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ECONOMICS ANALYSIS OF BROILER PRODUCTION IN KANPUR DISTRICT, UTTAR PRADESH

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Abstract:

This study delves into the cost and returns analysis of broiler production in Kanpur District, Uttar Pradesh, for the agricultural year 2023-2024. Utilizing primary data collected through structured schedules and a multi-stage stratified random sampling technique, the investigation focuses on small, medium, and large farm categories, with a total of 30 respondents from two selected blocks. The cost analysis encompasses variable and fixed costs, with variable costs dominating, particularly in feed expenses. Results indicate that the per-cycle cost of broiler production ranges from Rs. 221,504 in small farms to Rs. 653,868 in large farms, with feed costs constituting a significant portion. Output assessment reveals an average production of 56.42 quintals of broiler chicken per cycle, generating an average gross income of Rs. 609,406 across all farm sizes. Measures of farm profitability, including net income, family labor income, and farm business income, demonstrate varying levels across farm sizes. The output-input ratio indicates efficiency improvements with larger farm sizes. This comprehensive analysis offers insights into the economic dynamics of broiler production, informing decision-making processes for sustainable agricultural development in the region.

Keywords:cost analysis, return assessment, output input ratio.

Introduction

Poultry farming, the commercial rearing of domestic birds for meat, eggs, and feathers, stands as a cornerstone of agricultural economies worldwide (Shanmugiah, 2000). With billions of chickens raised annually to meet the global demand for food, the significance of poultry farming cannot be overstated. In particular, the Indian Poultry Industry has emerged as a rapidly growing sector, reshaping rural economies and meeting the rising demand for protein-rich food sources (Goswami*et al.,* 2018).

The Indian Poultry Industry has undergone a remarkable transformation over the years, transitioning from a small-scale backyard activity to a major commercial enterprise. Factors such as increasing per capita income, urbanization, and declining poultry prices have fueled this growth. Today, India ranks among the world's top egg and broiler producers, with production rates far outstripping those of traditional agricultural crops (Thirunavukkarasu, *et al.,* 2008).The industry's evolution has been substantial investments in breeding, hatching,

rearing, and processing, facilitating the adoption of modern production practices. Moreover, private enterprise initiatives, combined with minimal government intervention, have played a pivotal role in driving growth. India's pioneering efforts, including the implementation of Specific Pathogen Free (SPF) egg production projects, underscore its commitment to advancing poultry farming practices (Hassan,2010; Singh *et al.,* 2010).

Regionally, the Indian Poultry Industry exhibits significant variation, with southern states such as Andhra Pradesh, Tamil Nadu, and Maharashtra leading in both broiler and layer production (Shroff and Kalamkar, 2006). This regional diversity reflects the complex dynamics of poultry farming across India, with per capita consumption patterns varying widely (Verma and Pillai, 1989).

In Kanpur District, Uttar Pradesh, poultry farming serves as a vital economic lifeline, contributing significantly to employment generation and income enhancement. With nearly 70% of total output attributed to the organized sector, the district boasts a robust poultry industry. However, challenges persist for small-scale producers, including high input costs and limited access to credit.

Against this backdrop, this research paper seeks to address a critical gap in our understanding of poultry production dynamics in Kanpur District. By conducting an economic analysis of poultry farming, the study aims to evaluate the cost and returns of broiler production. Through the examination of production costs, and revenue generation, we seek to assess the profitability and sustainability of poultry farming in the region.

In essence, this study endeavors to provide valuable insights into the economic dynamics of poultry production, with the ultimate goal of promoting sustainable agricultural development and enhancing livelihoods in the region.

Materials and Methods

DATA COLLECTION

This investigation of cost and returns has made extensive use of primary data. The schedules that have been pre-structured and pre-tested have been used to gather the farmers from the community. The population sample was drawn using a multi-stage stratified random sampling technique. By selecting the Kanpur district on purpose, the sampling process has begun.

First, a list of each of the 10 blocks in Uttar Pradesh's Kanpur district was created, along with an average ranking for broiler producing area. Two Block, were specifically chosen for this investigation viz., Bilhaur and Vidhunu. From these lists a sample of 30 respondents were drawn following the proportionate allocation to the different categories. Under small farmers category 16, medium famers 8 and large farmers 6 have occurred out of thirty samples.

Period of Enquiry

The data pertained to agriculture year 2023-2024estimation of costs and returns

Cost A1 : It includes costs and kind expenses actually incurred by cultivators which are as follows:
(i) Wage of hired human labour
(ii) Charges for bullock labour
(iii) Hired labour charges of implements and machinery
(iv) Cost incurred on manures and fertilizers
(v) Seeds
(vi) Plant protection chemicals
(vii) Irrigation charges
(viii) Land revenue
(ix) Depreciation, and
(x) Repair charges on farm assets.
Cost A2: Cost A1 + Rent paid for leased in land.

Cost B1: Cost A2 + Interest on owned fixed capital assets.
Cost B2: Cost B1 + Rental value of owned land.
Cost C1: Cost B1 + Imputed value of family labour.
Cost C2: Cost B2 + Imputed value of family labour.
Cost C3: Cost C2 + 10% of cost C2 (managerial cost)
Gross Income = Value of total output.
Net Income = It is computed by deducting cost C3 from gross income.
Farm Business Income = Gross Income - Cost A_2
Family labour income = Gross Income-Cost C

3. Results and Discussion

3.1 Cost of production of Broiler per cycle

3.1.1 Variable cost

The variable cost of broiler included cost of day old chicks, expenditure on feed, labour, cost of electricity and water, medicine and maintenance etc.

The actual expenditure towards the day old chicks. Cost of feed and other expenses. The total recurring expenditure in small size group (rearing of 1500 broiler chicks) expenditure of day old chicks comes Rs. 41700, feed expenditure of pre starter comes to Rs. 22609, starter comes to Rs. 63527and finisher comes to Rs. 46472. Cost of other expenses viz. labour charges, medicine and maintenance, water and electricity wereRs.12950, Rs5685, Rs. 1437 respectively.

Medium size group (rearing of 3187 broiler chicks) expenditure of one day old chicks comes Rs. 88375, feed expenditure of pre starter comes to Rs. 45350, starter comes to Rs. 128526 and finisher comes to Rs. 109430. Cost of other expenses viz. labour charges, medicine and maintenance, water and electricity wereRs.26650, Rs9344, Rs.2028 respectively.

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Large size group (rearing of 5000 broiler chicks) expenditure of one day old chicks comes Rs. 134250, feed expenditure of pre starter comes to Rs. 75300, starter comes to Rs. 195149 and finisher comes to Rs. 153960. Cost of other expenses viz. labour charges, medicine and maintenance, water and electricity wereRs.27568, Rs. 12434, Rs.2700 respectively.

The per cycle cost of broiler farms were ranging between Rs. 221504 on small farms to 653868 in large farms the cost with different heads shows that variable cost account about 90 percent of total cost.

Feed contributes major segment of variable cost followed by cost of labour hired and family human labour, day old chick's and cost of medicine and maintenance cost percentage cost with the size of farm shows that 64.90 percent, 8 percent, 20.53 percent and 1.90 percent cost were increases with the increase in the size of farms.

3.1.2 Fixed cost:-

The fixed cost included the rented value of land and farm charges of small, medium and large group are respectively Rs.5808, Rs. 10812, Rs. 16745. Interest on fixed capitals for two month @ 12% yearly were found in small, medium and large size of farm Rs.116, Rs. 216.24, Rs. 335 respectively.

The following table shows the cost of production per group size on the basis of different cost concept for broiler. The above table indicates the Cost C broiler production per cycle was to Rs. 221504, Rs. 448680 medium, Rs. 653868 large group size.

Various measures of farm profit such as net income farm business income farm investment and input output ratio for broiler production have been worked out on the different size of farm.

Table 1: Per Cycle Cost of Production of Broiler on Sample Farms (Rs/cycle)

S. No.	Particulars	Size Group of Broiler Farms		
		Small (1000-2500)	Medium (2500-4000)	Large (4000 and above)
	Average No. of broiler	1500	3187	5008
1	Cost of one day old chick	41700 (18.82)	83875 (19.69)	134250 (20.53)
2	Cost of feed	132608 (59.87)	283306 (63.14)	424409 (64.90)
2a	Cost of pre-starter	22609 (10.21)	45350 (10.10)	75300 (11.51)
2b	Cost of starter	63527 (28.68)	128526 (28.64)	195149 (29.84)
2c	Cost of finisher	46472 (20.98)	109430 (24.38)	153950 (23.54)

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3	Cost of Labour	12950 (5.85)	26650 (5.93)	27568 (4.21)
4	Cost of medicine and maintenance	5685 (2.57)	9344 (2.08)	12434 (1.90)
5	Cost of water and electricity	1437 (0.65)	2028 (0.45)	2700 (0.41)
6	Total Woking cost	1943800 (87.75)	409703 (91.31)	601361 (91.96)
7	Interest on working capital @12%	3887 (1.75)	8194 (1.82)	12027 (1.83)
8	Cost A	198267 (89.51)	417897 (93.13)	613388 (93.80)
(B)	Fixed cost per cycle			
1	Rental Value of broiler farm assets	5808 (2.62)	10812 (2.04)	16745 (2.56)
2	Interest on fixed capital @12%	116 (0.052)	216.24 (0.048)	335 (0.051)
3	Cost B	204192 (92.18)	428925 (95.59)	630468 (96.42)
(C)	Family Labour charge	17312 (7.81)	19755 (4.40)	23400 (3.57)
1	Cost C	221504 (100.00)	448680 (100.00)	653868 (100.00)

3.2 Output:-

Output estimation includes the value of main products as well as the value of by products weather sold or consumed.

Production and gross income in difference size of farm:-

The details of production per cycle and gross income on the area under the study are presented below the table.

Table 2: Production and gross income in different size of farm

S. No.	Size group	Production of Broiler chicken (Qt.)	Production of manure	Value		Gross income
				Main Product	By product	
1	**Small**	25.74	15.05	246131	5203	281334
2	**Medium**	54.90	27.89	581146	9873	591019
3	**Large**	88.63	53.98	937675	18190	955865
Average		56.42	32.30	598317	11089	609406

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The above table indicate that on an average production average production per cycle of broiler on sample farms was observed 56.42Qtls as it ranging between 25.74Qtls on small farms to 88.63Qtis on large farms.

The overall average value of gross income was Rs. 609406 and gross income on small, medium and large group were Rs.281334, Rs.591019 and Rs. 955865 respectively.

3.3 Measures of farms profile:-

There are different measures that evaluate the farm profile and it's diferent to say which is the best measures. India and other developing countries of the world. The various measures are accountant for the following reason.

Table 3 Measure of farm profile

S. No.	Particulars	Small (1000-2500)	Medium (2500-4000)	Large (4000 and above)	Average
1	Main product	276131	581146	937675	598317
2	By Product	5203	9873	18190	11089
3	Gross Return	281334	591019	955865	609406
4	Net income	59830	142339	301997	168055
5	Family Labor income	77142	162094	325397	188211
6	Farm Business income	83066	173122	342477	199555

1. The average size of farms in very small and major population of the produced raised in the produce raised in the farm is consumed by the farm families.

2. The food product consumed by the family is ignored and dose not farm a part recipients.

3. The family labour particularly on all farms is under employed the following income measures have been found suitable under the Indian condition and area worked out in the present study.

A. Net Income: It is different between gross income and total cost it is equal to gross in Cost C.

Net Income Gross Income - Cost C

B. Family labour income

It includes net profit or loss plus imputed via of the family labour.

Family Income (labour) Gross income -Cost B

C. Farm business income

Family business Income Gross Income-Cost A

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D. Farm investment income

Net income plus rental value of own land plus interest on owned fixed Capital. The measure of farm profile per broiler cycle have been worked out on the basis of size groups in the area under study present in the below.

Table 4 Output input ratio of different size of farm

Particulars	Value of Output Rs.	Input cost with the cost concept			Output- Input Ratio		
		Cost A	Cost B	Cost C	A	B	C
Small (1000-2500)	281334	198268	204192	221504	1.41	1.37	1.27
Medium (2500-4000)	591019	417897	428925	448681	1.41	1.38	1.32
Large (4000 and above)	955865	613388	630468	653868	1.55	1.51	1.46
Average	609406	409851	409851	421114	1.49	1.44	1.38

The above table show that the output input average of Cost A 1.49, Cost B 1.44 and Cost C 1.38. The output input ratio of cost C were highest in large group size farm 1.46 followed by medium group size 1.32, were the Cost A, Cost B, and Cost C increase with increase in size of groups.

Conclusion

In conclusion, the study presents a comprehensive analysis of broiler production economics in Kanpur District, Uttar Pradesh. Through extensive data collection and analysis, various cost concepts including variable and fixed costs were examined across different sizes of broiler farms. The findings reveal that feed expenses constitute a significant portion of variable costs, followed by labor and other operational costs. The study underscores the importance of understanding the cost dynamics in broiler farming for informed decision-making and profitability assessment. Additionally, output estimation and gross income analysis demonstrate the potential profitability of broiler production across different farm sizes. The study's insights into output-input ratios provide valuable information for evaluating farm performance and efficiency. Overall, the research contributes to the body of knowledge in agricultural economics and offers practical implications for broiler farmers, policymakers, and stakeholders in promoting sustainable development in poultry farming in the region. Further research and policy interventions are warranted to address challenges and enhance the competitiveness and sustainability of broiler production in Kanpur District and similar agricultural contexts.

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