



Economic Feasibility of Dairy Enterprise under Women SHG in Marathwada Region of Maharashtra

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

In India, dairy farming is traditionally practiced enterprise as a supplementary income source with the crop production. The present study was undertaken to analyze the Economic feasibility of Self-Help Groups (SHGs) microfinance for dairy enterprise run by women particularly from buffalos in Marathwada region of Maharashtra state. Whole study was based on the primary data set which was collected from the Parbhani district for year 2015-16. Multistage sampling design was used in selection of district, tehsils, villages and SHG groups. The cross sectional data was randomly collected from the 70 members of buffalo rearing selected SHGs. So the required data was collected by personal interview method using pre tested schedules. The data collected was subjected to tabular and economic feasibility analysis i.e., Net Present Value (NPV), Benefit-Cost Ratio (B/C ratio), Internal Rate of Return (IRR) and Net benefit – investment ratio (N/K ratio). The study revealed that the net present value was found positive and benefit cost ratio more than unity. The internal rate of return was higher than bank rate. So in the study area dairy is feasible enterprise and very much suitable for rural women to practice and empower them economically and socially. This feasibility analysis showed that dairy enterprise through microfinance gives more returns to women entrepreneurs. So, the financial institutions and NGOs should come forward to extent economic support and guidance to rural women through SHGs to take up these enterprises as an income generating activity.

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1. INTRODUCTION

The prosperity of rural economy is closely linked to agriculture and allied activities [1]. The livestock enterprise is adequately combined with crop enterprise by farmers of dry land region to overcome risk [2]. Livestock production have been viewed by planners and policy makers as an effective instrument of social and economic change in the rural areas, as they provide employment to the weaker sections and thereby help them in augmenting their incomes [3]. Dairying is an important segment of livestock sector and is being considered as one of the viable options for diversifying the agricultural economy. This sector provides 15-40 per cent income to nearly 70 per cent of rural households [4]. Dairying provides a regular supplementary income and employment not only to millions of producers in the rural areas but also to very large number of people engaged in secondary and tertiary business related to livestock business and important occupation and a source of family income for large number of women in the village. Keeping of few dairy animals also served as insurance against crop failure. The dairy farming has been considered as a potential means of alleviating unemployment, especially in rural areas [5]. Women play key role in animal, farm and home management. Successful dairy husbandry enterprise not only improves the socio-economic status of rural women, but also assures a sustained and assured means of income to supplement their income from the main enterprise [6]. To improve socio economic condition of rural women Self Help Group play a vital role in Maharashtra has extended microfinance to needed women entrepreneurs in selected Parbhani district through Swarnjayanti Gram Swarozgar Yojana (SGSY) scheme. The assessment of impact of microfinance on empowerment of rural women in terms of income and employment may help to extend similar Economic assistance for poor women entrepreneurs in other areas [7]. Hence the present study is undertaken with the objective to analyze the Economic feasibility of investment on dairy enterprise through Self-Help Groups (SHGs) microfinance. As microfinance is a broad term that include deposit loans, payment services and insurance to poor. The concept of microfinance and microcredit are used interchangeably. But microcredit does not include saving; hence microfinance is more appropriate term [8]. Today microfinance is very much in the

agenda of public policy and it has been increasingly used as a vehicle for reaching the otherwise unreachable poor in the country.

2. MATERIALS AND METHODS

For the present study required primary data were collected from the respondents by personal interview method by using pretested schedules district for year 2015-16. Multistage sampling design was used in selection of district, tehsils, villages and SHG group. In the first stage, Parbhani district was purposely selected. In the second stage, Parbhani tehsil was selected purposely because this having maximum agriculture base women enterprises in the district. In the third stage, the list of SHG was obtained from district rural development agency of Parbhani district [9]. From these 7 buffalo rearing enterprise self help groups were selected randomly. So from each SHGs group randomly 10 members were selected for study, hence the cross sectional data was collected from the 70 members of buffalo rearing selected SHGs. The data collected was based on the memory of the respondents because majority of them have not maintained records of expenditure and income relating to the dairy enterprise they have taken up. The data collected from the beneficiaries' pertaining to the establishment cost and maintenance cost incurred in management of dairy enterprise during the study period. Analytical techniques for Economic feasibility analysis like Net Present Value (NPV), Benefit-Cost Ratio (B/C ratio), Internal Rate of Return (IRR) and Net benefit – investment ratio (N/K ratio) were employed. For the cost and returns, simple tabular analyses were employed.

2.1 Economic Feasibility Analysis

Economic feasibility analysis was carried out to evaluate the feasibility of investment in dairy enterprise. The discounted cash flow technique which has advantage of reducing the cash flows to a single point of time was used to facilitate comparison Suresh and Mundingamani, [10]. The discounting procedure estimate the present value of an amount either received or paid out in future. The discount factor permits the determination of the present value and has application in evaluation of many agricultural projects. In case of dairy enterprise majority of the dairy owners were maintaining the milch animal for seven years on the business point of view in their dairy

unit. Then these animals were either culled out or disposed off in the market. Therefore, investment in the dairy unit considered for seven years. Following four conventionally used project evaluation techniques were used in the study to evaluate the feasibility of investment on dairy enterprise.

- 2.1.1 Net present Value (NPV)
- 2.1.2 Benefit cost ratio (B: C ratio)
- 2.1.3 Internal rate of return (IRR)
- 2.1.4 Net benefit – investment ratio (N/K ratio)

2.1.1 Net present value

The net present value computed by finding the difference between the present worth of the benefit stream less the present worth of the cost stream Suresh and Mundinamani, [10]. It was worked out as follows:

$$NPV = \sum_{i=1}^n Y_n(1+r)^n - I$$

Where,

- Y_n = The net cash inflows in the year n
- r = The discount factor
- I = Initial investment
- i = years of life period 1, 2, 3....n.

2.1.2 Benefit cost ratio (B: C ratio)

This is the ratio obtained when the present worth of the benefit stream is divided by the present worth of the cost stream. In practice, it is probably more common not to compute the benefit cost ratio using gross cost and gross benefit, but rather to compare the present worth of the net benefit with the present worth of the investment cost plus the operation and maintenance cost Suresh and Mundinamani, [10].

$$B: C \text{ Ratio} = \frac{\text{Discounted net cash flows}}{\text{Investment of the project}} = \frac{\sum_{i=1}^n Y_i(1+r)^{-i} - I}{I}$$

Where,

- Y_i = The net cash inflows in the year n
- I = Initial investment

2.1.3 Internal rate of return (IRR)

The incremental net benefit stream or incremental cash flow for measuring the worth of a project to find the discount rate that makes the net present worth of the incremental net benefit stream or incremental cash flow equal zero. This discount rate is called the internal rate of return. It is the maximum interest that a project could pay for resources used if the project is to recover its investment and operating costs and still break even Suresh and Mundinamani, [10].

$$IRR = \text{Lower Discount rate} + \frac{\text{Difference between the two discount rate} \left(\frac{\text{Present worth of cash flows at lower discount rate}}{\text{Absolute difference between present worth of cash flows stream at the two discount rates}} \right)}$$

2.1.4 Net benefit – investment ratio (N/K ratio)

Divide the sum of the present worth after the incremental net benefits in the early years of the project. The reason for calculating the net benefit investment ratio in this manner is that we are interested in an investment measures that selects projects

$$N/K \text{ ratio} = \frac{\text{The present worth of the net benefits}}{\text{The present worth of the investments}}$$

3. RESULTS AND DISCUSSION

Before discussing the economic feasibility of dairy enterprises under Women Self Help Group, we must know about the per annum cost and return of buffalo dairy enterprise reared by women SHGs.

3.1 Costs and Returns of Buffalo Enterprise in SHG Unit

In the present study most of the sample respondents were mainly depends on agriculture and wage earning for their livelihood. In the selected area they were provided with a buffalo as dairy unit to enhance their income level. The average cost incurred and returns realized per buffalo by the respondents was computed and presented in Table 1.

It was observed that, feed cost included that green fodder (2.48 %) dry fodder (16.08 %) and concentrate (34.53 %) was the higher in all input cost in buffalo keeping SHG. These findings concur with [11] regarding entrepreneur spent more amounts on feed and fodder. Human labour cost (Rs.9072.17) was second largest than individual items of expenditure in which family labour participation was relatively more. Agreeing to the findings of Umamageswari *et al.*, [12] and Samuel *et al.*, [13] higher labour cost and regarding amount spent on veterinary service was not sufficient. Hence it is desirable to give more attention to health care and save milch buffalo from prone of diseases. It was observed that, Total cost was Rs.44758.12 in which share of variable cost were 75.44 % followed by fixed cost with 24.56 per cent. It was observed that,

milk yield was 1024.72 liter while by produce like FYM was 45.47q and no. of young calves was 1.76. It was clear that, return from milk was Rs.41095.13, value of FYM was Rs.9800 and cost of calves and culled animal was Rs.5533.33. Similar to the findings of Makadia *et al.*, [14] and Sunil *et al.*, [15] that FYM could be used as manure in their own farm or sale in market and good quality herd could be used in their own farm. It was observed that net profit from per buffalo per annum was found to be Rs.11670.34. It was clear that buffalo keeping SHG enterprise was a profitable enterprise with the output input ratio was 1.26. [16] had also obtained similar results in for realization of high net returns from buffalo milk production.

3.2 Feasibility Investment on Buffalo SHG Enterprise

Economic feasibility of buffalo rearing SHG through discounted measures of project worth was calculated and is presented in Table 2.

The discounted cost of dairy SHG enterprise was Rs. 228871.75 .Similarly, the discounted benefit per unit of dairy SHG enterprises was Rs. 248228.01. Net present value of project was Rs. 19356.23 which obtained subtracting discounted cost of dairy SHG enterprises from

Table 1. Per annum costs and returns of buffalo enterprise in SHG unit (Per 1.72 buffalo herd)

Particulars	Unit	Quantity	Amount (Rs)	Percentage
Costs				
Dry fodder	Kg	1601.68	7198.59	16.08
Green fodder	Kg	685.35	1108.14	2.48
Concentrate	Kg	1934.91	15454.52	34.53
Human labour	Man days	80.79	9072.17	20.27
Veterinary aids	Rs	-----	245.786	0.52
Electricity charges	Rs	-----	228.61	0.55
Miscellaneous expenditure	Rs	-----	113.46	0.25
interest on working capital@11%	-----	-----	346.2	0.77
Variable cost	Rs	-----	33767.476	75.44
Depreciation on milch animal@10%	-----	-----	3322.97	7.42
Deprecation on shed @ 10 %	-----	-----	1175.8	2.63
Deprecation on equipment @ 10%	-----	-----	139.544	0.31
Deprecation on Fixed capital @ 10%	-----	-----	6352.33	14.19
Fixed cost	Rs	-----	10990.64	24.56
Total cost	Rs	-----	44758.12	100
Production of milk	Lit.	1024.72	41095.13	72.83
Young calves	No.	1.76	5533.33	9.81
FYM	Qtls	45.47	9800	17.37
Gross return	Rs	-----	56428.46	100
Net profit	Rs	-----	11670.34	-----
Output Input Ratio	-----	-----	1.26	-----

Table 2. Estimate of economic feasibility in buffalo SHG enterprise of women through discounting measurement factor

Life span of buffalo SHG (Years)	Incremental capital investment (Rs.)	Incremental production cost (Rs.)	Incremental gross cost (Rs.)	Lower discounting rate@ 12%	Present worth of cost@ 12 %	Incremental gross benefit (Rs.)	Present worth of benefit @12%	Incremental net benefit (Rs.)	Present worth of net benefit@ 12%	Higher discounting factor @33%	Present worth of net benefit @33%
1	49500	36439.27	85939.27	0.89286	76731.74	47005.60	41969.42	-38933.67	-34762.32	0.75188	-29273.45
2	0	45648.04	45648.04	0.79719	36390.16	70667.47	56335.40	25019.43	19945.24	0.56532	14143.98
3	0	41720.55	41720.55	0.71178	29695.82	54014.80	38446.65	12294.25	8750.80	0.42505	5225.67
4	0	41910.5	41910.5	0.63552	26634.96	52340.00	33263.12	10429.5	6628.16	0.31959	3333.16
5	0	41810.23	41810.23	0.56743	23724.38	51258.00	29085.33	9447.77	5360.95	0.24029	2270.20
6	0	40995.28	40995.28	0.50663	20769.44	48309.45	24475.02	7314.17	3705.58	0.18067	1321.45
7	0	32994.92	32994.92	0.45235	14925.25	54500.00	24653.08	21505.08	9727.82	0.13584	2921.25
	∑	281518.79	331018.79	4.56376	228871.75	378095.32	248228.01	47076.53	19356.23	2.61865	-57.72
								NPV= 19356.26	N/K= 1.08	IRR=32.94	B:C= 1.08

discounted benefit of dairy SHG enterprises. These findings are concurred with Mazwanet al., [17] Net present value was positive which concluded that investment was economically feasible and financially sound. Benefit cost ratio was seen to be 1.08 with application of discounting technique was greater than one while considering seven years of life span of buffalo SHG. Hence, this project was found to be profitable. Further Internal rate of return was 32.94 % it was higher than prevailing bank rate. These findings are line with the Rashtrarakshak, et al, [18] Amir et al., [19] Hence Internal rate of return shows that this dairy enterprise was profitable with regular returns as well as employment. (Lal, P. and Chandel, B.S., [20] Also obtained similar results in dairy is feasible enterprise and very much suitable for rural women to practice and empower them economically and socially.

4. CONCLUSION

From the above study it was concluded that dairy SHGs enterprise was found to be economically feasible enterprise. It was very much suitable for rural women to follow and empower themselves economically and socially. In the study area SHGs microfinance of selected rural women beneficiaries increased and it enabled them to get additional income and additional livestock assets. According to these feasibility analysis women entrepreneurs got more returns through SHGs microfinance. Economic support and guidance is considered necessary to attain these enterprises as an income generating activities of rural women through SHGs, so some financial institutions and NGOs come forward to strengthen such enterprises.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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