



**A STUDY ON DAIRY SUPPLY CHAIN MANAGEMENT AND
CUSTOMERS PREFERENCE CRITERIA WITH REFERENCE TO DAIRY
INDUSTRY IN SATARA DISTRICT**

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Abstract

India plays an important role in the dairy sector. The country is the world's largest milk producer and largest livestock population in the world. In India Dairy market is rapidly growing due to the nutritional value. Milk and milk products is popular beverage in most of the households. In urban and semi urban areas India has made substantial growth. And the result is that most of the people in the cities are eager to purchase quality milk and milk products. In today's age of competition, it is needful to providing the right product at right time and it is possible by supply chain management. Supply chain management is the latest technology to reduce cost and increase customer's satisfaction. The future of dairy industry is depends upon quality of milk and milk products. The dairy industry must have latest modern technology for milk processing and product manufacturing which will capture new national and international markets. In this article researcher's objective is to study the effective performance of supply chain management in dairy industry and consumers preference criteria with reference to dairy industry in Satara district.

Key words- supply chain management, dairy industry, consumers' preference criteria

1.0 INTRODUCTION.

1.1 SUPPLY CHAIN MANAGEMENT

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Supply chain management (SCM) is the mixture of art and knowledge and it connected with movement goods from the raw materials stage and fulfills the demand of customer. It contains providers, transporters, work centers, warehouses, circulation centers, and trade outlets, as well as raw materials, in process inventory, and completed products that flow between the conveniences and bring product to market and create satisfied customers. Supply chain management carries various actions such as inward bound and outward bound transportation, warehousing and control of stock etc.

Today effective supply chain strategies interact the various levels in supply chain. For successful supply chain management requires many decisions related to flow of information, product and funds. For this purpose three decisions are required. First is to decide how to structure the supply chain. It includes the site and abilities of manufacturing and warehousing conveniences, the mode of transportation and usefulness of information system. While taking these decisions must take in to account anticipated market conditions and uncertainty of next years. Second decision is planning of supply chain; it includes forecasting demand of different markets, the inventory policies, and the timing and size of market promotions, uncertainty of demand, exchange rates, and competition. It is useful for setting the operation policies which govern short term operation. Third decision is supply chain operation; it includes decisions regarding individual customer order with the aim of control entering customers' instruction in the best probable manner. In this stage firms distribute product to singular order, set a date that an order is to be filled, create top choice list, allocation of shipping mode, set delivery schedule and making replenishment order etc.

These design, planning and operation of a supply chain have a strong impact on overall success of the firms. An effective supply chain management requires an improvement in overall operating system as well as customers' service. It includes not only receiving and filling a customer's request but also customers satisfaction. The goal of supply chain is to maximize



overall profitability of the firm. Supply chain decisions have a large impact on the success and the failure of business organization.

In today's age of competition, it is needful to providing the right product at right time and it is possible by supply chain management. From the planning of inventory transition of products and the point of sales, Supply Chain Management deals with the proper control of it. The companies are working hard to provide good products and try to capture market. To satisfy the consumers' expectations regarding shelf life of product companies need advanced methods. Some new systems like lean process management (LPM), enterprise resource planning (ERP), business process management (BPM), six sigma etc. are making stronger the manufacturing and distribution function of supply chain management.

1.2 ROLE OF SUPPLY CHAIN MANAGEMENT IN DAIRY INDUSTRY:

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 basic function of any dairy industry is procurement, processing, and marketing of milk and milk products. The management of dairy industry is very careful about that. Milk is a perishable commodity, after procurement it has to be processed instantly, otherwise it gets spoiled. For the success of dairy industry efficient supply chain management is a prerequisite. The supply chain of dairy industry is badly affected by abnormal wastages and poor handling. It requires time efficient supply chain. An enhanced supply chain management practices will be noteworthy reduction in the wastages of milk and milk products, which will be beneficial to the farmers and dairy industry. Today India ranks first in world milk production. It has made remarkable progress from a milk generation volume of 23 million tons in 1973 to 132.4 million tons in 2013. In India more than 70 percent of milk producers are small marginal farmers with



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small land holders, the animals also low yielding and non-descriptive. An effective supply chain management lessens inventories, wastes, and costs, and thus increases effectiveness of firm and the marketing network. To achieve these gains needs movement and elasticity in the arrangement of production procedures, stock, and distribution. This achievement is possible if there is helpful and cooperative supplier-buyer correlations it is called as “upright coordination. This is useful to reduce overall cost and increase customers’ satisfaction.

The future of dairy industry is depends upon quality and quantity of milk and milk products. The dairy industry must have latest modern technology for milk processing and product manufacturing which will capture new national and international markets.

2.0 LITERATURE REVIEW

Prabina Kumar Padhi (2014) presented growth and development of dairy sector in India with special reference to the dairy industry in Odisha. The cooperative dairy societies have been built up to support the members. Development of this sector can be measured by increased in milk production with its various sources. It enhances per capita consumption of milk & milk products. If government can take necessary action about supply of milk and milk products for consumers at reasonable prices, with proper channels of milk marketing, this sector will increase the national income as well as the growth of the economy.

Pravin Kumar Bhojar and Dr. Asha Nagendra (2012) stated the level of satisfaction of consumers with regards to the FMCG distribution system in the rural market. FMCG distribution has the maximum channel partners in Indian rural market. The rural distributor covers a large market, where road connectivity is available. Whenever poor quality FMCG were bought by rural customer they return the goods and took money from the rural retailers. The effectiveness of FMCG distribution channels in rural markets depended upon satisfaction of rural customers. If the rural customers did not get good quality product acceptable size, affordable price, good packages and also the availability of product and range of product, regularity of supply of



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product in case of stock out and the proximity of shops were all these products where available were not as per the expectations of the rural consumers. Then the entire distribution channel was considered to be ineffective.

Ann Maruchek et.al (2011) has highlighted timely and important problems arising in the area of product safety and security. And *examined* five industries which are increasingly globalizing their supply chain these are food, pharmaceuticals, medical devices, consumer product and automobiles and noticed that in each of these industries have safety and security problems. The field of operation management and supply chain management can provide an innovative solution to these problems.

Promod Kumar Mishra & Prof.B. Raja Shekhar (2011) have discussed about the various risks and uncertainties from the dairy industry perception and their influence on various steps of the supply chain., a proper risks rectified mechanism could minimize the impact of risks .The high risk areas are the important ones and need to be addressed soon while medium and low risk areas are not to be unnoticed at the same time. Suitable policies can lessen these risks and uncertainties.

3.1 STATEMENT OF THE PROBLEM

A basic primacy of the dairy industry is to certify that products circulated are safe and appropriate for the consumption of customers. Milk stored harms can be enormously mortal leading to redundant proceedings and finally tarnish the brand of the company in the long run. Bacteria can breed in milk very quickly and make it perishing; it results in incurring heavy losses and brings among all food items, which needs instantaneous consideration. An effectual and active supply chain management process could offer for hygienic measures throughout the supply chain by observing to the good food value necessities.

3.1 OBJECTIVES OF THE STUDY



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1. To study the present supply chain management and their effectiveness in dairy industry
2. To study the customers preference criteria for purchasing milk and milk products.

3.2 HYPOTHESIS OF THE STUDY

There is impact of customer's preference criteria on purchasing packing milk and milk products.

4.0 Research Methodology

The study is descriptive in nature .The entire study is based on primary data, the secondary data is obtained from books, journals and websites etc.

4.1 COLLECTION OF PRIMARY DATA

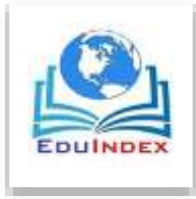
The primary data was collected by keeping some objectives in researchers mind. This data is first hand data. Researcher collected the primary data using the well-structured Questionnaire. Researcher has developed the questionnaire which is the tool of data collection, which satisfied objectives and hypothesis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

4.2 COLLECTION OF SECONDARY DATA

The secondary data is already published data which was collected for different objectives. Here, the secondary data was collected from assistant registrar office Satara district. Also Researcher has gathered the relevant data from Dairy industries which were helpful to complete the study. Internet and websites sources are used by researcher to build theoretical background of study and to find out the research gap researcher has used relevant literature of supply chain management in dairy industry.

4.3 SAMPLING AND SAMPLE SIZE DETERMINATION OF THE STUDY

Researcher had selected the sample size of 222 consumers. In the given dataset of consumers the variables were qualitative characteristic, nominal and ordinal measurement scale



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was used. For analysis purpose researcher have done data analysis using the graphical analysis techniques and chi-square statistical techniques to test and understand the concept, nature of given dataset.

4.4 STATISTICAL TOOLS AND TECHNIQUES USED IN THE STUDY

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

5.0 DATA ANALYSIS AND INTERPRETATION

Statistical Hypothesis to check relationship of customer's preference criteria for purchasing packing milk and milk products.

H₀: Customer's preference criteria for purchasing packing milk and milk products were not related to the characteristics of milk and milk products.

Against

H₁: 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(O _i)	Expected responses (E _i)	(O _i -E _i)	(O _i -E _i) ² /E _i
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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

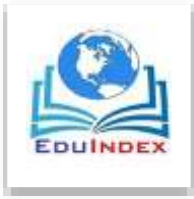
Table value of Chi- square= 11.34

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.

Table No 2 Purchasing criteria for packing milk & milk products



Preference Criteria	No. of Respondents	Percentage	Cumulative %
Availability	153	29	29
Quality	188	36	65
Quantity	42	8	73
Price	144	27	100
Total	527	100	-

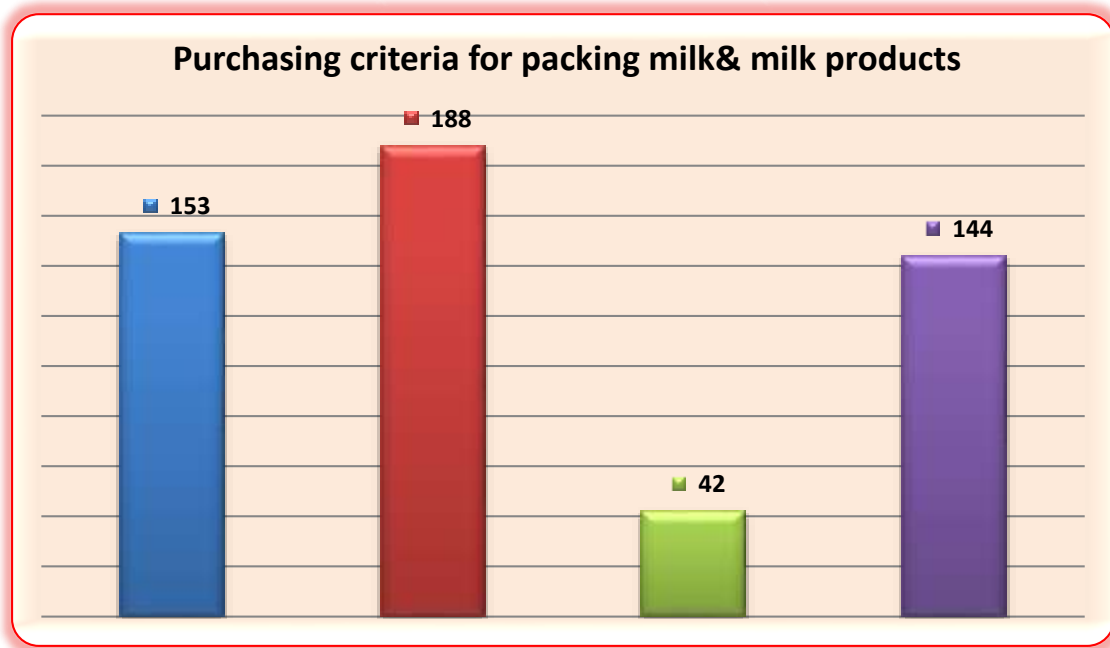


Figure of Purchasing criteria for packing milk & milk products

Interpretations

In the above figure of purchasing criteria for packing milk and milk products researcher clearly observed that most of the i.e 188 of the customers were giving preference for Quality of milk and milk products. only 42 customers were giving preference while purchasing packing milk and milk products for quantity. Remaining 153 customers preference goes to availability of packing milk and milk products. The 144 customers gave their preference for price. Researcher



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observed that, purchasing criteria is depends upon availability, quality and price of milk and milk products.

6.0 CONCLUSION

Dairy products are a major source of cheap and nutritious food of millions of people in India. Milk is a perishable commodity it has to be proceed instantly, otherwise it gets spoiled Time and quality management is the most important part of supply chain management, efficient supply chain management ensures competitive advantage in the business world because of customers preference criteria related to availability of dairy products ,quality ,quantity and price among that quality is the most important criteria which affect the overall activities of dairy industry, if dairy industry face this criteria successfully then they can grow their business in future.

7.0 BIBLIOGRAPHY

1. Supply chain management strategy, planning and operation. 2nd edition by Sunil chopra and peter Meindl. Edition 2003, published by-PEARSON Education.
2. Supply chain management by sotiris Zigiariis, Msc, BPR Engineer) Report produced for the EC funded project.
3. Designing and Managing the Supply Chain- CONCEPTS, STRATEGIES AND CASE STUDIES By David Simchi-Levi .et.al. third edition 2008. publication-Tata Mcgraw Hill Education Private Ltd page no-1
4. International review of business research papers vol-6, no-2 July 2010 pp-194-203. Challenges for supply chain management in today's global competitive environment – by Aarti Deveshwar and Rupa Rathee (www.irbrp.com)
5. Chapter 1st supply chain management; Architecting the supply chain for competitive Advantage (<https://book.google.co.in>)



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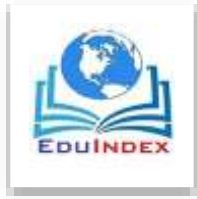
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on 21st November 2019



6. Swot Analysis of Dairy Industry in India Volume : 3 | Issue : 1 | January 2014 • ISSN No 2277 – 8179 T.HimaBindu, Dr.S.E.V.Subrahmanyam and Dr. M. S. Bhat IJSR - INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH pp-249-251.
7. Mechanized Production of Traditional Indian Dairy Products; Present Status, Opportunities And Challaanges,pp214-220
8. Supply chain management strategy, planning and operation.2nd edition by Sunil chopra and peter Meindl. Published by pearson education page-7
9. Dairy Supply Chain Management (DSCM):An Imperative Solicitation by Rajeev Kumar AJNFS 2014 1 (2):PP-17-24
10. Journal of Scientific & Engineering Research Volume 4, Issue 1, January-2013 2 ISSN 2229-5518 pp-1-9 A CASE STUDY OF AMUL CO-OPERATIVE IN INDIA IN RELATION TO ORGANIZATIONAL DESIGN AND OPERATIONAL EFFICIENCY
11. Pacific Business Review International volume7 ,Issue 4 oct2014 PP 81-85 GROWTH AND DEVELOPMENT OF INDIAN DAIRY SECTOR; A PRAGMATIC ANALYSIS (Indian Journal of marketing Jan 2012 Page no 17-22.)Effectiveness of FMCG Distribution Channel With Respect To Satisfaction of Consumers in Rural Market.1Opportunities And Challenges in The Indian Dairy Industry by Dr K.G. Kamakar and DrG.D.Banerjee issue-9-2006.pp-24-27
12. (Journal of operation management) 29(2011) page no-707-720 Product Safety and security in the global supply chain; Issues challenges & Research opportunities” International review of business research papers vol-6,no-2 July2010 pp-194-203
13. Journal of management research, ISSN 1941-899X 2011, Vol 3, no 2, E11. (Page no 1-), Impact of Risks and Uncertainties on Supply Chain: A Dairy Industry Perspective

WEBLIOGRAPHY

14. <https://www.linkedin.com>



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15. www.indiadairy.com/ind_swot.html
16. www.freepressjournals.in
17. <http://www.choicesmagazine.org/2002-4/2002-4-09.pdf>