

A COGNITIVE STUDY ON MILK PRODUCTION USING FACTOR AND SIMPLE PERCENTAGE ANALYSIS

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ABSTRACT

To assess the dairy farmers' satisfaction with dairy co-operative societies, a research study was conducted in Poothrikka Milk Producer's Co-operative Society in Ernakulam District of Kerala. By using simple random sampling method 150 members were selected from 702 registered members and interview schedule method was adopted for the collection of primary data. Factor analysis was used for analysis. The findings of the study disclosed that "Low cost feed provision", "Provision of medical insurance", "Veterinary care", "Loan facility" and "Cash bonus" were the important factors in determination of level of satisfaction in the Co-operative society.

Index Terms: Milk Production; primary data; Factor Analysis; Simple Percentage Analysis.

I. INTRODUCTION

India is the highest producer of milk in the world (*Food and Agriculture Organization of the United Nations*). Milk industry contributes a prominent part in the development of the nation because it supplements family income and employment to the rural and semi urban people. In India, the supply of milk is largely from the small and marginal farmers scattered throughout the country, with one or two milk cattle and whose main source of income is dairy farming.

Various studies show that the Indian Dairy Industry contributes about 26% to the agricultural GDP of the country. About 8.4 million people are directly or indirectly engaged in dairy farming. It is expected to create 2 crore new job opportunities over the next decade. (*Agriculture Skill Council of India*). Dairy farmers in India are affected by numerous of problems like continues increase in the price of feed, huge investment, lack of veterinary care, lack of training, lack of competitive price for the milk etc... So, an individual milk producer is unable to continue milk production in a profitable manner. Co-operative form of milk production is one of the ways to solve the problems in certain extent. Village level co-operative societies in India provide various schemes to its members. Some of the services are provision of subsidized feed, making prompt payment for the milk supplied by the member, veterinary care, training facilities, provision of short term finance, cash bonus etc..

Milk Producer's Co-operative society is a society organised with the objective of helping dairy farmers to market milk through a collective network. Most of the dairy farmers are situated in rural areas. But the market is spread over in various parts of the country including towns and urban areas. The farmers initially find it difficult to market their products locally. These societies are formed to collect the milk on a large scale basis and supplying the products at the regional level or district level. In Kerala MILMA undertakes the collection of Milk from the farmers and distributes to the consumers all over the state.

Milk trading and providing input services are the two major operational functions performed by a primary milk society of MILMA. Milk trading function involves reception, testing, local milk sale and maintenance of

accounts. Input services cover supply of subsidized cattle feed, fodder development, provision of necessary medicines for the animal and extension services to the producer members. Apart from these services society provides, financial assistance, loan facilities, provision for bonus, training facilities to their members. Thus a member of a society gets their entire needs under one roof. In spite of many advantages in a milk society, there are also some weaknesses are faced by the members. Hence, an attempt is made to study the level of satisfaction of members in Poothrikka Milk Producer's Co-operative Society in Ernakulam District, Kerala.

II. REVIEW OF LITERATURE

Nishi and Ram in their study have found that one third of the members are satisfied with the performance of society and the major factors determining satisfaction are organisational participation and economic motivation [1]. Jitendra *et al.* in their paper have found that the level of satisfaction of the respondent depends on attitude of insurance specialists and quickness and manner of payment after claim of insured animal [2]. Shashi *et al.* in their study have found that majority of the dairy farmers are highly satisfied with the functioning of J.K. Trust and major are dissatisfied with health care, product marketing and training facilities [3]. Pinky *et al.* conducted a study on dairy cooperatives working under Haryana Dairy Development Cooperative Federation, Haryana. The study has revealed that majority of the farmers have moderate level satisfaction about the performance of the society. The study also suggests that woman participation in decision making should be promoted. Kurup in his study suggest that for better satisfaction level supply of subsidized cattle feed, provision of Artificial Insemination, arrangement of adequate infrastructural facilities and setting up of milk collection centres will improve farmers satisfaction [5]. Ashok observed that marketing channels used by Co-operatives are more efficient than the other channels. Majority of the dairy farmers are satisfied with the services rendered by the milk marketing co-operative society [6]. Jawana in his study, suggests that management of the union should conduct regular meetings so that the systems become democratic and effective and the union should make necessary facilities to collect milk twice in a day from all primary Dairy Cooperative Societies so that milk producers get more satisfaction and they may adopt new methods of dairy farming [7].

From the review of literature[23][24], it is ascertained that previous studies have been carried out for the level of satisfaction among members of Co-operative society. Not many studies have been carried out to measure the satisfaction level of members in a village level cooperative society in Ernakulam district of Kerala in multi-dimensional aspects [8-17]. Hence, an effort has been made to identify the components which contributes satisfaction among farmers in various services and schemes of society like veterinary care, cash bonus, low cost feed provision, training facility, registration process, conduct of staff, dissemination of market information, etc.

A. Statement Of Problem

In India, milk is produced by small and marginal farmers living in rural and semi urban areas. They are encountered by numerous problems in production and marketing of milk which can be resolved by collective efforts taken through primary level milk societies. These societies provide various financial assistance, collection and disposal of milk, provision of bonus, training facilities veterinary care, dissemination of market information, making payment etc.

An attempt has been made to trace out the level of satisfaction among the dairy farmers about several services and schemes offered by the Poothrikka Milk Producers Co-operative Society in Ernakulam district of Kerala.

B. Objectives

- To analyze the demographic conditions of the members
- To study the factors that determining level of satisfaction among members.
- To suggest acceptable suggestions for the enhancement of satisfaction level.

C. Scope of The Study

This paper will be useful to understand the demographic situations of the members, particularly in the area of age, gender, nature of employment, income, education, residence, and dairy farming experience. This research analyses the level of satisfaction among the members regarding various services and schemes offered by the co-operative society to their members.

III. RESEARCH METHODOLOGY

A. Source of Data

The study mainly depends on primary data. An interview schedule, is used to collect primary data from the members. Articles, Journals, Newspapers and various websites are used to collect the secondary data.

B. Sampling Design

Total number of primary level milk producers cooperative societies which are affiliated to Ernakulam Regional Co-operative Milk Producer's Union [ERCMPU] in Ernakulam district is 304. Among these societies, Poothrikka Milk Producers Cooperative Society is selected purposively because of more number of registered members participated in the dairy farming. By adopting simple random sampling method 150 respondents are selected from 702 registered members.

C. Tools of analysis

Factor analysis and simple percentage analysis are used for data analysis.

D. Period of study

The study was conducted from November 2019 to February 2020.

E. Limitations Of The Study

The present study is subjected following limitations

- 1) Only those members who are registered in Poothrikka Milk Producer's Co-operative Society was choose for the study. Therefore, the findings of the study may not be applicable to other village level co-operative societies.
- 2) Majority of the respondents answered information from their memory it cannot be hundred percentage accurate.

F. Significance Of The Study

This research was conducted to analyse the level of satisfaction of the members joined in Poothrikka Milk Producer's Co-operative Society in Ernakulam District of Kerala. It was based on the view of the registered members of the society. This study has analyzed the various factors which influence the level of satisfaction and to motivate and enhance level of satisfaction. It would greatly help the co-operative milk marketing society and also benefit the members in the co-operative sector. This will also help the policy makers in top level of the Management and Government to formulate suitable policies for raising farmer's satisfaction.

III. ANALYSIS AND INTERPRETATION

TABLE III

Demographic profile of the dairy farmers

			Total 150	
S.No.	Particulars		n	%
1	Gender	Male	105	70.00
		Female	45	30.00
2	Age	Up to 40	15	10.00
		41 – 60	75	50.00
		Above 60	60	40.00
3	Marital Status	Married	138	92.00
		Single	12	8.00
4	Education	Illiterate	33	22.00
		Up to S.S.L.C.	88	58.70
		H.S.C	16	10.60

		Under Graduate	13	8.70
5	Area of Residence	Urban	19	12.70
		Semi Urban	37	24.60
		Rural	94	62.70
6	No. of family members	Up to 4	49	32.67
		5 – 6	93	62.00
		Above	8	5.33
7	Source of Income	Milk production	87	58.00
		Agriculture	43	28.67
		Self-employment	7	4.66
		Government Job	4	2.67
		Private Job	9	6.00
8	Monthly Income (Rs.)	Up to 6,000	54	36.00
		6,001 – 12,000	60	40.00
		12,001 – 18,000	19	12.67
		Above 18,000	17	11.33
9	Experience of Dairy farmers (in years)	Up to 3	8	5.33
		4 – 5	13	8.67
		6 – 8	22	14.67
		Above 8	107	71.33
10	Number of milk animal	Up to 4	87	58.00
		5 – 6	43	28.67
		7 – 9	11	7.33
		Above 9	9	6.00

Table 1. Shows the demographic profile of members in Poothrikka Milk Producers Co-operative Society in Ernakulam district of Kerala.

Gender details show one hundred and five (70%) members are male and 45 (30%) members are female. Thus, majority of the members are male.

Regarding the age of respondents, fifteen (10.00) members are under the age of 40 years; 75(50.00) members age ranges between 41 to 60 years and the remaining 60(40.00) members are above 60 years. Thus, majority of the member's age ranges from 41 to 60 years.

About the marital status, one hundred and thirty eight (92.00) members are married and 12(8.00) members are single. Thus, majority of the members are married.

Education details show that thirty three (22.00) members are illiterate, 88(58.70) members are educated up to SSLC, 16(10.60) members have completed H.sc and the remaining 13(8.70) are under graduate members. Thus, majority of the members are educated up to SSLC.

Regarding the area of residence, nineteen (12.70) members are living in urban area, 37(24.60) members live in semi urban area and rest of the 94(62.70) members live in rural area.

About the family size, forty nine (32.67) members have up to 4 members in their family, 93(62.00) members have 5-6 members in their family and the remaining 8 (5.33) have above 6 members in their family. Thus, majority of the members have 5-6 members in their family.

Regarding the main source of income, eighty seven (58.00) members primarily depends on milk production, 43(28.67) members depend on agricultural income, 7(4.66) are self-employed, 4(2.67) earning from Government job and the rest 9 (6.00) from private job. Thus, majority of the respondents are earning from milk production.

Monthly income details show that fifty four (36.00) members earn up to Rs. 6,000 per month, 60(40.00) members earn 6,001-12,000 per month, 19 (12.67) members earn 12001-18,000 per month and the remaining 17(11.33) members earn more than 18,000 per month. Thus, most of the members earn between Rs.6, 001-12,000 per month.

About the experience in dairy farming thirteen (8.67) members have 4-5 years of experience, 22(14.67) members have 6-8 years of experience, 107(71.33) members have more than 8 years of experience in dairy farming. Thus majority of the members have more than 8 years of experience in dairy farming.

Regarding number of milk animal owned by the members; Eighty seven (58.00) members have up to 4 milk animal, 43(28.67) members have 5-6 milk animals, 11(7.33) members have 7-9 milk animals and the remaining 9(6.00) members have more than 9 milk animals in their dairy farm.

A. Farmers Satisfaction towards MILMA Services

Factor analysis is employed to point out the prominent factors that influence satisfaction towards MILMA. Pre-analysis testing for suitability of the entire sample for factor analysis Kaiser-Meyer-Olkin (KMO) and Bartlett’s Test of Sphericity is used. The result of KMO and Bartlett’s Test is found more than 0.70. Consequently, the collected data is fit for the use of factor analysis. Further, the large values of Bartlett’s sphericity test (1256.847, df: 136, Sig=0.000) and KMO statistics (0.796) have showed the appropriateness of factor analysis (refer table 2 and 3).

TABLE II

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.798
Bartlett's Test of Sphericity	Approx. Chi-Square	1256.847
	df	136
	Sig.	.000

TABLE III

Satisfaction of MILMA Members

Reasons	1	2	3	4	5
Subsidized cost feed provision	.819				
Provision of medical insurance	.819				
Veterinary care	.749				
Loan facility	.704				
Cash Bonus	.550				
Training facility		.833			
Timely procurement of milk		.811			
Correct weighments		.752			
Protecting member’s interest		.747			
Compliance and grievance system			.913		
Dissemination of market information			.900		
Members participation in management			.861		
Conduct of the staffs				.688	
Payment procedure				.686	
Price of milk				.649	
Member registration process					.878
Periodicity of meetings					.846

Eigen Values	5.052	3.051	1.601	1.282	1.045
% of Variance	29.716	17.944	9.417	7.542	6.146
Cumulative % of Variance	29.716	47.660	57.078	64.619	70.765

B. Findings of the Study

Five factors are identified by locating Eigen values greater than unity. Factors which have a component loading of 0.5 and above are said to be significant factors that increase farmers' satisfaction at MILMA services. It is clear from the rotated component matrix "Low cost feed provision", "Provision of medical insurance". "Veterinary care", "Loan facility" and "Cash Bonus" have a component loading of 0.5 and above. Hence, these variables form first factor.

In the second factor, "Training facility", "Timely procurement of milk", "Correct weighments", and "Protecting member's interest" are found to be significant.

In the third factor, "Compliance and grievance system", "Dissemination of market information" and "Members participation in management" are found to be significant.

In the fourth factor, "Conduct of the staffs", "Payment procedure" and "Price of milk" are found to be significant.

In the fifth factor, "Member registration process" and "Periodicity of meetings" are found to be significant.

Factor one contributes to a tune of 29.716per cent towards satisfaction. The other factor contributes namely, 17.944, 9.417, 7.542and 6.146towards satisfaction in their order. The total cumulative percentage of factors by these five factors towards satisfaction accounts for 70.765per cent.

C. Suggestions

- The result of factory analysis (Table No. 2) discloses that low cost feed provision is a major factor which influence satisfaction. So, society should increase the subsidy for the enhancement of level of satisfaction among members.
- Provision of medical insurance is another factor which influences the level of satisfaction. Members need medical insurance for their cattle for avoiding risk and to protect their animals from various diseases and natural calamities.
- Veterinary care offered by the society is an important factor which determines the satisfaction level of members. Provision of veterinary services at the door step at time of emergency will enhance the level of satisfaction.
- As a motivational factor for supply of more milk the society need to restructure the current bonus plan for the enhancement of satisfaction level.
- Proportionate revision of procurement price is needed according to the price changes in feed and fodder.
- Provide a special training to members who are joined recently for the better cattle management and utilization of services of society..

III. CONCLUSION

The results of the study reveal that low cost feed provision, provision of medical care, veterinary care, loan facility and cash bonus are the major factors which determine the level of satisfaction among members in a Co-operative society. Hence, the management of co-operatives have to constantly ascertain their members' expectations, initiate necessary steps for the enhancement of satisfaction and offer full-fledge services like 24 hours veterinary care for the animals, provision of subsidized feed and offer competitive price for the supplied milk. Such services will offer satisfaction to the exist members and attract new members to the society.

A. Scope for further research

The present paper has been undertaken to find the satisfaction level among the members of Poothrikka Milk Producers Co-operative society in Ernakulam District of Kerala. The future researchers may carry out a study on ascertaining the level of awareness and level of utilization of various services and schemes of the societies. A study on constraints in production of milk and study on problems in marketing of milk may also be carried out.

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