

RESEARCH PAPER

Economic and potential profitability assessment of poultry farming

■ V. B. Gholap, S. R. Benke and S. N. Patil

Received : 21.05.2020; Revised : 06.09.2020; Accepted : 18.09.2020

ABSTRACT

India today is the one of the world's largest producer of eggs and broiler meat. The poultry industry in India has undergone a major shift in structure and operation during the last two decades transforming from a mere backyard activity into a major industry with the presence of a large number of integrated players. Present study was conducted to examine the economic and potential profitability assessment of poultry farming. The study was based on the data collected from the primary source. The results revealed that the total fixed cost in RIR breed and Kadaknath breed were estimated to be Rs. 55.66 per bird and Rs. 50.61 per bird, respectively. Feed cost was the major cost item accounting 57 per cent of the total cost. BCR, IRR and PI of the project were 1.56, 57 per cent and 2.57, respectively. Similarly, NPW of the project was also positive. Project recovered its initial investment in one year one month 28 days. It shows that, this project is financially feasible.

KEY WORDS : Poultry farming, BCR, IRR, NPW, PI, BEP, Financial feasibility

How to cite this paper : Gholap, V.B., Benke, S.R. and Patil, S.N. (2020). Economic and potential profitability assessment of poultry farming. *Internat. J. Com. & Bus. Manage.*, 13(2) : 63-68, DOI: 10.15740/HAS/IJCBM/13.2/63-68. Copyright@2020: Hind Agri-Horticultural Society.

India today is the one of the world's largest producer of eggs and broiler meat. The poultry industry in India has undergone a major shift in structure and operation during the last two decades transforming from a mere backyard activity into a major industry with the presence of a large number of integrated players. This

transformation has involved a sizeable investment in breeding, hatching, rearing and processing activities.

The population of poultry stood at over 851.8 million in 2019 across India, while this number was about 535.8 million for livestock in the same year. Between 2012 and 2019, poultry population grew at an exponential 16.8 percent compared to livestock's only 4.6 per cent (Statista Research Department, 2020).

The poultry industry in India has made a remarkable growth ever since its inception and is presently emerging as a sunrise sector with a growth rate of 8.51 and 7.52 per cent in egg and broiler production, respectively (BAHS, 2019), as against 2.9 per cent for agricultural crops (Economic Survey, 2019–2020). Estimates from

MEMBERS OF THE RESEARCH FORUM

Correspondence to:

V. B. Gholap, Dr. D.Y. Patil College of Agriculture Business Management, Akurdi, Pune (M.S.) India
E-mail: vaishali_bharat@rediffmail.com

Authors' affiliations:

S.R. Benke and S.N. Patil, Dr. D. Y. Patil College of Agriculture Business Management, Akurdi, Pune (M.S.) India

the All India Poultry Breeders Association indicates that poultry contributes for USD 17.31 billion of total India's gross value and satisfies the hungers of 50 million people through direct and indirect employment. Within the poultry sector, broiler and layer segment constitutes about 65.3 and 34.7 per cent with the monthly turnover of 400 million chicks and 8,400 million eggs, respectively (ICRA, 2020). Around 1 million farmers are engaged in poultry farming activities with 85 per cent of them having less than 2 ha of land or the landless. With the annual production of 851.8 million birds, poultry in India has emerged as the most dynamic and diversified subsector. India is the third largest egg producing and fourth largest broiler producing country in the world with an estimated production of 103.3 billion eggs and 4.1 million tons of broiler meat (BAHS, 2019).

Tamil Nadu, Andhra Pradesh and Telangana states are first, second and third in poultry population whereas Assam (71.63%) and West Bengal (46.34%) have maximum growth in poultry population during the year 2012 to 2019.

Category	Population (In million) 2012	Population (In million) 2019	% Change
Total poultry	729.21	851.81	(+)16.81
Backyard poultry	217.49	317.07	(+) 45.48
Commercial poultry	511.72	534.74	(+) 4.50

(Source- 20th Livestock Census (2019))

However, there has been a very limited study on the economic feasibility of poultry enterprises existing at different location in the country and also of different sizes. Therefore, all attempts have been done in the present study to evaluate the economic feasibility of selected poultry farm in Pune district. The broad objective of study was to examine economic and profit potential of poultry farming.

METHODOLOGY

The scope of the study is limited to poultry production and their economic feasibility. The present study was conducted on the Sai Srushti Hatcheries and Poultry Farm is based on primary data. The primary data were collected through a direct interview schedule through a well-designed questionnaire. In addition to this BCR, IRR, NPW, PI and PBP were calculated for selected study unit. Collected data were analyzed by

simple tabular methods Graphical representation and statistical and mathematical tools were used in analyzing the data and in presentation of results. Following concepts are used in the present study.

Capital investment:

The fixed investment on a poultry farm comprised of investment on structures, water supply system, machinery and equipments etc.

– **Total cost** : Total fixed cost + Total variable cost.

– **Total fixed cost**: Depreciation + Interest on fixed cost

– **Total variable cost**: Chick cost + Feed cost + Labour cost + Electricity + Transportation cost + Maintenance cost + Mortality + interest on working capital etc

– **BEP** = Fixed cost / (Selling price per unit – Variable cost per unit)

– **BEP** = Fixed cost / [1 – (Variable cost per unit / Selling price per unit)]

– **Margin of safety** = Total sales – Sales at BEP.

– **Payback period** = Initial investment / Annual net cash return

– **NPW** = \sum (Net income \times Discount factor)

– **BCR** = Present worth benefit/Present worth cost

– **PI** = NPW / Initial investment

– **IRR** by trial and error method

ANALYSIS AND DISCUSSION

Sai Srushti Hatcheries and Poultry Farm is owned by the Mr. Sampat Thite and is located in Gulani, (Tal - Khed) in the state of Maharashtra. The poultry layer farming started in 2010 and expanded his business upto 5000 birds. Mr. Thite has gained very great experience in the field of poultry and hatchery in past few years. He has expanded the business of hatching service very well and created his goodwill in the market by providing good quality chicks to farmers in reasonable price as trusted brand for RIR and Kadaknath chicks.

Cost and return structure :

Total cost of project comprise of as usual fixed costs and operating or variable costs. Following Table 1 through 4 depicts the cost and returns structure of Sai Srushti Hatcheries and Poultry Farm.

Initial capital investment of poultry unit was Rs. 43,

Table 1 : Initial investment

Sr. No.	Particulars	Amount (Rs.)	Percentage
1.	Building		41.70
(a)	Shed (Brooder house, grower house, layer house)	1200000	27.83
(b)	Hatchery	200000	4.64
(c)	Store room, feed mill, staff quarters	398000	9.23
2.	Water supply structure	45000	1.04
3.	Electrical equipment's		12.99
(a)	Fan, cooler, etc.	60000	1.39
(b)	Generators (2)	500000	11.60
4.	Machinery and equipment's		44.27
(a)	Drinker and feeder (210 each)	110670	2.57
(b)	Feed mill (1)	200000	4.64
(c)	Incubator (4)	1000000	23.19
(d)	Hatcher (2)	450000	10.44
(e)	Weighing balance (2)	26000	0.60
(f)	Trolley (4)	26000	0.60
(g)	Trays and racks	58400	1.35
(h)	Cleaning set	10800	0.25
(i)	Cover	22000	0.51
(j)	Disinfecting equipment's	5000	0.12
	Total	4311870	100.00

11, 870. Amongst the total initial investment, maximum cost was incurred on machinery and equipments (44.27%) and construction of building (41.70%) followed by electrical equipments (12.99%) and water supply structure (1.04%).

Total operating cost of poultry unit was Rs. 88, 07,854. In this cost, maximum item of cost was feed cost accounting Rs. 49, 94,340 (74.6 %).

Table 2 : Total operating cost

Particulars	Amount (Rs.)	Percentage (%)
Feed cost	4994340	74.6
Medicine and vaccine	332000	3.8
Labor cost	504000	5.7
Electricity bill	188550	2.1
Transport	468800	5.3
Fuel	106000	1.2
Repairing and maintenance	16276	0.2
Miscellaneous	34553	0.4
Chick boxes	587025	6.7
Total	8807854	100.0

Per bird cost of poultry farm :

The total fixed cost in RIR breed and Kadaknath breed were estimated to be Rs. 55.66 per bird (3.17% of the total cost) and Rs. 50.61 per bird (3.01% of the total cost), respectively. It could be understood that the components of variable cost occupied the major share in the total cost of production in poultry farming. The total variable cost of the RIR and Kadaknath were estimated to be Rs. 1707.6 per bird and Rs. 1630.26 per bird accounting for 96.83 and 96.99 per cent, respectively. Among the various components of variable cost, the feed cost was the main item of expenditure.

Return structure of poultry enterprise:

The return structure of Sai poultry farms indicates the total returns from RIR breed was Rs. 12, 192, 640 and Kadaknath breed was Rs. 43, 52, 500. Among the overall total returns, RIR breed accounted for about 64.28 per cent followed by Kadaknath breed (24.95%) followed by hatching service (10.43) and manure (0.34%).

Break-even point is the point at which cost and revenue are equal the producer generates neither a profit nor a loss from its operational activities. During one year, the enterprise recorded a break – even point of Rs. 1, 25, 416.10 with 31 birds form Kadaknath breed. Similarly RIR breed layer and hatching service attain the BEP at 225 birds with returns Rs. 5, 80,578.90.

The margin of safety for RIR and Kadaknath breeds were Rs. 1, 16, 12,061 (95.24 %) and Rs. 42, 27,084 (97.12 %), respectively. This is very high margin of safety indicated that poultry layer and hatchery business was highly safe. In other words, the enterprise has the shock – absorbing capacity in the case of fluctuation in returns due to an unpredictable condition. The general results show that the poultry layer and hatchery business is highly profitable and economically viable.

Benefit cost ratio of the project was 1.56 which is greater than unity indicates that the project was economically viable. Internal rate of return was 57 per cent which was higher than the interest rate by which borrowers receive the funds from the financial institution indicated that the said project was financially feasible. Similarly, NPW of the project was also positive. Profitability index was 2.57 which are greater than one indicates that present value of future cash inflows from the investment were more than the initial investment,

Particulars	RIR		Kadakhnath	
	Amount (Rs.)	Percentage	Amount (Rs.)	Percentage
Depreciation on building	55474.93	0.90	21532.35	0.85
Depreciation on machinery and equipment	119713.14	1.94	46466.13	1.84
Depreciation on water supply structure	2603.34	0.04	1010.48	0.04
Interest on fixed cost @10%	17777.91	0.29	6900.90	0.27
Total fixed	195570.55	3.17	75909.85	3.01
Fixed cost per bird	55.88		50.61	
Chick cost	73000	1.18	54220	2.15
Feed cost	3538080	57.32	1456260	57.76
Medicine and vaccine	213405	3.46	82834	3.29
Labor cost	323971.2	5.25	125748	4.99
Electricity bill	121424.9	1.97	47130.55	1.87
Transport	293116.8	4.75	113772	4.51
Fuel	68136.8	1.10	26447	1.05
Repairing and maintenance	10284.8	0.17	3992	0.16
Miscellaneous	20569.6	0.33	7984	0.32
Chick boxes	287775	4.66	58500	2.32
Mortality	386350	6.26	206500	8.19
12% Interest on working capital	640333.7	10.37	262006.51	10.39
Total variable cost	5976447.8	96.83	2445394.06	96.99
Variable cost per bird	1707.6		1630.26	
Total cost	6172018	100.00	2521304	100.00
Per bird total	1763.48		1680.87	

Table 4: Return structure of poultry enterprise				
Particulars		No. of birds sold	Amount (Rs.)	Percentage (%)
RIR	Chicken	3500	980000	64.28
	Hatchery	511600	11212640	
Kadakhnath	Chicken	1500	712500	24.95
	Hatchery	104000	3640000	
Hatching services		428000	1819000	10.43
Manure			60000	0.34
Total			17444140	100

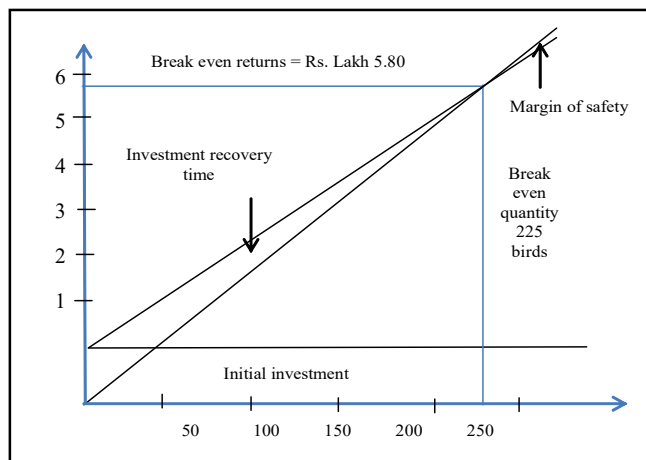
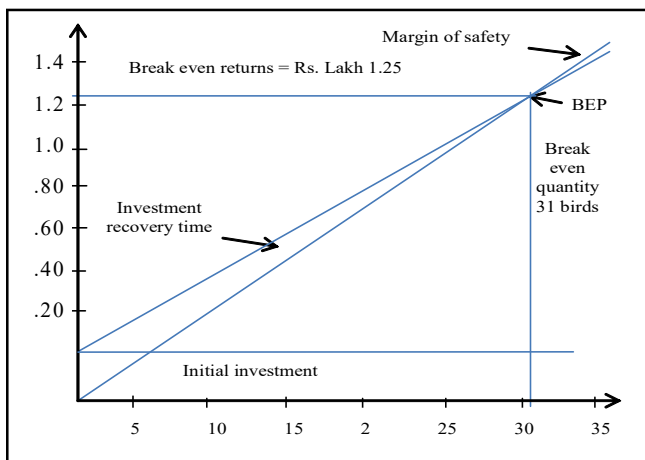


Fig. 1 : Break even point analysis

Table 5: Financial feasibility				(In Rs. Lakhs)	
Year	Total cost	Total benefit	Net benefit	PWC @15%	PWB @15%
2010	53.11	10	-43.11	46.18	8.70
2011	26.28	30.53	4.25	19.87	23.09
2012	31.13	48.51	17.38	20.47	31.90
2013	39	65.2	26.2	22.30	37.28
2014	59.34	105.5	46.16	29.50	52.45
2015	52.64	114.2	61.56	22.76	49.37
2016	65.2	152.6	87.4	24.51	57.37
2017	64.11	160.8	96.7	20.96	52.57
2018	88.1	174.4	86.30	25.04	49.58
Total	478.9	861.7	382.8	231.59	362.29
NPW: 130.70					
BCR: 1.56					
IRR: 57%					
PI: 2.57					
PBP : 1 Year 1 month 28 days					

thereby indicating that project is earning profits. Project recovered its initial investment in one year one month 28 days. It shows that, this project is financially feasible.

Conclusion :

– The total fixed cost in RIR breed and Kadaknath breed were estimated to be Rs. 55.66 per bird and Rs. 50.61 per bird, respectively.

– Feed cost was the major cost item accounting 57 per cent of the total cost.

– During one year, the enterprise recorded a break – even point of Rs. 1, 25,416.10 with 31 birds form Kadaknath breed. Similarly RIR breed layer and hatching service attain the BEP at 225 birds with returns Rs. 5, 80, 578. 90.

– Benefit cost ratio of the project was 1.56 which is greater than unity indicates that the project was economically viable.

– Internal rate of return was 57 per cent which was higher than the interest rate by which borrowers receive the funds from the financial institution indicated that the said project was financially feasible.

– Similarly, NPW of the project was also positive.

– Profitability index was 2.57 which are greater than one indicates that present value of future cash inflows from the investment were more than the initial

investment, thereby indicating that project is earning profits.

– Project recovered its initial investment in one year one month 28 days.

– It shows that, this project is financially feasible.

REFERENCES

- BAHS (Basic Animal Husbandry Statistics) (2019). Department of Animal Husbandry, Dairying and Fisheries, Government of India. Accessed Feb. 2020.
- Economic Survey (2019–20). Agriculture and food management. Department of Economic Affairs, Government of India, New Delhi. Accessed Sept. 2020.
- ICRA (2020). COVID – 19 Lockdown has severely hit the poultry industry with Q4 being the worst quarter. ICAR. Accessed Apr. 2020.
- Kolluri, Gautham, Tyagi, Jagbir Singh and Sasidhar, Venkata Kesava (2020). Reseachnote : Indian poultry industry vis-à-vis coronavirus disease 2019: a situation analysis report. 2020 Poultry Science, <https://doi.org/10.1016/j.psj.2020.11.011>
- Livestock and Poultry Inventory in India (2003-2019). Published by Statista Research Department, Dec 1, 2020.
- 20th Livestock Census (2019). Department of Animal Husbandry, Dairying and Fisheries, Ministry of

V. B. Gholap, S. R. Benke and S. N. Patil

Agriculture and Farmers Welfare, Govt. of India.

Nath, B. G., Pathak, P. K. and Mohanty, A. K. (2012). Constraints analysis of poultry production of Dzongu area of north Sikkim in India. *Iranian J. Applied Animal Sciences*, 2 (4) : 397 – 401.

Patil, S. N., Sonnad, J. S. and Mahajanashetti (2021). Financial feasibility and profitability of carnation cut flowers under protected cultivation. *J. Pharmacognosy & Phytochemistry*, **SP 10** (1) : 301 – 305.

★ ★ ★ ★ ★ 13th Year of Excellence ★ ★ ★ ★ ★