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ANALYTICAL STUDY OF SUPPLY CHAIN MANAGEMENT AND CONSUMERS BUYING BEHAVIOUR IN DAIRY INDUSTRY WITH REFERENCE TO SATARA DISTRICT

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ABSTRACT:

India is the highest milk producer in the entire globe. Dairy industry is playing one of the most imperative role in world over as modern India's most successful developmental programme. The Indian dairy industry is contributing considerably to the country's economic health standards by growing the nutrition value of the food. There are large proportion of milk and milk production India continues to be marketed through the informal or unorganized sector. Supply chain and buying behavior of consumers is one of the main functions of the dairy industry. The major objective of supply chain can be alienated into effective performance, time and cost related. In this article researcher's objective is to evaluate and study the effective performance of supply chain management in dairy industry and consumers buying behavior with reference to Satara district.

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KEY WORDS: Supply chain management, dairy industry, milk production.

1.0 INTRODUCTION

Supply chain management is the process of planning, implementing and controlling efficient and cost effective flow of raw materials, in process inventory, finished goods and related information from point of origin to point of consumption for the purpose of confirming to customers requirement. Hence, supply chain includes core business process in the organizations value chain that take a product or service from concept to development and then to market.

Supply chain management in dairy industry integrates various links involved in the customer order fulfillment, viz. supplier transporter, manufacturer, wholesaler, retailer and consumer and transforms the business process that bring products and services to the market place. The development of supply chain in dairy industry requires the knowledge and expertise about the functioning of the complete chain including strategic aspects i.e. framing strategies pertaining to chain design, chain formulation, chain

organization, chain management and partnership and the functioning aspects i.e. chain marketing, chain logistic, quality assurance, material flow, information flow, value addition, technology and interaction. Managing supply chains requires an integrated approach in which chain partners jointly plan and control the flow of goods, information technology and capital from farm to fork and vice-versa. Supply chain management is concerned with the efficient integration of the entities involved so that merchandise is produced and distributed in the right quantity to the right location and right time.
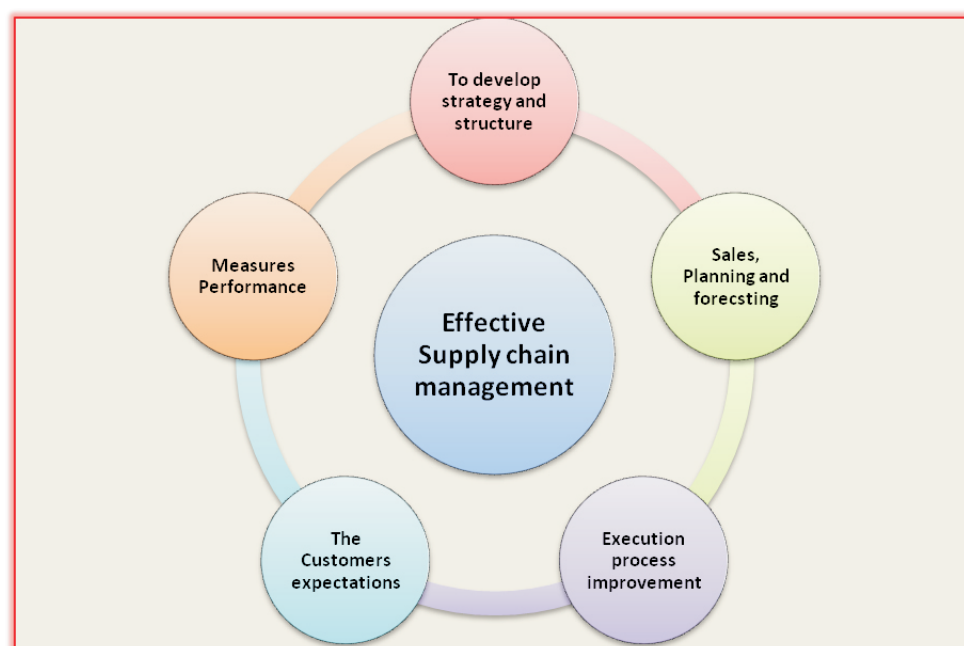
Figure No.1 Supply chain management for dairy industry

A supply chain consists of all stages involved directly or indirectly in fulfilling in customer request. The supply chain not only includes the manufacturers and suppliers but also retailers and customers themselves with in each organization.

2.0 LITERATURE REVIEW

1] K. Venkata Subbaiah , Member, IAENG, K. Narayana Rao K. Nookesh babu in his article Tiltled as "Supply Chain Management in a Dairy Industry" issued in Proceedings of the World Congress on Engineering 2009 Vol I WCE 2009, July 1 - 3, 2009, London, U.K. mentioned that a supply chain model is developed for adairy industry, located in Andhra Pradesh, India. The supply chain includes four echelons namely raw milk suppliers, plant, warehouse and customers. In this model, emphasis is mainly on production and distribution activities, with a view to find out purchase plan of raw milk, production plan of product mix and transportation plan of the products.

2] Pramod Kumar Mishra (Corresponding Author) School of Management Studies, University of Hyderabad Central University P.O., Hyderabad, India in his article titled as "Impact of Risks and Uncertainties on Supply Chain: A Dairy Industry Perspective "issued in Journal of Management Research ISSN 1941-899X 2011, Vol. 3, No. 2: E11 Mentioned that No business organization is out of purview of risks and uncertainties and hence the dairy industry is no deviation. The industry is extended from a milk producer in the rural area to a consumer in the urban area through some of the core processes like pasteurization and transportation. The dairy food supply chain which entangles several

stakeholders in the system gets disrupted many a times due to various vulnerabilities in the operation. The vulnerabilities in terms of risks and uncertainties get multiplied with the Perishability nature of the raw material that is milk which the industry deals in. The study will discuss about the various risks and uncertainties from a dairy industry perspective and their impact at various stages of the supply chain. Mostly survey based research method has been adopted to gather information from various stakeholders in the system along with in-depth personal interviews with the corporate authorities. In the findings section the major risks are discussed along with their impact on the supply chain at various stages. The findings could be further verified in other dairy food supply chains so as to make it wide.

3] M.L. Sharma, Raka Saxena, Tirthankar Mahato and Dipan Das in his article titled as "Potential and Prospects of Dairy Business in Uttarakhand: A Case Study of Uttaranchal Cooperative Dairy Federation Limited" issued in Agricultural Economics Research Review Vol. 20 (Conference Issue) 2007 pp 489-502 Mentioned that in this study has analyzed the inefficiencies existing in improving milk production, procurement pattern, marketing channels, and price spread of a dairy cooperative, Uttaranchal Cooperative Dairy Federation Ltd (UCDFL), also known as 'Anchal' in the Kumaun region of Uttarakhand and has proposed a model for eliminating these inefficiencies. It has been found that UCDFL is focused mainly on liquid milk marketing and has not adopted product diversification, which is the need of the day. Lack of business development services related to dairy industry has been found leading the farmers to disassociate from Anchal. The study has suggested that Anchal should evolve a definite policy with regard to procurement of milk in both lean and regular periods and to sustain its members, incentive package should be provided. Anchal should find ways to establish fodder banks at strategic locations for providing fodder during emergencies and periods of fodder scarcity.

3.0 STATEMENT OF THE PROBLEM

A basic priority for the dairy industry is to ensure that products distributed to the consumers are safe and suitable for the consumption. Milk borne injuries can be extremely fatal leading to unnecessary litigations and finally tarnish the image of the company in the long run. Since bacteria can grow in milk very rapidly and make it perished, it results in incurring heavy losses and brings among all food items, which needs immediate attention. An efficient and effective chain management operation could provide for hygienic measures throughout the supply chain by adhering to the proper food value requirements.

3.1 OBJECTIVES OF THE STUDY

1)To study the present supply chain management in dairy industry.
2)To define supply chain responsibilities to a core service competency.
3)To study the effectiveness of supply chain management system in dairy industry and suggest measures for improvement.
4)To study the consumers buying behaviour for purchasing the packing milk and milk products

3.2 HYPOTHESIS OF THE STUDY

1.Customer's preference criteria for purchasing packing milk and milk products were related to the characteristics of milk and milk products.
2.Customer's preference for packing milk & loose milk was dependent on milk brands

4.0 RESEARCH METHODOLOGY:

The study is descriptive in nature. The entire study is based on primary source of data. The

secondary data has been obtained from books, journals, websites etc.

4.1 COLLECTION OF PRIMARY DATA

The primary data was collected by keeping some objectives in researchers mind. This data is first hand used data. Researcher collected the primary data using the well structured Questionnaire. Researcher has developed the questionnaire which is the tool of data collection, which satisfied objectives and hypothesis of the study. Researcher has drafted the Questionnaire for taking the responses' from selected sample.

4.2 SAMPLING AND SAMPLE SIZE DETERMINATION OF THE STUDY

The population size is large. The survey was conducted to 222 potential buyer respondents from selected villages. The response rate was likely impacted by the fact that the study focused on collaborative relationships. In this article researcher is focus on the responses taken by 222 milk consumers.

4.3 STATISTICAL TOOLS AND TECHNIQUES USED IN THE STUDY

Chi-Square Test has been used for the testing the check relationship of customer's preference criteria for purchasing packing milk and milk products. For data analysis purpose researcher used statistical software like as SPSS 20.0 version (Statistical Software for Social Science) and MS- Excel. Using statistical software researcher computed descriptive statistics for supply chain management in dairy industry. Using MS- Excel researcher draws the graphical representation of her study to better know the trend of his supply chain management in dairy industry.

5.0 DATA ANALYSIS AND INTERPRETATIONS
5.1 Statistical Hypothesis to check relationship of customer's preference criteria for purchasing packing milk and milk products.

H_o: Customer's preference criteria for purchasing packing milk and milk products were not related to the characteristics of milk and milk products.
Against
H_1: Customer's preference criteria for purchasing packing milk and milk products were related to the characteristics of milk and milk products.

Table No. 1 Chi-square table of customer's preference criteria

Preference Criteria	No.of Respondents(Oi)	Expected responses (Ei)	(Oi-Ei)	(Oi-Ei)^2/Ei
Availability	153	129	24	4.4651163
Quality	188	129	59	26.984496
Quantity	42	129	-87	58.674419
Price	144	129	15	1.744186
Total	516	-	-	**91.868217**

Calculated Value of Chi- square Statistics = 91.868217
Table value of Chi- square Statistics = 11.34

Decision Criteria:

The chi-square test was for testing the null hypothesis, which states that there was no

significant difference between the expected and observed result. If chi-square value was equal to or greater than the table value, reject the null hypothesis i.e. Ho. Otherwise researcher may accept the alternative hypothesis H1.

Interpretation

In the above test of chi-square, researcher observed that the chi-square value was 91.868217 which were greater than the chi-square table value i.e. 11.34. If chi-square value was equal to or greater than the table value, reject the null hypothesis i.e. Ho. Here researcher rejects the null hypothesis at 1% level of significance. It means that the Customer's preference criteria for purchasing packing milk and milk products were related to the characteristics of milk and milk products. Most of the customers were giving preference for quality and availability of the milk and milk products. Researcher found that, Customer's preference criteria for purchasing packing milk and milk products were related to the characteristics of milk and milk products. Most of the customers were giving preference for quality and availability of the milk and milk products

5.2 Statistical Hypothesis to check independence of customer's preference regarding packing milk against loose milk

H_o: Customer's preference for packing milk & loose milk was independent on milk brands.
Against
H_1: Customer's preference for packing milk & loose milk was dependent on milk brands.
Note: Strongly agree= "1", Moderately agree= "2", Neutral= "3", Moderately disagree= "4", Strongly disagree= "5"

Table No. 2 Observed frequency table for Customer's preference pattern

Type of Opinion	1	2	3	4	5	Total
Very good	12	11	39	66	94	222
Good	22	12	45	36	107	222
Average	4	8	10	88	112	222
Poor	98	88	25	8	3	222
Very poor	87	99	22	5	9	222
Total	223	218	141	203	325	1110

Table No. 3 Expected frequency table for Customer's preference pattern

Type of Opinion	1	2	3	4	5	Total
Very good	44.6	43.6	28.2	40.6	65	222
Good	44.6	43.6	28.2	40.6	65	222
Average	44.6	43.6	28.2	40.6	65	222
Poor	44.6	43.6	28.2	40.6	65	222
Very poor	44.6	43.6	28.2	40.6	65	222
Total	223	218	141	203	325	1110

Table No. 4 P-Value table for Customer's preference pattern

Type of Opinion	P-Value
Very good	0.0000000000
Good	0.0000000000
Average	0.0000000000
Poor	0.0000000000
Very poor	0.0000000000

Decision Criteria:

The chi-square test was for testing the null hypothesis, which states that there was no significant difference between the expected and observed result. If p- value was less than or equal to the level of significance i.e. alpha was less than or equal to 0.05 then researcher may reject the null hypothesis i.e. Ho. Otherwise researcher may accept the alternative hypothesis H1.

Interpretation:

In above table of p-value researcher noticed that the all of the p-value was less than smallest level of significance i.e. 0.05 so that researcher may reject the null hypothesis Ho and may accept the alternative hypothesis H1 means that Customer's preference for packing milk & loose milk was dependent on milk brands. Generally customers preference was strongly depend on milk quality. Researcher found that, Customer's preference for packing milk & loose milk was dependent on milk brands. Generally customers preference was strongly depend on milk quality.

5.3 Is there any impact of branding while purchasing packed milk & milk products?

Table No. 5 Branding impact on customers buying behavior

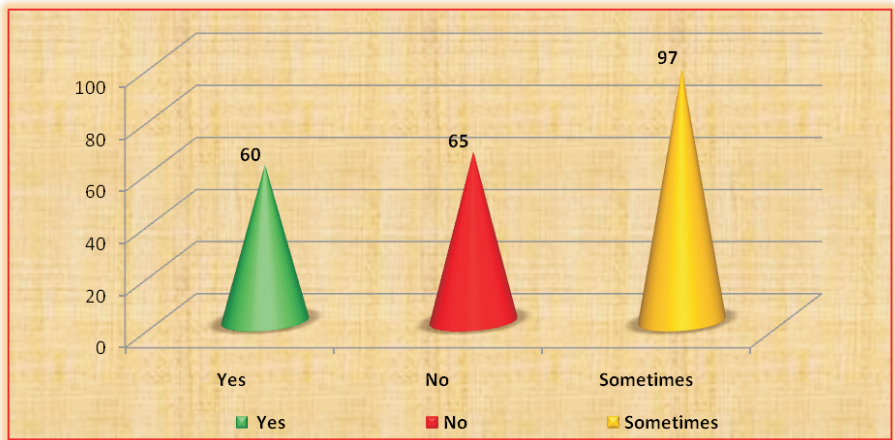| Type of Responses	No. of Respondents	Percentage	Cumulative Percentage
Yes	60	27	27
No	65	29	56
Sometimes	97	44	100
Total	222	100	-

Figure No. 3 Branding impact on customers buying behavior while purchasing packing milk and milk products

Interpretations

In the above figure of branding impact of customers while they purchasing packed milk & milk products most of the customers i.e. 97 respondents said that sometimes there was impact of branding while purchasing milk and milk products. And 60 respondents said that there was impact of branding while purchasing milk and milk products. 65 respondents said that there was no any impact of branding while purchasing milk and milk products. Researcher observed that sometimes impact of branding effect on customers buying behavior because it depends upon availability of brand while purchasing packing milk and milk products. 44% of customers said that sometimes there was impact of branding effect on customers buying behavior.

6.0 CONCLUSION OF THE STUDY

Today, India is the largest milk producing country in world. Indian dairy sector has made remarkable progress over the last few decades. Customer's preference for packing milk & loose milk was dependent on milk brands. Generally customers preference was strongly depend on milk quality. Consumers preference criteria for purchasing packing milk and milk products were related to the characteristics of milk and milk products. Most of the customers were giving preference for quality and availability of the milk and milk products. Very few customers buy branded packaged milk so there is good opportunity for increase in sales of packaged milk due to its quality, availability and durability. Dairy should try to increase awareness about packaged milk as there are majority of customers buying loose milk which can be converted to packaged milk. The customers consider quality and availability more than pricing. Majority of customers demands quality and good availability of milk and milk products and they are very price sensitive. So effective supply chain of dairy industry can be affect on the consumers buying behavior.

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