness at least 7-10 days before marketing may help to improve the condition of quail broilers.

Housing

Housing requirements are small and reasonably simple. It is fast growing bird with short generation interval and high rate of lay. Since the high temperature and high humidity persists in local condition open type of poultry houses can be constructed for better ventilation.

Lay out of the house

The long wall of the house may be laid east to west to have proper ventilation and less heat.

Size

In litter system either the shed has to be small to accommodate reasonable number of birds per shed or smaller compartments have to be made through partitioning the large shed. In cage system rearing the size of house does not matter. For good exchange of air the width of the shed should not be more than 9 m.

Roof

A shed type roof is recommended for 3-4 m wide house with 1.5 m overhang either side to protect the birds from rain and sun. Gable type roof is recommended for 9 m wide house with 1.5 m overhang. Corrugated asbestos sheets, thatch or corrugated galvanized iron sheets can be used as roofing material with suitable support.

Walls

The height of the side walls will be 2.5-3.0 m. The mid height vary from 4 to 5 m depending on the width of the house. The lower part of the walls will be solid (brick or stone) and rest part may be constructed with wire mesh (Preferably 1inchX1inch) stretched on angle iron, bamboo or wooden pillars.

Floor

The floor of the shed should be 2-3 ft above the ground level and made up of cement and concrete for proper drainage and maintenance of hygiene.

Doors

There should be two doors (1.2 m wide and 2 m high) at the two ends of the long axis of the house in the smaller walls. In the compartments door (0.7m wide and 1.8 m height) should be fitted. These doors should be opened in to the working pathway.

Light

The light points should be about 2 m high from the floor and they should not be hung loose.

Quails can be reared in multideck/singledeck cages. The size of cage should be 120 cm length , 60 cm width and 25 cm height with provision of faecal trays. For commercial purpose 20-30 quails can be reared in this cage.



Floor rearing of quails

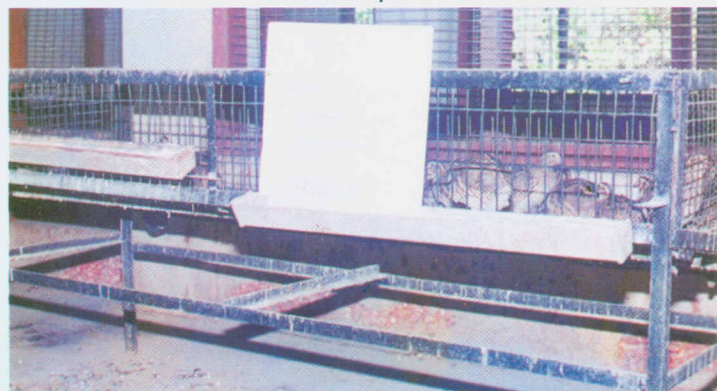
Feeding

For feeding quails efficiently and economically they can be classified as starter (0-3 weeks), grower (4-6 weeks) and layer or breeder (7 weeks onwards) depending on their growth rate, efficiency of feed utilization and production and reproduction performance. The starter period is the most crucial period and needs special management and feeding care. The young actively growing bird makes a larger gain in live weight per unit feed consumed. Therefore, feeding of quail to the age of 3 weeks is of special importance in as much as balanced and higher nutrient level required in diet. The practical level of nutrients for quails are presented in Table 2.

Table 2. Practical levels of nutrients (%) in the diet of Japanese quails

Nutrient*	Starter (0-3 weeks)	Grower 4-6 weeks	Layer/Breeder (7 weeks onwards)
ME (Kcal/Kg)	2,750	2,750	2,650
Protein (%)	25-27	22-24	20-22
Calcium (%)	1.0	0.8	3.0
Phosphorous avail.(%)	0.45	0.45	0.45

* Vitamins and minerals as per BIS recommendations



Cage rearing of quails

Debeaking

Quails may be debeaked at an age of 3-4 weeks or whenever required to control cannibalism. Simple nail cutter may be used for debeaking. Over cutting should be avoided to counter the problems of mating which lowers fertility.

Health cover

Quails are very sensitive to abrupt environmental changes, particularly during the first 2 weeks of their life. They need better care during the brooding age. Antibiotics (tetracycline @ 1g/litre) may be used in the drinking water during first week of their life. Amprolium @ 1.25 g/ kg feed for 3 days for treatment or half of this quantity from day old to 2 weeks of age for prevention has been found to be effective to control coccidiosis in quails when they are reared on deep litter. Streptomycin @ 1g/litre of drinking water can be used for 3 days to control ulcerative enteritis in quails. The hygiene and sanitation are of prime importance to eliminate or minimize the occurrence of diseases in quails. Quails are reported to be susceptible to some of the common poultry diseases but they are resistant to ranikhet disease virus and some strains of coccidia. However, they are susceptible to some strains of Eimeria i.e. *E. uzura* and *E. tsunodai*. *Aspergillus fumigatus* causes brooder pneumonia in quails. This can be checked by adding calcium propionate @ 2 kg/tonne of feed, since it prevents the growth of fungus.

Prepared by

DR. B. K. SWAIN **DR. N. P. SINGH** **DR. E. B. CHAKURKAR** **DR. P. K. NAIK**
Senior Scientist Director Senior Scientist Senior Scientist
(Poultry Science) (Animal Reproduction) (Animal Nutrition)

Published by

DR. N. P. SINGH
Director, ICAR Research Complex for Goa,
Ela, Old Goa, Goa 403 402

For details please contact

DR. N. P. SINGH
Director, ICAR Research Complex for Goa,
Ela, Old Goa, Goa 403 402
Telephone: 0832-2284678/79
E-mail: director@icargoa.res.in
Website: www.icargoa.res.in

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Technical Assistance
Shri. Mahesh Parsekar

Designing
Shri. Sidharth Marathe