

## A Study on Profit Analysis of Layer Quail Farming in Northern Kerala

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### ABSTRACT

*A study on layer quail farmers was carried out to assess the annual expenditure and income from quail rearing under field condition. Altogether, hundred and twenty layer quail farmers from three districts in Kerala namely, Wayanad, Kozhikode and Malappuram were selected for the study using multistage random sampling. A well-structured, pre-tested interview schedule were prepared for collection of primary data. The study was conducted in five different categories of farmers based on the flock size as very small (100-200 birds), small (201-500 birds), medium (501-2000 birds), large (2001 to 30000 birds) and very large (above 30000 birds). The study revealed that more than half (57.33 per cent) of the layer quail farmers under the study were had a flock size ranging from 501 to 2000 birds which was found to be the same flock size range which got highest net return per bird per annum. Various socio-economic parameters followed by gross and net income from the layer quail farming of these areas were analysed and tabulated.*

**Keywords:** Quail farming, Expenditure, Income, Net profit, Kerala

### INTRODUCTION

The bird Japanese quail originated from a wild environment just as any other domesticated animal and was first domesticated in Japan in 1595. Altogether, 45 species of quail worldwide, but only two species of quail are widespread in India out of which the black-breasted jungle or rain quail (*Coturnix coromandelica*) found in the jungle and the brown-coloured Japanese quail (*Coturnix coturnix japonica*), bred for meat and used for commercial purposes. In India, quail keeping

started in 1974 at Izatnagar, when Central Avian Research Institute, introduced germplasm of domesticated quail varieties from Japan and then improved in 1983 at Tamil Nadu.

Broiler quail can be sold at 5 weeks of age. Quail start laying eggs at the age of 6 weeks and continue laying eggs up to 46 weeks of age. It becomes mature at the age of six to seven weeks then start laying eggs with a high rate of clutch up to 280 number of eggs.

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The advantage of quail farming is it requires minimum floor space with low capital. In India, in the last two decades, quail had introduced to the Indian sub-continent as an alternative avian species in the progressing poultry industry to mitigate chronic protein deficiency among the Indian population. The quail meat is popular for its high protein, essential fatty acids and minerals such as sodium, potassium and iron. Quails farming could reduce protein deficiency in developing countries because quail products had proven to be relatively cheaper animal proteins.

In Kerala, poultry entrepreneurs started commercial quail farm and popularizing among rural farmers, especially unemployed youth as it requires less investment and also constant income for the farmers. The quail has the advantage of small size, short life cycle, rapid growth rate, good reproductive potential and shorter hatching periods when compared with the different species of poultry (Rajnarayan 2008). The present study was undertaken to ascertain Income and Expenditure in various farms in layer quail farming in Northern districts of Kerala namely, Malappuram, Kozhikode and Wayanad.

#### MATERIALS AND METHODS

The study was conducted in Malappuram, Kozhikode and Wayanad districts in Northern part of Kerala during 2018-19 financial year. The data were collected on annual expenditure and income from layer quail farming from primary as well as secondary sources using well structured and pre-tested interview schedule. Altogether, one hundred and twenty layer quail farmers were selected from the three districts using multistage random sampling. Opinion of experts in the field like veterinary surgeon, Extension persons in the area were consulted while finalizing the sample for the study. Participatory Rural Appraisal and farmers group discussion were recorded for assessing the present status of layer quail farming in the area (Onyewuchi, 2013). The information related to the strength, weakness, opportunity and challenges of layer

quail farming in the study area along with expenditure, income, net returns were recorded.

The selected layer quail farmers were classified in to five categories based on flock size viz., Category I- very small (100-200 birds), Category II-small (201-500 birds), Category III- medium (501-2000 birds), Category IV- large (2001-30,000 birds) and Category V- very large (above 30,000 birds) as done by Siddiqui (1996). The details of number of layer quail farmers in each category selected, land holding, flock range, average flock size, system of layer quail farming and Benefit : Cost ratio in different categories are given in Table 1.

#### RESULTS AND DISCUSSION

Out of 120 quail farmers data studied, 57.50 per cent of the entrepreneurs were having 501-2000 quails and considered as Category III (medium) layer quail farmers. Only 0.83 per cent were having more than 30,000 quail stock during the study period. All the respondents were having this quail business for the last minimum three years. The average flock size for category I,II,III,IV and V of layer quail farmers were 182, 368,1271, 16252 and 30001 respectively. All the quail farmers were had collected first hand information through the peer groups or undergone trainings conducted in their localities either by non-government organizations or Animal Husbandry Department.

Layer quail farmers mostly rear their birds in intensive system. Very small and small farmers i.e., farms having a flock size less than 500 birds rear the birds in cage system. Whereas, medium to very large farmers i.e., farms having a flock size ranging from 501 to more than 30,000 birds prefer deep litter system of rearing. This is mainly because as the flock size increases the problem regarding space availability as well as general hygiene of farms will be of paramount importance. So, in order to avoid overcrowding, pecking and to maintain farm hygiene, large farmers prefer deep litter system.

**Table 1: Categorisation of layer quail farms based on flock sizes**

Categories	Very small (I)	Small (II)	Medium (III)	Large (IV)	Very large (V)
No of farmers rearing layer quail birds	15 (12.50%)	28 (23.33%)	69 (57.50%)	7 (5.83%)	1 (0.83%)
Land holding	up to 5 cents	5.1 to 10 cents	10.1 to 50 cents	50.1 acres to 1 acres	above 1 acres
Flock range	100-200	201-500	501-2000	2001-30000	above 30000
Average flock size	182	368	1271	16252	30000
Farming system	Intensive system (Caged system)	Intensive system (Caged system)	Intensive system (Deep litter system)	Intensive system (Deep litter system)	Intensive system (Deep litter system)

The farmers in category III were marginal land holders having 10-50 cents of land. They rear birds with minimal initial investments, besides their home and used locally available materials for shed construction as well as feeding the birds. The income expenditure statement of this entire category was summarized in Table 2.

While, comparing fixed cost between the different farmers there was 5-7 per cent of total expenditure spent on shed construction, 0.7 to 1.0 per cent on equipments costs. The initial investment cost on chicks purchases ranges between 10.0 to 11.0 per cent. The average purchase cost of adult layer quail is Rs.37 to Rs.38. Two full time labour and three part time labour required to maintain a farm with an average flock size of 16,252 layer quail birds. Whereas, four full time labour and two part time labour required for a layer quail farm with an average flock size of 30,000 layer quail birds. The cost spent on labour per farm per year was found to be 5.09 per cent and 4.74 per cent of total expenditure for category IV and V respectively. Labour cost forms a vital recurring expenditure and that decides the profit of the farm.

Obviously, as expected the major source of income was from the sales of quail eggs (93.47%) followed by sales of existing stock as quail meat (6.01%), sales of gunny bags (0.30%) and sales of litter materials (0.22%). The quail egg prices are more or less stable in Kerala which is less affected by spatial and temporal variations which is different from the studies of Serma et al, (2016). The annual net profit per bird was highest in category III (Rs. 252.36).

All category got feed price ratio of more than 1.4 indicate the profitability of this enterprise as stated by Narahari and Rajani (2005). The annual gross and net income per household/ farm appreciably increased with the increase of flock size. Whereas, the net return per bird showed an increasing trend initially and reaching a peak level at the medium category of flock size (category III) and showed a steady decreased level afterwards. In this study it was understood, category III farm size shown better net profit per bird which was 11.28 per cent and 9.84 per cent more than Category IV and Category V farms respectively.

**Table 2: Income Expenditure of Layer quail farms**

Sl. No.	Category	Very small (I)	Small (II)	Medium (III)	Large (IV)	Very large (V)	
		<b>Expenditure (Rs)</b>					
	Average flock size	182	368	1271	16252	30001	
	<b>Fixed Cost</b>						
1.	Shed construction	2500.00	5000.00	30000.00	30,0000.00	6,00,000.00	
2.	Equipments Cost	525.00	1137.50	3750.00	44,800.00	82,500.00	
3.	Cost of chicks	5700.00	13300.00	47500.00	6,08,000.00	11,40,000.00	
4.	Depreciation on shed	0.0	0.00	0.0	30,000.00	60,000.00	
5.	Labour wages	0.00	0.00	0.00	30,0000.00	5,25,000.00	
	Subtotal A	<b>8,725.00</b>	<b>19,437.50</b>	<b>81,250.00</b>	<b>7,42,800.00</b>	<b>24,07,500.00</b>	
	<b>Variable Cost</b>						
1.	Cost of feed	43200.00	1,00,800.0	345,000.00	46,08,000.0	8640000.00	
2.	Veterinary aids	225.00	525.00	1875.00	9200.00	33000.00	
	Subtotal B	<b>43425.00</b>	<b>1,01,325.0</b>	<b>3,46,875</b>	<b>46,17,200</b>	<b>86,73,000</b>	
I	Total Expenditure (A+B)	<b>52150.00</b>	<b>120762.50</b>	<b>428125.00</b>	<b>53,60,000</b>	<b>110,80,500</b>	
		<b>Income (Rs)</b>					
1	Value of existing stock for sales as meat	5400.00	12600.00	45000.00	616000.00	2280000.00	
2	Sales of quail eggs	84000.00	196000.00	7,00,000.0	8893440.00	16588800.00	
3	Sales of gunny bags	270.00	630.00	2250.00	28800.00	54000.00	
4	Sales of litter	195.00	455.00	1625.00	47360.00	130200.00	
II	Gross income (1+2+3+4)	<b>89865.00</b>	<b>209685.00</b>	<b>748875.00</b>	<b>9585600.00</b>	<b>17973000.00</b>	
	Net income (I –II)	<b>37715.00</b>	<b>88922.50</b>	<b>320750.00</b>	<b>3685600</b>	<b>6892500.00</b>	
	Net profit / bird	208.37	242.30	<b>252.36</b>	226.78	229.75	
	B:C ratio	1.72	1.74	1.75	1.62	1.62	
	Feed Price Ratio	1.94	1.94	2.02	1.93	1.92	

In large and very large category layer quail farms, labour cost which contributes about 5.0 to 7.0 per cent of total recurring cost invariability affect the profit share of the farmers (Hoque et al, 1996). More than that, these large and very large flock sized layer quail farms struggle to find steady, immediate, round the year market for their products. Besides that, additional expenses over transportation, storage of eggs and feeds adds additional expenses to the farms and all these factors adversely affect the profit share of the

large and very large layer quail farmers in the study area. Hence, mechanisation and automisation of farms, usage of modern techniques for storage of eggs, value addition of products and application of innovative marketing strategies must be applied to improve the profit share of large and very large layer quail farmers in the study area

### CONCLUSION

This study revealed that more than half (57.33%) of the layer quail farmers under the

study were had a flock size ranging from 501 to 2000 birds which was found to be the same flock size range which got highest net return per bird per annum. It also understood decrease in net return per bird as the flock size increases, which might be due to extra labour cost, whereas in Category III farms, no farmers were engaged. The average requirement of eggs per day in particular might be another reason for the Category IV and V farmers not able to sell in other markets. But still there was steady market demand for the quail eggs in the market and immense scope for commercial layer quail farming in Kerala based on local market demand.

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