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**Santoshkumar**

M.V.Sc Scholar, Department of Veterinary and AH Extension, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala, India

**TS Rajeev**

Assistant Professor, Department of Veterinary and AH Extension, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala, India

**Reeja George P**

Assistant Professor, Department of Veterinary and AH Extension, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala, India

**Gleeja VL**

Assistant Professor<sup>4</sup>, Department of Statistics, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala, India

**Anjali K Babu**

M.V.Sc Scholar, Department of Veterinary and AH Extension, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala, India

**Correspondence**

**Santoshkumar**

M.V.Sc Scholar, Department of Veterinary and AH Extension, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala, India

## Economics of commercial broiler production on non-contract and contract farms of Malappuram district, Kerala

Santoshkumar, TS Rajeev, Reeja George P, Gleeja VL and Anjali K Babu

### Abstract

The present study was conducted to evaluate the economics of broiler production among non-contract and contract farms in Malappuram district of Kerala state. On detailed analysis of the economics of commercial broiler chicken production, the total production cost on non-contract and contract farms were Rs.71.01 and Rs.5.34 respectively. The share of fixed cost in total cost was 3.82 and 53.13 per cent while variable cost was 96.18 and 46.87 per cent in non-contract and contract farms respectively. The gross returns per kilogram of live weight was Rs.78.59 and 6.85 in non-contract and contract farming respectively. Net returns over variable cost and net returns over total cost were found to be Rs.10.78 and Rs.8.09 in non-contract farms whereas in contract farms it was Rs.4.35 and Rs.1.51 respectively. Average flock size was 3415 and 3563 birds per batch, livability 97.18 and 96.65 per cent, average feed conversion ratio 1.67 and 1.68, average live weight per bird 2.15 and 2.15 kilogram in non-contract and contract systems respectively. Benefit-cost ratio was analyzed and found to be 1.11 and 1.28 in non-contract and contract farming system. In the present study it was observed that non-contract farming was profitable provided there was less fluctuation in the market price of chicken as well as demand and demand for chicken meat however, broiler farming does not look promising for investors in the contract farming system as the net return over total cost was very less.

**Keywords:** Fixed cost, variable cost, total cost, livability, feed conversion ratio, benefit cost ratio

### Introduction

The global importance of livestock and their products is increasing as consumer demand in the developing countries expands with population growth and rising incomes. This growth in consumption is reflected in improvements in the average human nutritional status due to intake of animal protein in the form of livestock products such as meat and eggs. Total meat production in the world during the year 2016 was 321 million metric tons of which 117.2 million metric tons of meat was from the poultry sector and accounting for the highest share among different types of meat contributing to 36.50 per cent of the total meat production (FAO, 2017). Species wise meat contribution in India for 2016-17 indicates that the contribution of poultry meat to the total meat production in India has increased from nearly 46 per cent in 2015-16 (DAHD, 2016) to 47.32 per cent in the year 2016-17 (BAHS, 2017) <sup>[2]</sup>. The broiler industry is growing at a rate of 10-12% per annum. In India, the per capita consumption of poultry meat was 3.60 kilogram which is rather low when compared to the world average of around 17 kg per year (Intodia, 2016) <sup>[10]</sup>. Poultry occupies a pivotal position among livestock based vocations that have the potential to bring about rapid economic growth which can benefit the weaker sections of the farmers. Some of the motivating factors for the individuals to enter poultry farming were additional income from farming, easy to manage, early returns on investment, availability of land and water, failure of agriculture, availability of techniques and inputs at doorstep whereas the influencing factors to enter in contract broiler farming were assured income, no marketing risk, less financial requirement, domination of integrators and inadequate knowledge of poultry farming (Sridharan and Saravanan 2013) <sup>[15]</sup>. Kerala is the seventh largest meat producing state in the country contributing 6.3 per cent of the meat production in India. Out of the total meat production in the state, 40.26 per cent is contributed by the poultry sector. The share of poultry meat in total meat production in Kerala increased from 37 per cent during 2014-15 year to 40.26 per cent during 2016-17 year. There was an increase in poultry meat production in Kerala state from 175.02 thousand tons in 2015-16 to

188.76 thousand tons during the year 2016-17 (BAHS, 2017) [2]. Kerala is one of the states in India where meat is consumed on a larger scale. Nearly 70 per cent of the state population consumes non-vegetarian food items. The present study has been undertaken in Malappuran district of Kerala state with the aim of exploring the economic analysis of broiler farming under non-contract and contract commercial broiler production systems.

**Materials and Methods**

Malappuram district was selected for the study as district tops in total meat as well as poultry meat production in Kerala State. The sampling units selected randomly from the commercial broiler production farmers in Tanur and Perinthalmanna block panchayaths (B.Ps.). Thirty farming units each from those engaged in non-contract and contract farming systems were selected randomly from the two blocks (15 each from selected BPs). Data were collected through personal interviews using a structured pretested interview schedule. Triangulation-employing a multiple tool approach viz. interviews with direct non participant observations was done to ensure the reliability of data. Depreciation on fixed assets was worked out by straight line method at the rate of 10 per cent per annum to total value. Interest on fixed and working capital was worked out at the rate of 14.00 and 7.00 per cent per annum to the total value. For the economic analysis, fixed cost, variable cost, gross return, net returns were calculated using standard procedures.

**Results and Discussion**

The results in Table 1 indicate that the average per cent of fixed cost and variable cost in total cost was 3.82 and 96.18 per cent in non-contract farming. This is in consonance with the findings of Akther *et al.* (2009) where the authors reported that the fixed cost accounted for 3.20 per cent and 96.80 per cent was variable cost. Kumar (2016) [11] reported that 3.76 and 96.23 were the fixed and variable cost share in total cost of production in non-contract farming. The share of fixed and variable cost in contract farming amounted to 53.13 and 46.87 per cent of total cost which was contradictory to the findings of Kumar (2016) [11] who reported that 35.48 and 64.52 per cent accounted for the fixed and variable cost in the total cost. The average production cost per kilogram of live broiler weight was Rs.71.01 and Rs.5.34 in the non-contract and contract farming systems. Dahake *et al.* (2016) [3] reported that the production cost of one kilogram live broiler weight was Rs.63.31 in non-contract farming. Kumar (2016) [11] reported that Rs.53.97 and Rs.4.42 were the production cost per kilogram in non-contract and contract farming respectively. These findings are lower than the findings of present study which may be due to

variation in input components price and lower flock size. The data in the Table 2 indicate that returns from sales of broiler birds accounted to 98.85 and 86.89 per cent of the total gross return in non-contract and contract farming respectively. The gross return per kilogram was Rs.78.59 and Rs.6.90 in non-contract and contract farming system respectively. Rahman *et al.* (2016) [12] reported that 97.75 per cent of the obtained gross return was from the sale of broiler birds. Kumar (2016) [11] reported that 97.86 and 77.97 per cent of the gross return was from the sale of broiler birds whereas Rs.69.13 and Rs.6.41 were the gross returns per kilogram broiler live weight on non-contract and contract farming systems respectively. Reddy (2016) [13] reported that 97.90 and 84.18 per cent of gross returns was from the sale of broiler birds whereas Rs.64.83 and Rs.4.87 were the gross returns per kilogram on non-contract and contract farming systems respectively. Gopala *et al.* (2017) [8] reported that in contract farming Rs.6.46 was the gross returns per kilogram which constituted 88.85 per cent of the returns from the sale of broiler birds and 11.15 per cent was from the sale of manure and gunny bags. The gross returns obtained in the present study were comparatively higher than earlier reports and this could be due to the higher market price and demand in the studied region.

The data in the Table 3 indicates that net returns per kilogram were found to be Rs.8.09 and 1.51 in non-contract and contract farming respectively. Reddy (2016) [13] reported that the net return was Rs.8.84 and Rs.1.51 for non-contract and contract farms which is in consonance with the findings of the present study. Kumar (2016) [11] reported that Rs.7.15 and Rs.1.99 were the net return in non-contract and contract farming respectively. The authors also opined that return depends most often on market demand for chicken.

Data in the Table 4 reveal that the livability was 97.18 and 96.65 per cent, 1.67 and 1.68 were the feed conversion ratios, 2.15 and 2.16 were live broiler bird weights and 1.11 and 1.28 were the benefit cost ratios on non-contract and contract farming system respectively. There was not much of a difference with regard to the livability, feed conversion ratio and live weight of the birds in both systems but the benefit cost ratio was higher in contract farming when compared to non-contract farming indicating higher production efficiency of the contract farming system. Borah and Halim (2017) reported that on an average, the broiler chicken meat produced per bird was 2.18 kilogram. Dahake *et al.* (2016) [3] reported that the benefit-cost ratio was 1.15. Singh (2017) reported that the average body weight at 42.21 days of age was 1.80 and FCR was 1.60 and the livability per cent was 95.00 per cent

**Table 1:** Investment pattern on non-contract and contract broiler chicken farming systems

S. No.	Particulars	Non-Contract n=30		Contract n=30	
		Per batch (Rs.)	Per Kg. (Rs.)	Per batch (Rs.)	Per Kg. (Rs.)
1	Day old chicks	121845 (24.18)	17.02 (24.18)	--	--
2	Feed	311890 (61.89)	43.83 (61.89)	--	--
3	Litter	3423.97 (0.68)	0.52 (0.68)	3482.70 (8.89)	0.47 (8.89)
4	Labour	8655.83 (1.72)	1.33 (1.72)	10017.50 (25.57)	1.36 (25.57)
5	Medicine	3744.29 (0.74)	0.51 (0.74)	--	--
6	Electricity	1946.67 (0.39)	0.29 (0.39)	1845.5 (4.71)	0.25 (4.71)
7	Disinfectant	700.19 (0.14)	0.1 (0.14)	956.94 (2.44)	0.13 (2.44)
8	Miscellaneous	823.47 (0.16)	0.12 (0.16)	856.81 (2.19)	0.12 (2.19)
9	Interest on variable	31712.06 (6.29)	4.46 (6.29)	1201.16 (3.07)	0.16 (3.07)
10	Total variable cost	484741.4 (96.18)	68.18 (96.18)	18360.6 (46.87)	2.5 (46.87)
11	Depreciation on shed	6738.75 (1.34)	1.01 (1.34)	7081.11 (18.08)	0.96 (18.08)
12	Depreciation on equipment	1490.20 (0.30)	0.23 (0.30)	1645.79 (4.20)	0.22 (4.20)
13	Interest on fixed assets	11012.63 (2.19)	1.59 (2.19)	12088.24 (30.86)	1.65 (30.86)
14	Total fixed cost	19241.58 (3.82)	2.83 (3.82)	20815.14 (53.13)	2.83 (53.13)
15	Total cost	503983 (100)	71.01 (100)	39175.74 (100.00)	5.34 (100)

(Value in the bracket represents per cent of the total production cost)

**Table 2:** Gross returns on non-contract and contract broiler chicken farming system

S. No.	Source of returns	Non-Contract n=30		Contract n=30	
		Per batch (Rs.)	Per Kg. (Rs.)	Per batch (Rs.)	Per Kg. (Rs.)
1	Sales of broiler birds	555379.6 (98.85)	77.69 (98.85)	43837.46 (86.89)	5.95 (86.89)
2	Sales of manure and empty bags	6458.97 (1.15)	0.90 (1.15)	6612.05 (13.11)	0.95 (13.11)
3	gross returns	561838.6 (100.00)	78.59 (100.00)	50449.51 (100)	6.90 (100)

(Value in the bracket represents per cent of the total gross returns)

**Table 3:** Net returns on non-contract and contract broiler chicken farming system

S. No.	Particulars	Non-Contract n=30		Contract n=30	
		Per batch (Rs.)	Per Kg. (Rs.)	Per batch (Rs.)	Per Kg. (Rs.)
1	Gross returns	561838.6	78.59	50449.51	6.90
2	Net returns over variable cost	77097.2	10.78	32088.91	4.35
3	Net returns over total cost	57855.6	8.09	11273.77	1.51

**Table 4:** Production parameters on non-contract and contract broiler chicken farming system

S. No.	Parameter	Non-Contract n=30	Contract n=30
1	Average flock size (No.)	3415	3563
2	Livability (%)	97.18	96.65
3	Feed conversion ratio	1.67	1.68
4	live weight per bird (Kg)	2.15	2.16
5	Marketing age (in days)	42	42
6	Benefit-Cost Ratio	1.11	1.28

### Conclusion

In the present study it is observed that non-contract farming is profitable provided less fluctuation in the market price of chicken as well as demand however, broiler farming does not look promising for investors in the contract farming system as the net returns over total cost was very less. Organized marketing facilities for the broiler birds may improve the net returns gained by the farmers which in turn make them to rear broiler birds independently.

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