

**RESEARCH ARTICLE :**

# Economic analysis of broiler production in Wardha district

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**SUMMARY :** In this study an attempt has been made to study the economic analysis of broiler production in Wardha district with views to study the cost of broiler production. For the present study twenty broiler units from Wardha district were selected and grouped into small (1-2000 birds), medium (2001-4000 birds) and large (40001 birds and above). The study was based on the primary data of broiler production collected from the selected sample and economics of broiler production was worked out by using standard cost concept. The study revealed that, the cost of broiler production was highest in large unit (Rs. 3560277) followed by medium unit (Rs. 2526301) and small unit (Rs. 1124360), While the per kg cost of production was highest in small unit (Rs. 65.27) followed by medium (Rs. 63.29) and large (Rs. 61.44) The study also revealed that the benefit cost ratio was more in large unit (1.19) as compared to medium unit (1.15) and small unit (1.11)

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**KEY WORDS :**

Broiler, Costs, Economics, Production

## BACKGROUND AND OBJECTIVES

Broiler industry is one of the profitable agro-industries which can effectively tackle the problems of unemployment and underemployment in the rural areas, particularly of small and marginal farmers. Broiler farming can be adopted under a wide range of climatic conditions and can generally be combined conveniently with other farm enterprises. The land and capital requirements for this enterprise being not large, it ensures a regular flow of income through the marketing of poultry products. In spite of a spectacular growth in the poultry sector during the past two decades, a huge gap exists between

availability and requirement of poultry products. An increase in per capita consumption by one egg and 50 g of poultry meat can create employment for about 26,000 persons per year. The present per capita availability of poultry meat is 1.8 kg against the requirement of 11 kg, as per the National Committee on Human Nutrition in India ([www.indiastat.com](http://www.indiastat.com), 2006). Therefore, to meet the domestic requirements, there is a need of about six times increase in meat production. Increase in population growth, changing life-style, shifting of food habits, rapid urbanization, increased per capita income, awareness about health care, etc. are

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contributing towards rising demand of poultry products. In India, the production of broilers increased from 5.20 million tonnes in 1991-92 to 31.60 million tonnes in 2011-12. In broiler production, India stands 2nd in the world with 3.16 million tonnes of broiler meat.

Poultry meat is an important source of high quality proteins, minerals and vitamins to balance the human diet. Specially developed breeds of chicken meat (broiler) that has ability of quick growth and high feed conversion efficiency are now available. Depending on the farm size, broiler farming can be the main source of family income or can provide subsidiary income and gainful employment to farmers throughout the year. Poultry manure has high fertilizer value and can be used for increasing the yield of any crop. Broilers are marketed at an age of around 42 days and chickens reared for meat production. Broiler production is a short-term enterprise. Therefore, a number of batches can be raised within a year, or it could be a part-time job. A number of strains exist in various regions of the country for broiler production, which have a genetic potential to achieve 2.0 kg live weight at the age of 42 days.

## RESOURCES AND METHODS

### Selection of samples :

For the present study Wardha district was selected purposively. A total number of 20 broiler units of different capacities were selected, who have maintained clean, good records and therefore serve the purpose of obtaining requisite information, for economic analysis and cover the objectives of present study. Selected units then categorized into small, medium and large units according to broiler unit size (Table A).

### Collection of data :

The selected broiler units were personally interviewed and required data on fixed costs, variable costs and cost of chick, feed, medicine, cost of labour, cost of electricity etc. was collected from them using survey method with a specially designed pretested

questionnaire.

### Analysis of data :

The tabular analysis was performed to study the economics of broiler production to work out cost per kg. of broiler production. The following costs were considered while working out the cost of production of broiler and cost per kg of broiler production.

#### Cost 'A' :

##### Chick cost :

The chick cost was worked out by considering the actual amount paid to the hatchery with miscellaneous expenses like packing, transportation, unloading etc.

##### Feed cost :

This is the major item of variable cost which is required for feeding the poultry birds. The feed cost was calculated by considering the quantities of different feeds fed to the birds on the farm and with their respective prices. Transportation charges of feed were also included.

##### Labour cost :

Human labour included the permanent labourers as well as casual labourers utilized for broiler production. The daily wages paid to the casual labourers and monthly wages paid to permanent labourers were considered. The laboures engaged for the transportation of feed, cleaning, watching, watering and miscellaneous works were also considered for evaluation of labour cost. Family labour expenses were also taken into consideration while estimating labour charges.

##### Miscellaneous :

Miscellaneous expenses include the charges paid against electricity, medicines, watering, feeder charges etc. The variation in these charges will depend upon the size of the poultry unit, number of working hours and intensity of incidence of diseases etc. these items were calculated from the amount paid to the different shop

Sr. No.	Size group	Criteria	No. of units	Total no. of birds (around the year)
1.	Small units	1-2000 birds	8 (40.00)	68000 (21.18)
2.	Medium units	2001-4000 birds	9 (45.00)	165000 (51.40)
3.	Large units	4001 birds and above	3 (15.00)	88000 (27.41)
		Total	20 (100)	321000 (100)

Figures in parentheses indicate percentages to the total

keeper as mortality by each unit.

#### *Mortality losses :*

Mortality losses were worked out by knowing the total number of birds and actual number of birds expired in each batch. Mortality losses were included in variable cost.

#### *Interest on working capital :*

This was calculated at the rate of 6 per cent on average investment in the form of variable cost required during the year

#### **Cost 'B' :**

##### *Depreciation on building and equipment :*

The depreciation on poultry building and equipment was worked out by straight line method. The total cost of building was divided by life of building and the value was estimated at the rate of 10 per cent per year.

The depreciation of equipment was calculated as follows.

$$\text{Annual depreciation} = \frac{\text{Purchase value} - \text{Junk value}}{\text{Number of years of expected life}}$$

#### *Interest on fixed capital :*

Interest on fixed capital was calculated at the rate of 10 per cent of the total cost of building and equipment's of the selected poultry units. The rate of interest on long term loan was considered in this respect.

#### **Activities of broiler production during different months :**

In order to know extent of entrepreneurial activity during every month, the month wise production and sales were worked out. Average number of birds sold and their body weight was worked out in the present study. This will also help in assessing the demand and supply position during every month represented as statement in a tabular and graphical forms.

#### **Total cost and gross returns from broiler production:**

Total costs and gross returns from broiler production activity have been worked out individually for every unit. The percentage net return on investment was also worked out.

#### **Cost of production of broiler per kg:**

Cost of production of broiler per kg is essential to decide the selling price as well as to decide the size of business. Cost of production per kg was therefore calculated for all the cost components and the total cost, gross returns were worked out.

#### **Some important economic terms used :**

Some important economic terms used in the study are as follows

##### *Variable cost :*

Variable cost includes the cost of variable inputs. Such as cost of chicks, feed cost, labour charges, mortality losses, miscellaneous charges etc.

##### *Fixed cost :*

Fixed costs are these which do not change in magnitude as the amount of output of the production changes. These costs include depreciation on buildings and equipments, interest on capital investment, insurance charges and taxes are also included in this category.

##### *Total cost :*

Total cost is the sum of total variable costs and total fixed cost

$$(T.C. = T.V.C. + T.F.C.)$$

##### *Gross returns :*

Gross returns are calculated by total sale of broiler at the respective prices during the year.

#### **Net returns or profit :**

Net returns or profit and loss are calculated by subtracting total cost from gross returns.

$$\text{Net returns or profit} = \text{Gross returns} - \text{Total cost}$$

## **OBSERVATIONS AND ANALYSIS**

The results obtained from the present study as well as discussions have been summarized under following heads:

#### **Cost of broiler production :**

##### *Annual gross returns from broiler production :*

From Table 1 it is revealed that number of chicks purchased was 8500, 18333 and 29,333 for small, medium and large units, respectively throughout year. Mortality

**Table 1 : Annual gross returns from broiler production**

Sr. No.	Particulars	Small	Medium	Large
1.	No. of chicks purchased	8500	18333	29333
2.	Mortality (No. of birds)	748	1637	2933
3.	No. of birds sold	7752	16697	26400
4.	Quantity sold in kg.	16596.75	38584.67	57000
5.	Average wt/birds in kg.	2.15	2.29	2.20
6.	Average chick price (Rs./birds)	20	19.78	19.66
7.	Average sale price (Rs./kg)	75.25	76.11	74.67
8.	Gross returns in Rs./ year	1248687	2937843	4251000

losses were 748, 1637 and 2,933 for small, medium and large units, respectively. Average chick price and average selling price were Rs.20, Rs.19.78, Rs.19.66 and Rs.75.25, Rs.76.11 and Rs.74.67 for small, medium and large units, respectively. Total quantity of live broiler sold by units was 16,596.75 kg, 38,584.67 kg and 5,700 kg. for small, medium and large units, respectively.

The average gross return received by farmer was Rs.12,48,687, Rs.29,37,843 and Rs.42,51,000 for small, medium and large units, respectively per annum.

#### *Total annual cost, gross return and cost of production of broiler per kg :*

Variable costs and fixed costs are the different components of the total cost. Table 2 revealed that overall situation of cost and net returns obtained in the selected poultry units for the present study.

Total cost and returns of poultry units of different sizes studied are also shown in Table 2. The total fixed cost was Rs.3,84,806.30, Rs.8,09,252.20 and Rs.12,33,917 for small, medium and large units, respectively. Interest on fixed capital @ 10% was Rs.38,480.63, Rs.80,925.22 and Rs.1,23,391.70 for small, medium and large units respectively. Depreciation on fixed capital was estimated to Rs.2,08,993.60, Rs.4,18,004.11 and Rs.6,13,876.30 for small, medium and large units, respectively.

Total variable cost was found Rs.10,62,216 Rs.24,50,938 and Rs.34,09,693 for small, medium, large units, respectively. Interest on variable cost @ 6% was Rs.72,277.68, Rs.1,45,056.30 and Rs.2,15,741.60 for small, medium, large units, respectively. Cost of chick and cost of feed was the main component of variable cost. The cost of chicks and cost of feed was Rs.1,69,575, Rs.6,78,666.70, Rs.5,79,000 and Rs.7,40,118.80, Rs.16,86,022 and Rs.23,17,667 for small, medium and

large units, respectively. Mortality losses in value terms observed were worth Rs.74,957.50, Rs.2,06,490.90 and Rs.2,72,691.70 for small, medium, large units, respectively.

Total cost was found to be Rs.11,24,360, Rs.25,26,301 and Rs.35,60,277 for small, medium, large units, respectively. Total gross return by selling of live broiler was observed that Rs.12,48,687, Rs.29,37,843 and Rs.42,51,000 for small, medium, large units respectively. Net returns observed were Rs.1,24,327, Rs.4,11,541.60 and Rs.6,90,723.30 for small, medium, large units respectively. B : C ratio was high in large units 1 : 1.19 followed by medium units 1 : 1.15 and very low in small unit 1 : 1.11.

Cost of broiler production per kg was revealed that cost per kg is very high in small unit *i.e.* Rs.65.27 followed by medium units Rs.63.29 and very low cost observed in large units was Rs.61.44 because of scale of production.

Similar results were observed by Bhende (2006) in his study on production and cost of broiler meat in Karnataka. Similarly Singh *et al.* (2010), Halkatti *et al.* (2010) and Abedullah Muqbool and Bukhsh (2007) also studied economic of broiler production. Economics of broiler marketing in Allahabad district of Uttar Pradesh was studied by Ahmed Hakim and Hakim (2010).

#### **Conclusion:**

From this study, it is concluded that, the cost of feed material was highest among the variable costs and accounted Rs.7,40,118.80, Rs.16,86,022 and Rs.23,17,667 for small, medium and large units, respectively while annual gross return from broiler production, number of broiler chick purchased annually were 8,500, 18,333 and 29,333 in case of small, medium and large units respectively. The study also reveals that, the mortality losses accounted Rs.74,957.50, Rs.2,06,490.90 and Rs.2,72,691.70 in case of small, medium and large poultry

<b>Table 2 : Total annual cost, gross return and cost of production of broiler per kg</b>				<b>(Rs.)</b>
Sr. No.	Particulars	Small	Medium	Large
<b>Fixed cost</b>				
1.	Building construction	3,22,500	7,00,555.6	10,83,333
2.	Store room	20,187.50	36,000	51666.67
3.	Motor pump	6687.50	12777.78	9000
4.	Pipeline fitting	2356.25	4883.33	8166.66
5.	Water tank	2937.50	3255.55	5333.33
6.	Feeder	3543.75	9822.22	12,800
7.	Waterer	4618.75	12,233.33	17,700
8.	Brooder	2875	6113.33	10,333.33
9.	Electricity fitting	3725	6766.66	11,350
10.	Ventilation cloth	6125	9877.78	17,066.67
11.	Sprayer	1275	2375	500
12.	Fogger	8750	10,000	0
13.	Fan	312.50	1500	2333.33
14.	Spray pump	537.50	1500	1666.67
15.	Weighing machine	0	0	2666.66
16.	Interest on total fixed cost @ 10%	38,480.63	80,925.22	1,23,391.70
17.	Depreciation on total fixed cost	208993.60	418004.11	613876.30
18.	Total fixed cost	3,84,806.30	8,09,252.20	12,33,917
<b>Variable cost</b>				
1.	Cost of chicks	1,69,575	6,78,666.70	5,79,000
2.	Cost of feed	7,40,118.80	16,86,022	23,17,667
3.	Cost of litter	1275	23,33.33	4166.66
4.	Cost of medicine	15,937.50	33,333.33	57,541.67
5.	Cost of vaccination	2793.75	4991.11	7740
6.	Electricity bill	12,000	30,666.67	56,000
7.	Transportation	0	0	4000
8.	Disinfectant			
	Lime	193.75	244.44	400
	Chemicals	506.25	555.55	1433.33
9.	Human labour			
	Hired male	26,500	50,000	66,666.67
	Hired female	4125	10,888.89	25,916.67
	Family male	4250	6666.66	11666.67
10.	Electric bulb	308.75	477.77	803.33
11.	Mortality losses	74,957.50	2,06,490.90	2,72,691.70
11.	Miscellaneous (Repairing)	1237.50	1944.44	4000
12.	Interest on total variable cost @ 6%	72,277.68	1,45,056.30	2,15,741.60
13.	Total variable cost	10,62,216	24,50,938	34,09,693
	Total cost = T.F.C.+T.V.C.	11,24,360	25,26,301	35,60,277
	Total gross returns	12,48,687	29,37,843	42,51,000
	Net returns	1,24,327	4,11,541.60	6,90,723.30
	B:C ratio	1 : 1.11	1 : 1.15	1 : 1.19
	Per kg. cost of broiler production (Rs./kg)	65.27	63.29	61.44

units, respectively and Average per kg price received by farmer was Rs.75.25, Rs.76.11 and Rs.74.67 for small, medium and large units respectively. Finally the study concluded that, the B:C ratio was 1:1.11, 1 : 1.15 and 1 : 1.19 for small, medium and large units, respectively.

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