

## International Journal of Agriculture Extension and Social Development

Volume 7; Issue 1; Jan 2024; Page No. 682-685

Received: 15-10-2023  
Accepted: 20-12-2023

Indexed Journal  
Peer Reviewed Journal

### Economic analysis of milk production for social development

<sup>1</sup>PS Dharpal, <sup>2</sup>KN Barse and <sup>3</sup>JN Kadu

<sup>1</sup>Lecturer, Rural Institute, Wardha, Maharashtra, India

<sup>2</sup>Lecturer, Rural Institute, Wardha, Maharashtra, India

<sup>3</sup>Assistant Professor, Shri Shivaji College of Horticulture, Amravati, Maharashtra, India

DOI: <https://doi.org/10.33545/26180723.2024.v7.i1.297>

Corresponding Author: PS Dharpal

#### Abstract

In the present study, 120 milk producers from eight from from four tahsils in Amravati district was purposively selected. Out of 120 milk producers, 32 milk producers who reared improved buffaloes were selected for study. 32 milk producers had 69 improved buffaloes of different breeds. In the analysis of cost and profit, it is reflected that, out of total returns from improved buffaloes, 81.08% returns received from sale of milk only, whereas, out of total returns, receipt from the sale of milk products, value of milk for home consumption, value of milk products at home consumption, value of manures, value of empty gunny bags & value of new born heifers were calculated as 2.42%, 1.37%, 0.53%, 7.14% 0.12% & 7.32% respectively. The details in respect of percentage share to total cost about interest paid on fixed capital, taxes on cattleshed, taxes on godown, depreciation on milch animals, depreciation on cattleshed & equipments was 3.13%, 0.040%, 0.043%, 5.64%, 3.61%. It was also reflected that, out of total cost, percentage share of total cost was 12.54%. Gross return from 69 improved buffaloes was Rs. 85,89, 314, out of total returns, net returns at the total cost was Rs. 47, 67,410.01, net returns at variable cost was Rs. 52,46, 870. It was found that, B:C ratio was 1:2.24. And this firm was found to be more profitable. There is an imperative need to reduce the cost of producing green fodder, dry fodder and concentrates feeds, thereby reducing cost of milk production. The gross income and net income is always higher in improved buffalo's milk production. From economic and social development point of view, rearing of improved buffalo was more profitable.

**Keywords:** Cost, value, return & milk production

#### Introduction

India is the world's largest producer and consumer of milk and has the world's largest dairy herd comprised of water buffalo and indigenous and crossbred cattle. The buffalo population in India was 105.3 million heads out of that 6.07 million heads were in Maharashtra. The superiority of buffalo over local cow milk in production has been proved beyond any doubt. Even the higher content of fat, protein and mineral especially calcium content of buffalo milk make it richer in nutrients vis –a – vis cow milk The buffalo produce on an average 1700-1900 kg of milk with 8% fat per lactation.

As a subsidiary agro-based industry, dairy provide drought power and manures which augment the crop production. Milch animals are one of the solutions to solve the problems of uncertainty associated in family business. Dairy industry is one of the profitable agro-based industries which can effectively tackle the problem of unemployment in rural as well as in urban area. Dairy production can be adopted under a wide range of climatic condition and can generally be combined conveniently with other farm enterprises. The land and per capita requirement for this enterprise being not large, it ensures a regular flow of income through better production and marketing of milk and its products.

India has the largest number of buffalo in the world. The buffalo, especially improved buffalo which is considered to be the backbone of Indian dairy industry, constitutes less than 40% of bovine population, but accounts for more than half of the total milk production of the country. In fact, small size milk producers produce bulk of the milk in India. India is home not only to the world famous 'Murrah' buffalo but also several others high milk producing buffalo breeds such as Jafrabadi, Nili-Ravi, Pandharpuri, Surti, and Mehsana with their unique characteristics. Milk production in India is in the hands of millions of such milk producers, who are ignorant about the economic aspect of milk production. Therefore, it is necessary to check cost, returns and profit margin in improved buffalo milk production. Hence this research study is selected to analyses the cost and profit in improved buffalo milk production to cope with the following objectives as under –

#### Objectives

- 1) To estimate the gross return from improved buffalo selected for study
- 2) To analyses the cost, per litre cost and profit in improved buffalo milk production.

**Methodology**

The detail methodology is given as under in following heads-

- a) **Selection of area:** For the present study, eight villages from four tahsils in Amravati district was purposively selected.
- b) **Selection of sample:** A sample of 120 milk producers (15 milk producers from eight villages) was selected. Out of 120 milk producers, 32 milk producers who reared improved buffaloes were selected for study. 32 milk producers had 69 improved buffaloes of different breeds.
- c) **Collection of data:** For data collection, the comprehensive objectives wise questionnaire was prepared. The required information on variable cost, fixed cost, total cost, gross returns & net return was obtained by random sample technique from selected milk producers.
- d) **Analysis of data:** Collected data was analyzed on following heads

**D.1) Cost concepts**

- 1) Variable cost
- 2) Fixed cost,
- 3) Total cost (T.C.) (for milk production) = Total variable cost + Total fixed cost

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

- 4) Average / lit cost of milk at V.C.=  $V.C. - \text{Value of bi-products \& all other}$

Receipt except value of milk

No. of litre of milk

- 5) Average / lit cost of milk at T.C.=  $T.C. - \text{Value of bi-products \& all other}$

Receipt except value of milk

No. of litre of milk

- 6) Input –output ratio (B: C ratio)
- 7) Income concepts (for milk)
  - 1) Gross return (G.R.)
  - 2) Net return (N.R.)
    - a) Net return (at variable cost) = Gross return- Variable cost
    - b) Net return (at total cost) = Gross return – Total cost

**Results and Discussions**

After the collection of data, it is tabulated as under -

**Table 1:** Annual gross return from improved buffalo

Sr. No.	Particulars	Amount in Rs.	% to total cost
1	Receipt from sale of milk	69,64,220	81.08
2	Receipt from sale of milk products	2,07,945	2.42
3	Value of milk for home consumption	1,18,150	1.37
4	Value of milk products at home consumption	45,570	0.53
5	Value of manures	6,13,550	7.14
6	Value of empty gunny bags	10,879	0.12
7	Value of new born heifers	6,29,000	7.32
8	Total (Except receipt from sale of milk) (Items No-2 to 7)	16,25,094	18.92
9	Gross return (G.R.)	85,89,314	100.00

It is reflected that, annual gross returns from 69 improved buffaloes was indicated that, receipt from sale of milk was Rs. 69,64,220. In case of others returns, receipt from sale of milk products, value of milk for home consumption, value of milk products at home consumption, value of manures, value of empty gunny bags & value of new born heifers was measures to Rs. 2, 07,945, Rs. 1,18, 150, Rs. 45,570, Rs. 6,13,550, Rs 10,879 & Rs 6,29,000 respectively. The total gross return made from 69 improved buffaloes was Rs 85,89,314.

Out of total returns from improved buffaloes, 81.08% returns received from sale of milk only, whereas, out of total returns, receipt from the sale of milk products, value of milk for home consumption, value of milk products at home consumption, value of manures, value of empty gunny bags & value of new born heifers were calculated as 2.42%, 1.37%, 0.53%, 7.14% 0.12% & 7.32% respectively.

As a matter of fact, as stated earlier, improved buffalo milk producers were not also interested in making products therefore, they sold their milk to consumers directly. Very few milk producers were prepared milk products hence only 2.42% receipt made from sale of milk products.

The above results indicated that, total variable cost, total

fixed cost and total cost required for milk production from 69 improved buffaloes. It was exactly displayed that, in the total variable cost, cost of hired human labour, cost of dry fodder, cost of green fodder, medicines & vaccination, cost of concentrates foods, charges for grazing, water charges, breeding charges, transportation charges for inputs, veterinary doctor’s fees, cleaning expenses & calcium dose etc was in the order of Rs. 1,41,250, Rs.8,71,500, Rs 7,73,700, Rs. 74,880, Rs. 6,88,020, Rs. 80,400, Rs. 1,80,200, Rs. 5410, Rs. 40, 300, Rs. 30524, Rs. 37, 300 & Rs. 21,780 respectively.

It was noted that, interest on working capital at the rate of 10% was Rs.2,82,299, whereas family labour charges was Rs. 1,15,000. According to above calculations, total variable cost was Rs. 33, 42,444.

Under the head of fixed cost, milk producers had interest paid interest on fixed capital, taxes on cattle shed, taxes on godown, depreciation on milch animals, depreciation on cattle shed equipments was measures to Rs. 1,21,835.93, Rs. 1765, Rs. 1665, Rs. 2,15,907 & Rs.1,38,287 respectively. Total fixed cost was analyzed as Rs. 4, 79,459.99 and total cost paid by milk producers was Rs. 38,21,903.00.

**Table 2:** Total annual cost, Gross return & per litre cost of milk production from improved buffaloes

Sr. No.	Particulars	Amount in Rs.	Amount in Rs.
	<b>Variable cost</b>		
1	Hired human labour	1,41,250	3.69
2	Dry fodder	8,71,500	22.80
3	Green fodder	7,73,700	20.24
4	Medicines & vaccinations	74,800	1.95
5	Concentrates feeds ( Mineral mixture, cake etc)	6,68,020	18.00
6	Charge for grazing	80,400	2.10
7	Water charges	1,80,200	4.71
8	Breeding charges	5410	0.14
9	Transportation charges of inputs	40,300	1.05
	Miscellaneous -		
10	a) Veterinary Doctor	30,524	0.79
	b) Expenses on cleaning	37306	0.97
11	Other expenses	21,780	0.56
12	Interest on working capital	2,82,299	7.38
13	Family labour charges	1,15,000	3.00
14	Total variable cost (T.V.C.)	33,42,444	87.45
	<b>Fixed cost</b>		
15	Imputed interest on fixed capital	1,21,835.93	3.18
	Grampanchayat taxes		
16	a) Cattle shed	1765	0.046
	b) Godown	1665	0.043
17	Depreciation on milch animals	2,15907	5.64
18	Depreciation on cattleshed, equipments, and other fixed capital	1,38287	3.61
19	Total fixed cost (T.F.C.)	4,79,459.99	12.54
20	Total cost (T.C.)	3821903	---
21	Gross return (G.R.)	85,89,314	---
22	Net return at total cost	47,67,410.01	---
23	Net return at variable cost	52,46,870	---
24	B: C ratio	1:2.24	---
25	Per litre cost of milk production at variable cost	9.42	---
26	Per litre cost of milk production at total cost	12.06	---
27	(Total milk production in litres)	(1,82,130)	---

Out of the above total cost, percentage share of hired human labour, dry fodder, green fodder, medicines & vaccination, concentrates feeds, grazing charges, water charges breeding charges, transportation charges of inputs, veterinary doctor's fees, cleaning expenses & calcium dose was as 3.69%, 22.80%, 20.24%, 1.95%, 18%, 2.10%, 4.10%, 0.14%, 1.05%, 0.79%, 0.97% & 0.56% respectively. Out of total cost, interest on working capital paid by milk producers was 38%, family labour charges was 3.00% and total variable cost was 87.45%.

The details in respect of percentage share to total cost about interest paid on fixed capital, taxes on cattleshed, taxes on godown, depreciation on milch animals, depreciation on cattleshed & equipments was 3.13%, 0.040%, 0.043%, 5.64%, 3.61%. It was also reflected that, out of total cost, percentage share of total cost was 12.54%. Gross return from 69 improved buffaloes was Rs. 85,89,314, out of total returns, net returns at the total cost was Rs. 47,67,410.01, net returns at variable cost was Rs. 52,46,870. It was found that, B:C ratio was 1:2.24. It was further cleared that, per litre cost of milk production at variable cost was Rs. 9.42, on the other hand side; per litre cost of milk production at total cost was Rs. 12.06. The total milk production from 69 improved buffaloes was 1,82,130 litres.

The overall critical observations revealed that, out of total cost, 61% cost incurred only on feeds & fodder. In improved buffalo milk production, hired human labour were used whereas, generally hired human labours are not used in

local cows milk production. Improved buffaloes milk producers had paid total interest as 11% of total cost.

According to above calculations, it was clearly seen that, improved buffaloes milk production was more profitable as seen by B:C ratio 1:2.24. In an average & compared to all groups, per litre cost of milk production was found to low therefore, this business was found to be more viable.

### Conclusions

This analysis is represented that, total annual gross returns made from 69 improved buffalo was Rs. 85,89,314 in which highest share was from sale of milk, it was 81.08% and remaining receipt was 11% which was made from sale of milk products, manures & new born calves etc. The total cost required for milk production from 69 improved buffaloes was as Rs. 38,21,903 which included total variable cost and total fixed cost was respectively as 87.45% and 12.55% to the total cost. Net returns at total cost were Rs. 47,67,410.01. Per litre cost of milk production at total cost was Rs. 12.06. And in this firm, B: C ratio was found 1:2.24. And this firm was found to be more profitable and it creates prosperity in social and economic condition of dairymen.

It is also concluded that, in respect of investment made by milk producers, highest investment was observed only in improved buffalo milk production. In case of improved buffalo milk production, B:C ratio was found 1:2.24. It was definitely higher than any other milch animals milk

production. This study concluded that, the cost of feeds, fodder, and concentrates feeds was the most important items of the total maintenance cost of buffalo milk production. There is an imperative need to reduce the cost of producing green fodder, dry fodder and concentrates feeds, thereby reducing cost of milk production. The gross income and net income is always higher in improved buffalo's milk production. From economic and social development point of view, rearing of improved buffalo was more profitable. The milk producers were mostly unknown about the different management practices of buffalo and non availability of labour and high cost of feeds and concentrates feeds were faced as major constraints to buffalo milk producers.

### References

1. Saha A, Gracia O, Hemme T. Economics of milk production in Orrissa (with special reference to small scale milk producers) Pro-poor Live stock policy initiative; c2010.
2. Chauhan AK, Kalra KK, Singh R, Raina BB. A study on the economics of milk production, processing in dairy plant in Haryana, Agril. Economics Research Review. 2006;9:399-406.
3. Dharpal PS. Economics of production of milk and milk products Unpublished Ph. D. thesis submitted to Mahatma Gandhi Chitrakoot Gramodaya Vishwvidyalaya, Chitrakoot, Satna, (M.P.); c2013.
4. Nagrale BG, Datta KK, Singh S. Cost of milk production in Vidarbha region of Maharashtra, Indian Journal of Dairy Science. 2011;64(6):514-519.
5. Singh R, Chauhan AK, Sharma SP. Economic analysis of milk production in tribal area of Udaipur (Rajasthan), Indian Journal of Dairy Science. 2006;59(5):328-336.
6. Choodamanbigai RS. Economic Profile of milk production in Coimbatore, International Journal of current research. 2011;3(7):260-263.