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Cost benefit analysis of Dairy Co-operative members worked under Chhattisgarh State Co-operative Dairy Federation Limited in Raipur district (C.G.)

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Abstract

Chhattisgarh, widely recognized as the "rice bowl of India," is currently making a valiant effort to establish a reputation for itself in the dairy industry by increasing production of milk to the equivalent level of Gujarat. The Chhattisgarh State Cooperative Dairy Federation is one of the largest Cooperative Dairy Federations in Chhattisgarh. The State Dairy Federation, formerly referred to as Raipur Dugh Sangh (a division of MPCDF in undivided Madhya Pradesh), was established in 2013. Thereafter, its business was taken over by the federation to establish a two-tier structure, it is currently contemplating a three-tier system determined by Gujarat's Anand pattern. The study was carried out in Chhattisgarh's Raipur district. A structured interview schedule was used to gather information from 150 DCS members. 15 DCS members were chosen from each selected village, thus constituting a sample size of 150 by the simple random method. The aim of this study was to calculate the benefit-cost ratio of dairy cooperative members. The benefit-cost ratio of DCS members was 1: 1.61, calculated on the basis of per animal per month. The total recurring and non-recurring expenditure was Rs. 2,775 or total cost, and the total returns were calculated at Rs. 4480. As a result, the net income of DCS members was Rs. 1705 per animal per month.

Keywords: BC Ratio, Co-operative society, dairy farming, milk production

1. Introduction

India, which is ranked first, produces a greater amount of milk than any other country in the world. (Source: FAO) 198.44 million tonnes of milk are produced nationwide each year. The milk output climbed by 5.69 percent from the previous year. There is 406 gm of milk available per person per day. Uttar Pradesh (16.06%), Rajasthan (12.89%), Madhya Pradesh (8.62%), and Gujarat (7.71%) are the top four states for milk production. They produce 52.96 percent of the total milk produced in the country. Over time, there has been a steady increase in milk production. Milk output climbed by 5.69 percent from 187.75 million tonnes in 2018–19 to 198.44 million tonnes in 2019–20. Milk was also made available in 2011–12 at a daily rate of 281 grams per person. The per capita availability of milk has been rising consistently since 2014–15. The daily availability for each person grew from 319 gm in 2014–15 to 406 gm in 2019–20.

Ten states have seen increases in milk production of more than 6.00%, according to a state-by-state analysis of the growth pattern of milk production over the 2019–20 period, and 11 states (Karnataka, Arunachal Pradesh, Haryana, Rajasthan, Madhya Pradesh, Goa, Tripura, Chhattisgarh, Bihar, Jharkhand, and Punjab) have seen milk production rise at a rate higher than the national average of 5.69 percent.

Chhattisgarh produced 1620.59 thousand metric tons of milk overall in 2019–20, of which 393.90 thousand metric tons came from buffalo, 136.57 thousand metric tons from exotic breeds of cattle, and 1086.11 thousand metric tons from native breeds of cattle, according to an integrated sample survey. The 2019–20th Livestock Census estimates that there are 11.75 million buffalo and 99.75 million cows worldwide.

From 1511.90 thousand metric tons in 2018–19 to 1620.59 million metric tons in 2019–20, milk output increased by 7.18 percent, making India the world's largest milk producer. However, dairying is still a part of rural life rather than an industry in India. There are numerous problems in the Indian dairy industry. These problems, as well as several other issues, have led to the closure of several dairy farms.

2. Methodology

The study entitled “Cost benefit analysis of Dairy Co-operative members worked under Chhattisgarh State Co-operative Dairy Federation Limited in Raipur district (C.G.)” was conducted in Raipur district of Chhattisgarh. From two chosen blocks, Arang and Dharsiwa, ten villages were chosen. To create a sample size of 150 using the simple random sample method, 15 DCS members were chosen from each of the chosen villages. Using a structured open-ended and closed-ended interview schedule, data was gathered from 150 DCS members. Dairy cooperative members were asked to put their comments on their recurring and non- recurring expenditures along with returns from milk production. Structured interviewing was used to gather the data, which was then subjected to content analysis using the appropriate statistical tools.

3. Analysis of data

The data were analyzed by using the statistical methods and mathematical operation.

Benefit cost ratio

$$BCR = \frac{\text{gross return (Rs.)}}{\text{Total cost of production (Rs.)}}$$

4. Net income

$$NI(\text{Rs.}) = \text{Gross return (Rs.)} - \text{Total cost of production (Rs.)}$$

5. Results and Discussions

The Economic Analysis of dairy farming was calculated on the basis of per animal per month. Table 4.8 revealed that the non recurring cost per animal per month is Rs. 75/- and cost of recurring expenditure where some assumptions were taken as follows:

- **Concentrate :** @ Rs. 900 of per 50 kg bag hence per kg cost @ 18 Rs. Average concentrate consumption per day

per animal = 3 kg hence cost of concentrate per animal per day is @ Rs 54

Thus the consumption of concentrate per month per animal @ Rs. 1620.

- **Roughage:** @ Rs. 4 per kg, average consumption of roughage per animal per day was 4kg hence per day per animal cost of roughage @ Rs. 16

Thus the consumption of roughage per month per animal @ Rs. 480.

On the basis of these assumptions the cost of feed requirement is Rs. 2100/- per month per animal and the cost of electricity, water, medicine were Rs. 600/- per animal per month whereas the cost of labour were calculated on the basis of MANREGA charges which is Rs. 1158/- per animal per month but Most of the dairy farmers performed the dairy farm work on their own. So labour were considered as family labour hence, not included in total recurring cost. In summing up to all these three categories the total recurring cost were Rs/- 2700. the total of recurring and non-recurring expenditure was Rs. 2775/- called total cost.

The return from the the dairy farming were also calculated on the basis of per animal per month regarding to this, and some assumption were taken as follows-

- **Milk production:** The average milk production was recorded in the study 56.50 litres per day per farm family and the average herd size of animal-in-milk is 14. Thus, the average 4 litres milk per day per animal for 30 days. Rate of milk was considered @ 35 Rs/- Per litre.

- **Cow dung production:** The production of cow dung was recorded per day per animal @ Rs. 7/- and the cost of per kg cow @ 2 /- (Godhan Nyay Yojana) Thus, the per day per animal cow dung cost was Rs. 14/-

On the basis of these assumption the Returns from milk production per Month per animal was Rs. 4200/- and the returns from cow dung production per month per animal was Rs. 280/- So The total returns was calculated Rs. 4480/-

Thus, the Gross income of DSC members from per month per animal were Rs. 4480/- and the total cost was Rs. 2775/- the Net income of DCS members was Rs. 1705/- per animal per month.

Hence the benefit cost ratio of DCS members was 1: 1.61 which shows the positive results of DCS members.

Table 1: The economic analysis of dairy farming of DCS member

Expenditure Heads	Rs.	Months	Animal	Total Amount in Rs.		
Non – Recurring Expenditure						
1.	Cost of Land (Own Land hence Neglected)					
2.	Construction of shed (More than 10 years old, own animal shed, hence Neglected)					
3.	Aacquisition of dairy animals (Own or farm generated, hence Neglected)					
4.	Maintenance of shed	25	1	1	25	
5.	Miscellaneous (milk cans, bucket, rope etc)	50	1	1	50	
Sub Total 1 (4+5)				75		
Recurring Expenditure						
1.	Feed @ Rs.1620 for concentrates + Rs. 480 for roughage per animal per month	2,100	1	1	2100	
2.	Electricity, water, medicine, @ 600 per animal per month	600	1	1	600	
3.	Labour @ Rs. 193 per Manday Day X 0.20 Labour Mandays X 30 days (1 Labor for 5 Animals)	1158	1	1	1158 (Family Labour)	
Sub Total 2 (1+2)				2700		
Total cost				2775		
Returns						
1.	Sale of milk	Avg. milk /animal /day	Rate	Days in Milk	No. of animal	Amt. In Rs.
	@ of Rs. 35/litre X 4 litres X 30 days X One 1animal	4	35	30	1	4200

2.	Sale of cow dung (Godhan Nyay Yojana)	Avg. cow dung sold /animal /20 Days in 1 Month	Rate	Month	No. of animal	Amt. In Rs.
	@ of Rs. 2/Kg X 7 kg X 20 days	140	2	1	1	280
Total (1+2) Returns						4480
Net profit						
1.	Gross income					4480
2.	Total Cost (Minus Family Labour Rs. 1158)					2775
3.	Net Income (1-2)					1705
B : C Ratio (1/2)						1.61

6. Conclusions

Accordingly, it can be concluded from result of the study that the BC ratio were calculated as per animal per month. The standards for the B:C Ratio, If BCR >1, that is a positive indication (investment is profitable) BCR = 1 indicates neutrality (no profit or loss). If BCR = < 1 denotes a negative sign (investment is in loss), As a result, the benefit cost ratio for DCS members was 1:1.61, demonstrating the profit of DCS members. That profit is gain by increase in milk production not due to significantly increase in milk productivity.

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