MBM-CARI-X

Quail farming

Rationale

Quail farming is a very profitable venture. Japanese quails are comparatively more delicate than chickens. It is hardy in nature, easy to handle and adaptable to varied environments. It requires less floor space and feed.

To start with quail farming it is essential to get financial assistance for purchasing fertile eggs, chicks, breeder flock, land, shed construction, equipment and to meet the expenditure of electricity and water. Therefore, to get financial assistance from bank a financial statement is required for setting up a quail farm.

There are three aspects in the economics of quail farming:
A. Initial Investments
B. Cost of production
C. Returns

A. Initial Investments:

Initial investment is crucial for any enterprises to start with. Certain amount of capital is required to procure the items, create the infrastructure, which are essential for any enterprise. It holds goods for quail farming also.

The major components of investment in case of quail farming are:

Purchase of chicks:

Investment is required initially to purchase chicks. Good germplasm with good phenotypic and genetic characteristics should be purchased while planning for quail farming. These can be purchased from Central Avian Research Institute, Izatnagar; AVM hatcheries and poultry breeding centre private limited, Coimbatore ;Central Poultry Breeding Farm ,Government of India located at Mumbai, Bangalore, Bhubaneswar and Chandigarh; M/S Venkateshwar Hatcheries Pvt. Ltd., Quail unit at Naigaon, Pune and also from CARI, Port Blair.

Construction of shed:

Capital is required to construct a good shed. The sheds can be constructed either kutcha or pucca depending upon the financial condition of the farmers. For small and marginal farmers construction can be done by using locally available materials like bamboo, arecanut and coconut stems etc. wooden planks can also be fixed on sides. For roofing purpose, leaves or thatch can be used to minimize the cost. Multitier cages made up of iron or bamboo can also be made.

Purchase of minor equipments:

Some amount of money has to be spent on purchase of small equipments, materials and utensils. Appropriate size feeder, waterer etc are needed for maintaining different kinds of flock of quails depending on age.

B. Cost of production:

Cost concepts are important components of economics of quail farming. They are required to calculate the cost of production or maintenance cost of birds

The cost items can be broadly classified into two types namely fixed cost (Non-Recurring) and variable cost.(Recurring).

1. Fixed cost:

It includes construction of sheds, cost of battery brooders, interest on fixed capital, depreciation on fixed assets and insurance costs.

Interest on fixed capital:

It is a payment for the use of fixed capital. The interest on fixed capital comprising value of sheds, equipments and machineries can be worked out at the rate of 15 percent per annum (bank lending rate).

Depreciation of fixed assets:

It refers to decline in value of fixed asset over a period of time. Depreciation at the rate of ten percent on permanent shed (pucca) and the rate of 15 percent on temporary (kutcha) sheds can be taken. The same can calculated at the rate of 20 percent per annum on equipment and machineries.

2. Variable costs:

It includes cost of chicks, fertile eggs, feed cost, labour cost and miscellaneous expenses.

Feed cost:

This refers to average value of concentrates fed per bird per day and was worked out by multiplying the quantities with their respective market prices.

Labour cost:

It includes the cost of permanent, family or hired labour employed for quail rearing and is computed on the basis of prevailing wage rates.

Miscellaneous expenses:

It includes recurring expenditure like cost of repair, electricity tariff, water charges etc.

Total cost:

It can be obtained by adding all the cost items included in fixed and variable Cost.

C. Returns:

Total returns can be obtained by adding the returns from sale of meat or eggs, returns from farm yard manure and sale of empty gunny bags.

Net returns are estimated by subtracting the total cost from total returns for a particular period.

Preparation of bankable project

Economics of quail farming (Broiler) (500 x 52 batches)

I. Assumptions:

Construction Cost: Rs.100 /sq.ft
Space required / bird : 0.15sq.ft
Cost of day old chick : Rs. 5/-
Feed cost (per kg.): Rs.13/-
Mortality rate : 10%
Live weight at 5wk : Rs. 200-250gms
Sale price (per kg. line wt.) : Rs. 150/-
Feed consumption up to 8th week : 600gms
Feed conversion Ratio : 2.4-3.0

II. Fixed Investment

Cost of 10x 75 Sq.Ft of shed
@ Rs. 100/ sq ft : Rs. 75,000/-
Cost of equipment for 2000 birds
@ Rs 5/ bird : Rs. 10,000/-
Cost of office, store 250sq.ft
@ Rs. 100/sq.ft :Rs. 25,000/-
Total (A) : Rs. 1,10,000 /-

III. Recurring Cost (Capitalized)

Chick cost: 4000 chicks @ Rs 5 per chick : Rs. 20,000/-
Feed cost 500x8 weeks x 0.6 Kg per bird @ Rs 13/Kg : Rs. 31,200/-
Labour cost Rs. 1000 X 2 months X 1No. : Rs. 2,000/-
Litter, Electricity and Miscellaneous Charges :
@Rs 2/bird : Rs. 8,000/-
Total (B) : Rs. 61,200/-
Total Financial Outlay (A+B) : Rs 1,71,200/-

IV. Fixed Cost

Interest on Capital Investment (Rs 1,71,200/-)
@15%/Annum : Rs 25,680/-
Depreciation on Building
@ 10%/Annum : Rs. 10,000/-
Depreciation on Equipments
@20%/Annum : Rs. 2,000/-
Total Fixed Cost : Rs. 37,680/-

V. Variable Cost Per Batch

Chick cost: 500 x Rs 5/chick : Rs. 2500/-
Feed cost: 500 x 0.6/bird@Rs 13/kg : Rs. 3900/-
Labour cost/batch : Rs. 1000/-
Litter, electricity, miscellaneous expenditure@Rs2/bird x 500= Rs.1000/-
Total variable cost : Rs.8400/-

VI. Total cost

Total Variable Cost per Year : Rs.37,680/-
Total Variable Cost @ Rs.8400 per Year @ X 52 batches Rs.8400 : Rs.4,36,800/-
Total Cost : Rs. 4,74,480/-

VII. Returns

By sale of quail 460 Quail (2% extra chicks &10% mortality),
(4.5 birds/Kg @ Rs.150/Kg) : Rs.15,333.30/-

By sale of manure (@ Rs 1.25/bird) : Rs. 400/-
By sale of gunny bags (5 bags @ Rs 10/kg) : Rs. 50/-
Total income : Rs. 15783.30/-
= Rs.15783/-

VIII. Net income per year

Total Income per year (Rs.15783 X 52 batches) : Rs. 8,20,716/-
Total Cost : Rs. 4,74,480/-
Net Income per year : Rs. 3,46,236/-
Net Income per batch : Rs. 6658.38/-

Economics of quail farming (layer) (500x 52 batches)

1000 quail chicks required to start with

I. Assumptions

Construction Cost : Rs. 100 per sq.ft
Space Required Per Bird : 0.15sq.ft
Cost of Day Old Chick : Rs. 5.00/-
Feed Cost (Per Kg) : Rs. 13.00/-
Mortality Rate : 10%
Live Weight @ : 200-250gms
Egg Production / bird / Kg bird : 300
Sale Price of per Kg bird : Rs. 150/-
Sale of Egg : Rs. 0 .6/egg
Feed Consumption (For Males) (to be sold after 6th week) : 600gms per Bird After 6th Week
(For Females) To be kept upto 1 Year : 7.5 kg per bird

II. Fixed investment

Cost of 10x 75 sq.ft of shed @Rs100/sq.ft. : Rs. 75000/-
Cost of equipment for 1000 bird @ Rs 5/ bird : Rs. 5000/-
Cost of office, store 250sq.ft @ Rs 100/sq.ft : Rs. 25,000/-
Total (A) : Rs. 1,05,000/-

III. Variable/ Recurring cost (capitalized)

Chick cost: 1000 chicks @ Rs 5/ chick : Rs. 5,000/-
Feed cost 500 x 0.60 kg/bird @ Rs 13 per kg (male) : Rs. 3,900/-
Feed cost 500 x 7.5 kg per bird @ Rs 13 per /kg (female) : Rs. 48,750/-
Labour cost Rs 1000 x12months x 1no. : Rs. 12,000/-
Litter, electricity and miscellaneous charges @ Rs 2/bird : Rs. 2,000/-
Total (B) : Rs. 71,650/-
Total financial outlay (A+B) : Rs. 1,76,650=00

IV. Fixed cost

Interest on capital investment @15%/annum : Rs. 26,347.50
Depreciation on building @ 10%/annum : Rs. 10,000/-
Depreciation on equipments @20%/annum : Rs. 1000/-
Total fixed cost : Rs. 37347.50

V. Total Cost

Total Fixed Cost Per Year : **Rs. 37347.50**

Total Variable Cost per Year : Rs. 71,650/-

Total Cost :Rs. 108997.50

VI. Returns

By sale of Quail

920 Quail (2%Extra Chicks & 10% Mortality)

(5 birds/Kg @ Rs.150/Kg) : Rs. 27,600/-

By Sale of Quail Eggs

(500 birds X 300 eggs/annum @0.60/egg) : Rs. 90,000/-

By sale of manure (@Rs1.25/bird) : Rs. 1250/-

By sale of gunny bags (53 bags @Rs 10/bag : Rs. 530/-

Total Income : Rs. 1,19,380/-

VII. Net Income Per Year

Total income per year : Rs. 1,19,380/-

Total cost : Rs. 1,08,997.50

Net income per year: Rs. 10,382.50

MODEL OF QUAIL HATCHERY AND MOTHER UNIT

Hatchery unit consists of the following:

A) Hatchery Unit

B) Mother Unit (8 in numbers)

C) Beneficiary (7 per mother unit)

FLOW CHART

8000 CHICKS PER WEEK

↓

4000 CHICKS PER BATCH

↓

500 CHICKS PER BENEFICIARY

ECONOMICS OF QUAIL HATCHERY UNIT

Aim : To produce 8000 chicks / week

Requirement : Setter 1 no. of 50,000 capacities
Hatcher 1 no. of 27,000 capacities

Assumptions :
1) Weekly hatch
2) No. of eggs required – 16,500 / week.
3) Hatchability – 51%

(A) Non recurring expenditure:

Hatchery Building (20x 30 ft.) @ Rs. 200/sq.ft.	= Rs.1, 20,000/-
Generator Room (8 x 8 ft) @ Rs. 250sq.ft.	= Rs. 16,000/-
Setter, Hatcher and generator	= Rs. 3,35,000/-
Electrical installation (5% of Civil cost)	= Rs. 6,000/-
Water tank and connections	= Rs. 13,000/-
Other equipments (Trolley, Table etc.)	= Rs. 10,000/-
TOTAL	**= Rs.5, 00,000/-**

(B) Recurring expenditure per hatch:

Cost of hatching eggs @ Rs. 1.10 / egg for 16500 eggs	= Rs. 18,150/-
Overhead on hatching which includes labour, electricity etc	= Rs. 3000/-
Total	**= Rs. 21,150/-**
Hence cost per chick = Rs. 21,150 / 8000	= Rs. 2.65/-

Net profit per chick assuming selling price to be Rs. 5/- chick = Rs.2.35

Hence yearly profit will be 2.35 x 8000 x 52 batch = Rs.9,77,600/-

Economics of Mother unit

Aim : To rear 52000 quail chicks up to 3 week in 13 batches i.e.4000 chicks / batch or 500 chicks / beneficiary

Shed required : one shed of 500 sq ft. i.e.0.125sq ft./bird

Assumptions:

No. of batches reared per year	:	13 batches
Birds reared for	:	3 weeks
Feed consumed in 3 weeks	:	0.225 kg
Mortality (%)	:	8%
Cost of feed	:	Rs. 13 / kg
Labour cost @ RS. 2000/ person/ month (1 labour)	:	Rs 1850/ batch
Overhead cost which includes medication, electricity, depreciation on shed and equipment @ 0.25 per bird for 4000 bird (batch)	:	i.e. Rs.1000/ batch

Non-Recurring expenditure:

1) Shed cost @ Rs. 100 /- sq. ft. x 125 sq. ft.	:	Rs. 12,500/-
2) Water supply and connections (lump sum)	:	Rs. 3,000/-
3) Electrical installations	:	Rs. 1,000/-
4) Equipment cost including feeder and waterer	:	Rs. 1,500/-
5) Miscellaneous	:	Rs. 1,000/-
Grand total	:	Rs. 19,000/-

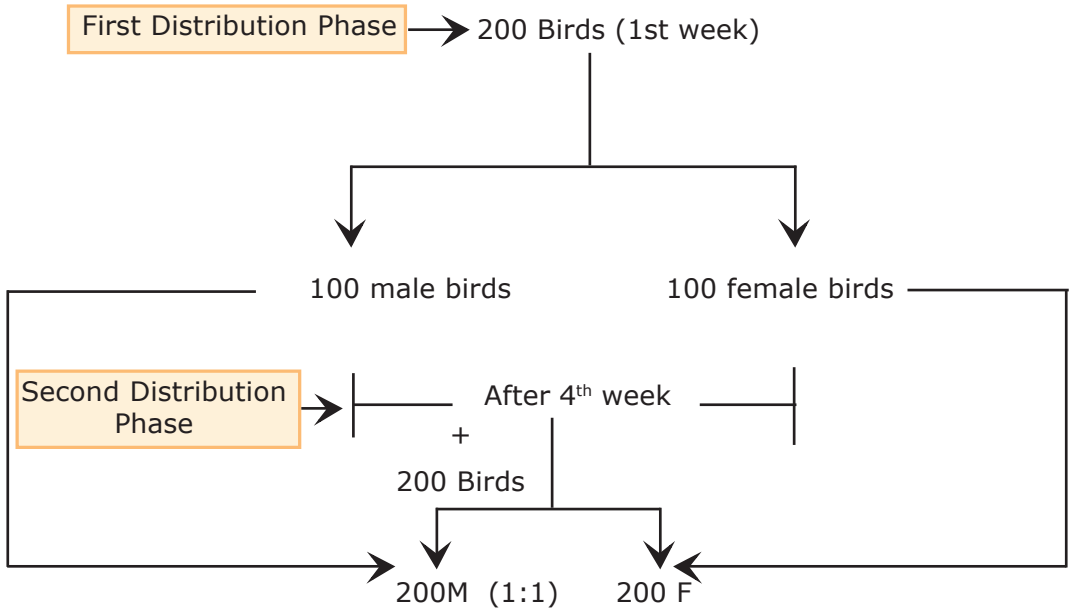
RECURRING EXPENDITURE PER BENEFICIARY (500 chicks /beneficiary)

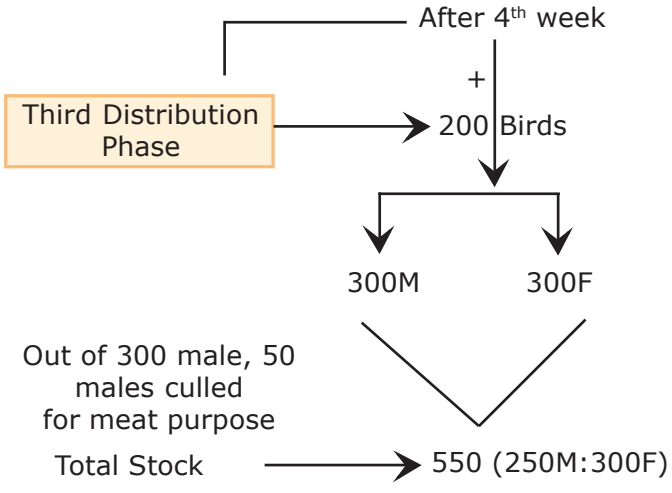
Cost of chicks @ Rs 5/ chick	:	Rs. 2,500/-
Cost of feed 500 x Rs 13 x 0.35 kg	:	Rs. 2,275/-
Labour cost	:	Rs. 1,850/-
Miscellaneous	:	Rs. 200/-
Grand total	:	Rs. 6,825/-
Hence cost/ bird 7975¸ 490	:	Rs. 13.93/-
Assuming selling price to be Rs 20 income 490 x 20	:	Rs. 9,800/-
Net profit / batch	:	Rs. 2,975/-

Development of Quail Production Unit for SHG's Model

Productive Phase for Ist SHG's

Distribution of the quail chicks and strengthening the stock size





The envisaged scheme will have the following major components:

Major components of the scheme are as follows :-

(i) Production Inputs

Quail Chicks: The one week old bird will be required instead of day old to reduce the mortality percentage.

(ii) Infrastructure development: Necessary in-built provision has to be made by the SHG's itself for purchase of replacement breeding stock, feed ingredients, transportation, medicines and vaccines etc. The amount so spent by the groups will be recouped from the sale of eggs, egg Pickle and culled birds etc. and can be in turn used for the farm year after year making it a financially self-sufficient unit. The second major infrastructure requirement is hatchery/ resource unit component which will be taken up after establishment of optimum stocking of size of SHG's.

ii) Training:

The requisite training will be imparted to SHG's on quail farming as well as the technology on quail egg pickle by the Resource person of KVK- CARI.

(iii) Marketing:

Marketing is series of activities involved in making available services and information, which influence the desired level of production relative to market requirements, and the movement of the product (or commodity) from the point of production to the point of consumption. The scheme needs to be supported by providing infrastructure for meat processing, packaging, preservation and marketing with value addition of products and maintaining a cold chain till the product reaches the consumer The State Implementing Agencies would ensure the marketing of surplus produce mainly through the mother units. The break-even price of delivering produce to the markets should have been calculated for running the business in profit.

Pattern of stocking the strength of quail

Date of Distribution	Sex	Week Intervals													Stock	Production of eggs	Sale of birds for meat	Total Stock
		2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th				
1 st phase	M	100	-	-	-	—	-	-	-	-	-	-	-	-	**100**	Nil	Nil	**200**
	F	100	-	-	-	-	-	-	-	-	-	-	-	-	**100**			
2nd phase	M					100	-	-	-	-	-	-	-	-	200	Nil	Nil	**400**
	F					100									200			
3rd phase	M	100				50				100					250	1960	50	**550**
	F	100				100				100*					300		Nil	

- **70% Hatching rate**
- **500 stock capacity will attain in January for First SHG's**
- **500 stock capacity will attain for Second SHG's till March end (Hatching capacity will improve with the contribution of hatchable eggs collected from First SHG's)**
- **500 stock capacity for third and Fourth SHG's will be completed till July end.**

Egg production status and culling of bird from second year onwards

Distribution Cycle phases

Parameters	Cycles							
	Aug to Mid Sept.	Mid Sept. to Nov.	Nov. to Mid Dec.	Mid Dec. to Feb.	Feb to Mid March	Mid March to May	May to Mid June	Mid June to August
No. of New stock (250M:250F)	500	500	500	500	500	500	500	500
Total Stock	1000	1250	1500	1750	2000	2250	2400	2500
No. of male stock	400	500	550	600	700	800	850	950
No. of female stock	600	750	950	1150	1300	1450	1550	1550
No. of Adult male stock	150	250	300	350	450	550	600	700
No. of Adult female bird	350	500	700	900	1050	1200	1300	1300
No. of female in laying (70% of total Adult)	245	350	490	630	735	840	910	910
No. of egg Production	10290	14700	20580	26460	30870	35280	38220	38220
No. of egg collected for fresh hatching	1000	1000	1000	1000	1000	1000	1000	1000
No. of male culled after completion of cyclic phase for meat purpose	150	200	200	150	150	200	150	250
No. of female culled	100	50	50	100	100	150	250	150
Total Stock culled for meat purpose	250	250	250	350	250	350	400	400
No.of egg pickle bottle prepared	615	915	1305	1700	1990	2285	2480	2480

ECONOMICS INVOLVED- CASH FLOW ANALYSIS- At a Glance

1. Stocking of 500No. of birds for First SHG's	3months
2. Stocking of 500 No.of birds for Second, Third and Fourth	2 months each
3. I year completed (on considering 3 months further stocking and stocking the strength of host institute)	
4. II year onwards	
3. No. of cycle per year	08
4. No. of birds per cycle	500
5. Average body wt. of birds (Kg./bird)	0.18 kg
6. Sale Price (Rs./kg. body weight)	Rs. 150
7. Avg. no. of eggs in 250gm for pickle	15 Nos.
8. No. of bottle of 250 gm for pickle /year/SHG's	11,485
9. Avg . price of pickle in 250gm presentation	Rs. 25.00
10. Income from sale of Pickle	Rs. 2,87,125.00
11. Income from sale of quail meat/ year	Rs. 67,500.00
12. Total Income (Sl. No. 10 + 11)	**Rs. 3,54,625.00**
13. Cost of feed purchase for eighth cycle	Rs. 1,80,000.00
14. Expenditure on procurement of chicks and other Miscellaneous	Rs. 75,000.00
15. Total Expenditure (Sl. No. 13+14)	**Rs. 2,55,000.00**
16. Net Profit (Sl.No. 12-15)	**Rs. 99,625.00**

Economics of Quail farming under cage rearing system

					Brooder size	6'x2.6'x0.9'
	Mortality (%)	6	Brooder Space s.ft/bird	0.16	5 wk Body wt.(g)	190
	Weekly prod.	500	Feed req.(kg)	0.62	No. of Pen	6
Sl.	**Particulars**		**Unit**	**Qty.**	**Unit rate (Rs.)**	**Total (Rs.)**
I	**Non-recurring Expenditure**					
a.	Building 16'x16'x7' including office space		Sq.ft	256	100	25600
b.	Battery brooders with equipments		no.	6	7000	42000
	Total (A)					67600
II	**Recurring Expenditure**		(for one year)			
a.	Day old chicks		no.	27560	5	137800
b.	Feed		kg.	16120	8.5	137020
c.	Water/Elect./Medicine		no.	27560	1	27560
d.	Labour		Man-months	12	1500	18000
	Total (B)					320380
III	**Capital Requirement**					
a.	Building & equipment		-	-	-	67600
b.	Chicks		no.	2650	5	13250
c.	Feed		kg.	775	8.5	6587.5
d.	Water/Elect./Medicine		no.	2650	1	2650
e.	Labour		Man-months	1.25	1500	1875
	Total (C)					91962.5

Sl.	Particulars	Unit	Qty.	Unit rate (Rs.)	Total (Rs.)
IV	**Income**				
a.	Broilers	no.	26000	16	416000
b.	Manure	tonnes	13	450	5850
c.	Gunny bags	no.	230.29	10	2302.86
	Total (D)				424152.86
V	**Gross Profit (E=D-B)**				103772.86
VI	**Over head cost**				
a.	Depreciation on building	-	5.00%	1280	
b.	Depreciation on battery brooders	-	10.00%	4200	
c.	Interest on capital investment	-	12.00%	11035.5	
d.	Maintenance of building and equip.		5.00%	3380	
	Total (F)				19895.5
VII	**Net profit (E-F)**				83877.36
VIII	**Net profit per bird**				3.23
	Net profit per kg				16.98
	Capital requirement per bird started (Rs.)				34.7

I	Objective	To provide financial assistance to beneficiaries with training and experience who are willing to take up production of quails for meat purpose in the vicinity of the urban areas.
II	Advantages	* Economic utilisation of space - 10 birds/sqft. * Short generation interval (3-4 generations in a year) * Fast growing bird - can be sold at 5 weeks * Can be used as ready to cook meat, pickled meat and tandoor quail * Start producing eggs at 6-7 weeks of age and continue to give high egg production upto 24 weeks of age (90 eggs/bird) * Egg size is 10 gm. and can be used as boiled egg or egg pickle * Feed consumption is low * Weight of broiler bird is 110 gm and of layer 130 gm
III	Source of chicks	CARI, Port Blair UAS, Bangalore CARI, Izatnagar CPBF, Chandigarh and Mumbai
IV	Project components	Sheds, Cages, Hatchery building, Processing and dressing room, Setters and Hatchers, Cooler for egg room, Deep freezer, MI structure, Working capital
V	Unit size	Breeder unit - 400 Females + 200 Males Rearing unit - 1000 Birds/Batch/Week
VI	Unit Cost/Bank loan	Rs. 4.00 Lakhs/Rs. 3.0 Lakhs
VII	Repayment period	Graded instalments over a period of six years. No grace period.
VIII	Implementation	A & N Islands, Maharashtra, Kerala, Tamil Nadu, Chandigarh, Calcutta, Mumbai & Hyderabad are also potential places for the scheme.