

Economic Viability of Layer Poultry Farms in Navsari District Of Gujarat

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ABSTRACT

An attempt has been made to find out economic viability of layer poultry farms of Navsari district of Gujarat with census sampling techniques of all 21 running poultry farms each of 3, 7 and 11 poultry farmers from small, medium and large groups, respectively. Economics of layers production has been worked out on the average number of birds i.e 4,000, 7,250 and 12,500 birds in small, medium and large farms. The overall project cost was calculated to the tune of Rs. 39,73,960, Rs. 71,62,915 and Rs.1,18,95,800 for small, medium and large poultry farms, respectively. The NPV calculated was Rs.3,77,003, Rs, 8,92,065 and Rs. 15,17,153, for small, medium and large poultry farms, respectively. BCR was worked out to 1.17, 1.28 and 1.30 for small, medium and large poultry farms, respectively whereas internal rate of return was found to 37%, 38% and 39% for small, medium and large poultry farms, respectively. The major problem faced by the poultry farmers were high feed cost and low egg prices followed by labour problems, investment, feed and marketing, insufficient power supply, managerial problems, control measures, lack of export facilities, lack of transport/storage facilities, health coverage, availability of raw materials, extension and training facilities and non adoption of improved technology.

Key words Poultry, Economics, layer farms

In recent years, there has been increasing recognition among the development community about the role that backyard poultry production can play in sustaining and enhancing poor people's livelihoods. There is also growing evidence which demonstrates the role of rural family poultry in enhancing food and nutritional security of the poorest, reducing their livelihood, vulnerability and insecurity and promoting gender equity. The poultry structure in India has undergone a major shift in structure and operation in the last two decades, transforming it from a mere backyard activity into a major commercial activity with the presence of large integrated players and successful implementation of contract poultry farming on large scale. The Indian poultry sector has been growing at around 8-10 % annually over the last decades and more than 15% in the last three years. Annual per capita consumption in India is only 53 eggs in the year 2010-11 and 2.2 Kg of poultry meat in the year 2014. Gujarat has three regional poultry breeding farms, eight district poultry farms and seven poultry demonstration centers of the Government broilers farms, 1369 private sector

broiler farms and only one poultry farmers' co-operative society. Where as Navsari district has 121 total poultry farms. The estimated number of total poultry of Gujarat State were 110.24 lacs in the year (2011-12). (32rd Survey report on estimates of major livestock products for the year 2014-15 (Gujarat State, Director of Animal Husbandry, Gandhinagar). The estimated meat production in the year 2014-15 was 30571 MT. Hence, the present study was carried out to identify the economic viability of poultry farming in Navsari district and to suggest suitable measures to overcome the hurdles faced by poultry farmers.

MATERIALS AND METHODS

Navsari district was selected purposively considering the limited available resources. To justify the objectives, the data were collected from poultry entrepreneurs in Navsari district by using pre-tested interview schedule through personal interview in the year 2016-17.

The selected respondents were grouped in to three categories on the basis of number of birds on their farm as under.

- Group – 1 (Small) :- Up to 5000 birds
- Group – 2 (Medium) :- 5001 to 10000 birds
- Group – 3 (Large) :- 10001 and above birds

From each group seven poultry farmers selection is decided but actually 3, 7 and 11 poultry farmers from small, medium and large groups, respectively were available and selected for study. Thus, total sample size was of 21 layer farms. The cost of production of layer was worked out according to the cost concepts given below.

- (I) Fixed cost
- (II) Variable cost

To analyses data, statistical tools like percentage, ratio, IRR, NPV & BCR etc. were used.

FINDINGS AND DISCUSSION

The findings obtained from the present study are presented below

Techno economic parameters

Sr. No	Parameters	Small	Medium	Large
1	No. of birds	4000	7250	12500
2	Cost of day old chick (Rs./ bird)	27.00	26.50	26.00
3	Feed cost (Rs./Kg.)	20.00	20.00	19.00

Sr. No	Parameters	Small	Medium	Large
4	Feed requirement for chick mash upto 8 weeks (gm/bird/day)	7.00	7.00	7.00
5	Feed requirement for grower mash upto 8 weeks (gm/bird/day)	70.00	70.00	70.00
6	Feed requirement for layer mash upto 8 weeks (gm/bird/day)	110	110	110
7	Cost of medicines, vaccines and misc.charges (Rs./bird/year)	15.00	14.50	14.00
8	Egg production per bird per year (No.)	320	320	320
9	Sale price per egg (Rs.)	3.35	3.25	3.25
10	Sale price of manure (Rs. per ton)	1200	1150	1100
11	Sale price of gunny bags (Rs. per bag)	9.00	9.00	10.00
12	No. of culled birds	2500	4400	7900
13	Sale price of culled bird(Rs./bird)	90	88	87
14	No. of poultry farm	3	7	11

Capital Investment:

Economics of layers production has been worked out on the average number of bird's *i.e* 4,000, 7,250 and 12,500

birds in small, medium and large farms. The initial average project cost including capital cost and recurring cost for small, medium and large size poultry farms are given in Table-1. It is revealed from the table that the capital cost incurred was Rs.11,60,800 Rs.21,06,100 and Rs.36,26,250 for small, medium and large poultry farms, respectively. Whereas, recurring cost was Rs.28,13,160, Rs.50,56,815 and Rs.82,69,550 for small, medium and large poultry farms, respectively. The overall project cost was calculated to the tune of Rs. 39,73,960, 71,62,915 and 1,18,95,800 for small, medium and large poultry farms, respectively.

The data related to year wise income and expenditure for five years of small size poultry farms are depicted in Table-2. The income generated from different sources like sale of eggs, gunny bags, manure etc. are worked out to the tune of Rs. 30,44,003 (1st year), and for 2nd year and onwards up to 5th year Rs.46,23,271, whereas cost incurred was found to Rs. 28,13,160 (1st year), Rs. 35,52,260(2nd year), Rs. 35,92,760(3rd year), Rs. 35,52,260 (4th year) and Rs. 35,92,760 (5th year).

The data pertaining to year wise cash inflow, cash out flow, NPV,BCR and IRR for small poultry farms are presented in Table-3. The NPV calculated was Rs. 3,77,003 and BCR was worked out to be 1.17 whereas, the IRR was found to 37 per cent. It indicates that, return from small size poultry farm was less as compared to the medium and large size poultry farms because of operation of law of economics of scale.

The data related to year wise income and expenditure for five years of medium-size poultry farms are depicted in Table-4. The income generated from different sources like

Table 1. Project cost of layer production in small, medium and large size group of farms in Navsari district of Gujarat state

	Amount Rs.		
	Small	Medium	Large
I. Capital Cost (Fixed Cost)			
Construction of brooder cum grower house (Rs.90/sq.ft.)	3,60,000	6,52,500	11,25,000
Construction of layer house (Rs.140/sq.ft.)	5,60,000	10,15,000	17,50,000
Purchase of brooder cum grower equipment	40,800	76,100	1,26,250
Purchase of layer equipment	2,00,000	3,62,500	6,25,000
Total (I)	11,60,800	21,06,100	36,26,250
II. Recurring Expenditure (Variable Cost)			
Cost of day old chicks	1,08,000	1,92,125	3,25,000
Cost of feed for chick mash up to 8 weeks	33,360	56,840	93,100
Cost of feed for grower mash for 9 to 20 weeks	4,59,200	8,32,300	13,63,250
Cost of feed for layer mash for 21 to 72 weeks	19,71,200	35,72,800	58,52,000
Cost of medicines & miscellaneous expenses	60,000	1,08,750	1,75,000
Cost of labour and electricity	1,81,400	2,94,000	4,61,200
Total (II)	28,13,160	50,56,815	82,69,550
Grand Total (I+II)	39,73,960	71,62,915	1,18,95,800

Table 2. Economics of layers production in small size group farms in Navsari district of Gujarat state

Item / Year	1	2	3	4	5
Income					
Sale of eggs	29,48,000	42,88,000	42,88,000	42,88,000	42,88,000
Sale of gunny bags	22,150	29,187	29,187	29,187	29,187
Sale of manure	73,853	81,084	81,084	81,084	81,084
Sale of culled birds	0	2,25,000	2,25,000	2,25,000	2,25,000
Total	30,44,003	46,23,271	46,23,271	46,23,271	46,23,271
Expenditure					
Cost of day old chicks	1,08,000	67,500	1,08,000	67,500	1,08,000
Cost of feed	24,63,760	32,43,360	32,43,360	32,43,360	32,43,360
Cost of medicines and misc. expenses	60,000	60,000	60,000	60,000	60,000
Cost of labour and electricity	1,81,400	1,81,400	1,81,400	1,81,400	1,81,400
Total	28,13,160	35,52,260	35,92,760	35,52,260	35,92,760

sale of eggs ,gunny bags, manure etc. are worked out to the tune of Rs.53,52,189 (1st year), and for 2nd year and onwards up to 5th year Rs.81,15,968, whereas cost incurred was found to be Rs. 50,56,815 (1st year), Rs. 55,20,910 (2nd year), Rs.55,96,435 (3rd year), Rs. 55,20,910 (4th year) and Rs.55,96,435 (5th year).

The data pertaining to year wise cash inflow, cash out flow, NPV,BCR and IRR for medium size poultry farm are presented in Table-5. The NPV calculated was Rs. 8,92,065and BCR was worked out to be 1.28 whereas, the IRR was found to 38 percent. It indicates that, returns from medium size poultry farm wereless as compared to large size poultry farms because of operation of law of economies of scale.

The data related to year wise income and expenditure for five years of large size poultry farms are depicted in Table-6. The income generated from different sources like

sale of eggs ,gunny bags, manure etc. are worked out to the tune of Rs. 92,47,630 (1st year), and for 2nd year and onwards up to 5th year Rs.1,40,58,960, whereas cost incurred was found to be Rs. 82,69,550 (1st year), Rs. 96,06,300 (2nd year), Rs. 97,25,900 (3rd year), Rs. 96,06,300 (4th year) and Rs. 97,25,900 (5th year).

The data pertaining to year wise cash inflow, cash out flow, NPV,BCR and IRR for large size poultry farms are presented in Table-7. The NPV calculated was Rs. 15,17,153and BCR was worked out to be 1.30 whereas, the IRR was found to 39 per cent. It indicates that, return from large size poultry farm was found to be the highest among three different size of poultry farms.

Poultry farmers were asked to rank the problems faced by them while doing their farming. The problems were listed and the farmers were asked to rank these problems in their order of priority. The ranks corresponding to each problem

Table 3. NPV, BCR & IRR of layers production in small size group farms in Navsari district of Gujarat state

Years	1	2	3	4	5
Capital cost	11,60,800				
Recurring expenses	28,13,160	35,52,260	35,92,760	35,52,260	35,92,760
Total cost	39,73,960	35,52,260	35,92,760	35,52,260	35,92,760
Income	30,44,003	46,23,271	46,23,271	46,23,271	46,23,271
Total benefits	30,44,003	46,23,271	46,23,271	46,23,271	46,23,271
Net benefits	-9,29,957	10,71,011	10,35,511	10,71,011	10,30,511
Disc cost@15%	27,39,600				
Disc benefits@15%	32,30,563				
NPV	3,77,003				
BCR	1.17				
IRR	37 %				

Table 4. Economics of layers production in medium size group farms in Navsari district of Gujarat state

Item / Year	1	2	3	4	5
Income					
Sale of eggs	51,83,750	75,40,000	75,40,000	75,40,000	75,40,000
Sale of gunny bags	40,158	45,018	45,018	45,018	45,018
Sale of manure	1,28,281	1,43,750	1,43,750	1,43,750	1,43,750
Sale of culled birds	0	3,87,200	3,87,200	3,87,200	3,87,200
Total	53,52,189	81,15,968	81,15,968	81,15,968	81,15,968
Expenditure					
cost of day old chicks	1,92,125	1,16,600	1,92,125	1,16,600	1,92,125
cost of feed	44,61,940	50,01,560	50,01,560	50,01,560	50,01,560
Cost of medicines and misc. expenses	1,08,750	1,08,750	1,08,750	1,08,750	1,08,750
Cost of labour and electricity	2,94,000	2,94,000	2,94,000	2,94,000	2,94,000
Total	50,56,815	55,20,910	55,96,435	55,20,910	55,96,435

Table 5. NPV, BCR & IRR of layers production in medium size group farms in Navsari district of Gujarat state

Years	1	2	3	4	5
Capital Cost	21,06,100				
Recurring Expenses	50,56,815	55,20,910	55,96,435	55,20,910	55,96,435
Total Cost	71,62,915	55,20,910	55,96,435	55,20,910	55,96,435
Income	53,52,189	81,15,968	81,15,968	81,15,968	81,15,968
Total Benefits	53,52,189	81,15,968	81,15,968	81,15,968	81,15,968
Net Benefits	-18,10,726	25,95,058	25,19,533	25,95,058	25,19,533
Disc cost@15%	44,09,641				
Disc Benefits@15%	56,72,409				
NPV	8,92,065				
BCR	1.28				
IRR	38 %				

Table 6. Economics of Layers production in large size group farms in Navsari district of Gujarat state

Item / Year	1	2	3	4	5
Income					
Sale of eggs	89,37,500	1,30,00,000	1,30,00,000	1,30,00,000	1,30,00,000
Sale of gunny bags	76,930	92,260	92,260	92,260	92,260
Sale of manure	2,33,200	2,79,400	2,79,400	2,79,400	2,79,400
Sale of culled birds	0	6,87,300	6,87,300	6,87,300	6,87,300
Total	92,47,630	1,40,58,960	1,40,58,960	1,40,58,960	1,40,58,960
Expenditure					
Cost of day old chicks	3,25,000	2,05,400	3,25,000	2,05,400	3,25,000
Cost of day old chicks	3,25,000	2,05,400	3,25,000	2,05,400	3,25,000
cost of feed	73,08,350	87,64,700	87,64,700	87,64,700	87,64,700
Cost of medicines and misc. expenses	1,75,000	1,75,000	1,75,000	1,75,000	1,75,000
Cost of labour and electricity	4,61,200	4,61,200	4,61,200	4,61,200	4,61,200
Total	82,69,550	96,06,300	97,25,900	96,06,300	97,25,900

Table 7. NPV, BCR & IRR of layers production in large size group farms in Navsari district of Gujarat state

Years	1	2	3	4	5
Capital Cost	36,26,250				
Recurring Expenses	82,69,550	96,06,300	97,25,900	96,06,300	97,25,900
Total Cost	1,18,95,800	96,06,300	97,25,900	96,06,300	97,25,900
Income	92,47,630	1,40,58,960	1,40,58,960	1,40,58,960	1,40,58,960
Total Benefits	92,47,630	1,40,58,960	1,40,58,960	1,40,58,960	1,40,58,960
Net Benefits	-26,48,170	44,52,660	43,33,060	44,52,660	43,33,060
Disc cost@15%	75,84,030				
Disc Benefits@15%	98,22,521				
NPV	15,17,153				
BCR	1.30				
IRR	39 %				

Table 8. Problems of the poultry farmers

Sr. No	Problems	Rank
1.	Availability of raw materials	11
2.	Improved technology	13
3.	Control measures	7
4.	High feed cost and low egg prices	1
5.	Lack of transport/storage facilities	9
6.	Investment	3
7.	Labor problem	2
8.	Power supply	5
9.	Feed and marketing	4
10.	Export facilities	8
11.	Health coverage	10
12.	Managerial problems	6
13.	Extension and training facilities	12

are presented in Table-8.

The major problems faced by the farmers were high feed cost and low egg prices (1st rank), followed by labour problems (2nd rank), investment (3rd rank), feed and marketing (4th rank), insufficient power supply, (5th rank), managerial problems, (6th rank), control measures, (7th rank), lack of export facilities, (8th rank), lack of transport/storage facilities, (9th rank), health coverage, (10th rank), availability of raw materials, (11th rank), extension and training facilities (12th rank) and inability to utilize improved technology, (13th rank). In short, the poultry farmers wanted to get higher price for eggs, solution for labour problems, to encourage investment and continuous power supply for their industry production.

CONCLUSION

The poultry structure in India has undergone a major shift in structure and operation in the last two decades, transforming it from a mere backyard activity into a major commercial activity with the presence of large integrated players and successful implementation of contract poultry farming on large scale. The results on the study of the economics of layer production in Navsari District based on the average number of bird's *viz.*, 4,000, 7,250 and 12,500 birds in small, medium and large farms were that the overall project cost was calculated to the tune of Rs. 39, 73,960, 71, 62,915 and 1, 18, 95,800 for small, medium and large poultry farms, respectively. The income generated from different sources like sale of eggs, gunny bags, manure etc. Were

worked out to the tune of Rs. 30,44,003 (1st year), and for 2nd year and onwards up to 5th year Rs.46,23,271, whereas cost incurred was found to be Rs. 28,13,160 (1st year), Rs. 35,52,260(2nd year), Rs. 35,92,760(3rd year), Rs. 35,52,260 (4th year) and Rs. 35,92,760 (5th year). Thus, the return from small size poultry farm was less as compared to the medium and large size poultry farms because of operation of law of economies of scale The NPV calculated was Rs. 8,92,065 and BCR was worked out to be 1.28 whereas, the IRR was found to be 38 percent. Thus, layer poultry production can play an important role in sustaining and enhancing poor people's livelihood.

The major problems faced by the farmers which emerged from the study were high feed cost and low egg prices followed by labour problems, investment, feed and marketing, insufficient power supply, managerial problems, control measures, lack of export facilities, lack of transport/storage facilities, health coverage, availability of raw

materials, extension and training facilities and lack of adoption of improved technology.

LITERATURE CITED

- Aggarwal, C.K., Gupta, S.C., Singh, R.A. and Pal, R.N. 1981. Components of expenditure and total cost involved in producing duck and chicken for meat, *Indian Veterinary J.*, **58**:219-222.
- Kothandaraman, P. and Narahari, D. 1982. Economics of broiler production in India. *Poultry Guide*, **19** (4): 45-49.
- Kumar, B. Ganesh and Rai, R.B. 2006. Economic status of poultry farming enterprises in Andaman and Nicobar Islands, *Agric. Econ. Res. Rev.*, **19**: 377-386.
- Neetha, R. 2003. Outlook for the Indian poultry sector. Robobank International. Food & Agribusiness Research, New Delhi.
- Thorat, V.A., Patil, H.K. and Bhosale, S.S. 2002. An economic analysis of poultry enterprise in North Konkan Coastal Zone of Maharashtra, *J. Indian Soc. Coastal agric. Res.*, **20** (2): 95-101.

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