2.0 INTRODUCTION

The present chapter is divided into two sections. The First Section presents a review relating to the production of milk. The section two focuses on studies relating to the marketing of milk.

2.1 STUDIES RELATING TO THE PRODUCTION OF MILK

Badal, P.S. and J.P.Dhaka (1998) had analysed the production, utilisation, marketed surplus of milk and tried to determine the factors affecting marketed surplus of milk in Gopalganj District of Bihar. Three-stage stratified random sampling was employed and 67 households were finally selected for detailed investigation. The findings of the study revealed that daily milk production per household was 7.255 litres out of which 53.752 litres were sold representing a marketed surplus of 79.28 per cent. The average daily milk production for large herd size category was 15.243 litres, out of which 12.246 litres (83 per cent of production) were sold. In the case of medium and small categories marketed surpluses were 82 and 73 per cent respectively. The average milk production per milch animal per annum was 1277 litres in the case of members, and it was 945 litres in the case of non-members. On an average the income from milk production was Rs.10239 in the case of members and it was Rs.5681 in non-member households. The total cost of milk production per buffalo per year in the case of members came to Rs.3301 and it was Rs.2595 for non-members. The average net cost after

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deducting the value of dung was Rs.3051 and Rs.2395 for members and non-members respectively. The net profit obtained by the members was Rs.6937 and it was Rs.3085 in the case of non-members.

Production function analysis indicated that the variables, namely human labour, value of concentrates, value of fodder and cost of veterinary charges had influenced up to 61 per cent and 62 per cent of the variability in the income from the sale of milk in the case of members and non-members respectively.

The results of the study showed that the members of the milk producers’ co-operative societies were better off in all aspects compared to non-members, indicating that the milk producer’s co-operatives had a great impact in increasing the milk production and income of the rural people and in creating awareness of the importance of dairy enterprise.

Tarun Kumar Bhattachariya and R.S. Gandhi (1999) studied the constraints on enhancement of milk production in developing countries, to improve the socio-economic status of the large percentage of rural population. Cattle and buffalo were perhaps their only tangible asset. Therefore, there was the need to improve crossbred animals. Some of the constraints for enhancement of dairy improvement were technological problems, infra-structural deficiencies, managerial lacking, economic constraints and situational problems.

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New technological tools had been found for improvement of milk production. But in using these tools, scientists and farmers were facing a number of constraints. The authors underlined the following problems.

Low genetic potential of milk animals, low pedigree valued cattle and buffalo bulls, inter-sex mating problem of cross-breeding, problems in field progeny testing and in freezing of buffaloes semen and the like were the problems under breeding.

Adequate area was not available for fodder production. The supply of green fodder during the lean period was less and good quality cattle feed and mineral mixtures were not available in remote areas. Also high cost and the non-availability of good pasture lands for grazing were the problems faced under nutrition.

Veterinary aids, medicines and equipment were costly and not available at the door-steps of farmers. Treatment for chronic disorders and epidemiological data on disease out-break was not available in the case of health.

The authors laid emphasis also on infra-structural deficiencies. The lack of an efficient system to deliver technical inputs, inability and lack of dairy husbandry extension workers, lack of enough financial support, want of disease diagnostic and surveillance facilities, inadequate number of technical persons and inadequate programmes to update the subject matter, knowledge and communicational skills of development workers, are the various problems faced under infra-structural deficiencies. Apart from these, there were problems connected with management. This lack of application of modern tools of management like project formulation, implementation,
monitoring and participative management and good organisational communication, want of incentives and awards for the workers and inadequate linkages and co-ordination among various agencies and organisations engaged in programmes of dairy development were also the major constraints.

Great competition in milk production with crop production, capital investment, high risk involvement, lack of appreciation, want of refrigeration facilities and lack of animal insurance in the villages were the major problems. Besides, there were a number of difficulties in transporting milk in areas lacking roads, which may discourage livestock farming in the rural areas. For implementing dairy development programmes under field conditions the constraints must be understood and efforts should be made to overcome them. It would be good to develop an appropriate network of infra-structure and adopt suitable methodology of optimum breeding along with field extension services.

S.K. Mahanta and V.C. Pachuri (1999)\textsuperscript{6} presented the importance of quality forages to milch animals for economic milk production. It was observed from the study that nearly 65 per cent of the total expenditure on milk production in crossbred cattle was attributed to the feeding of animals when both concentrates and green fodder were fed as mixed ration. But, when the milk production depended upon concentrate-based feeding, the cost was 83 per cent while on forage feeding; it could be reduced to only 40 per cent of the total expenditure.

There was an acute shortage of green forage to the tune of 31 per cent and the
government policy of interventions, like fodder development, mini-kits and the like had
little effect in improving the green fodder production. Keeping of milch animals on
nutritious quality forages to sustain economical milk production with improved varieties
and their crop combinations under recommended agronomic practices produced higher
yields of green forages compared to local varieties. The authors concluded that with the
increasing irrigated area under forage crops, the varieties held a big promise to provide
quality forage to milch animals in the near future.

Reddy (2000)\textsuperscript{7} studied the employment opportunities and the standard of living
among the rural folk and compared between arable farming, mixed farming and dairy
farming labourers in milk shed area of Vijayawada and the dry land area of Chittoor. The
data were collected by survey method from selected respondents. The secondary data
were collected, and analysed. They found that mixed farming created 32 percent of extra
work as compared to arable farming. The dairy farming created 45 percent of extra work
as against mixed farming and 92 percent of extra work as compared to arable farming.
They also estimated that an additional employment for 129 days as compared to mixed
farming and 225 days as compared to arable farming was found by maintaining dairy
farm.

\textsuperscript{7} Reddy Y.V.R., “Impact of Dairying on Rural Farmers”, \textit{Mysore Journal of Agricultural
Ashoke Kumar and Keshav (2002)⁸ had undertaken a study to understand the general features of milk marketing in Bangladesh and explored some of the issues on milk production dairy households and their conditions under various milk marketing channels. The study highlighted the share of milk marketed in urban and rural region, quality of milk and price variations under different stages of marketing and selling spots. The study also identified the problem faced by farmers in milk marketing and their probable solutions. It was observed that most of the dairy farmers were small in size, their milk production low and they market the surplus milk after consumption. Price fluctuations in marketing were the important constraints for small dairy farmers. The seasonal price fluctuations were higher for both the urban and rural regions and the infrastructures and for milk marketing were not available in the markets. But the co-operative societies provided all marketing facilities to their members for marketing milk. The milk supplied under co-operative system was hygienic and guaranteed with price and quality. Finally, the dairy farmers were satisfied with cooperative marketing system.

Sharma and Sharma (2002)⁹ studied the issues of efficiency and global competitiveness of the Indian dairy sector in an open economy environment. The findings of the study indicated that the Indian dairy industry (both production and processing sector) was technically highly efficient and the Indian dairy industry had

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achieved remarkable progress during the last three decades despite the restrictions on the imports and exports of dairy products. The major policy implication of the study is that the Indian dairy industry is globally competitive but must be protected from distorted and unfair trade competition from developed countries in a liberalised environment. The study also shows that the effects of commitments by developed countries to reduce tariffs, domestic support and export subsidies had been minimal and unless these countries significantly reduce the trade distorting supports to their dairy sector it will be difficult for India to compete in the world market.

Prashant Khare, et. al, (2003)\textsuperscript{10} assessed the routes-wise volume of milk collection, the inter-relationship between the volume of milk collection through different cooperative societies and their distance, the cost of milk collection at different levels and the constraints faced by the milk producers and milk co-operative societies in the Bhopal District of Madhya Pradesh. Correlation analysis showed that the distance of the society was negatively related ($r=-0.44$) with the volume of milk collection. The cost of labour and feed stuff was the main component in the cost of production of milk in the study area and the milk producers got only 71.84 per cent share in the consumer rupees (Rs. 14.56/l.), but their profit was only Rs. 2.19 per litre (15.4\%) in the milk marketing, the Dairy Plant got maximum profit of Re. 0.97 per litre (6.66\%) followed by milk producers co-operative societies Re. 0.34 per litre (2.34\%) and retailer of milk distribution 0.30/l. (2.06\%). Finally, the low price of milk the most important problem

faced by the milk producers and the lack of cold storage are the main problems faced by milk producer’s co-operative society in the study area.

Jayachandra Reddy et al. (2004)\textsuperscript{11} conducted a comparative study of economics of milk production in three states, viz., Chittoor district in Andhra Pradesh, Erode district in Tamil Nadu and Kolar district in Karnataka involving aspects related to existing cost structure of milk production, profitability of crossbred dairy cows in the three states under the changed socioeconomic-political scenario and also suggests methods to improve the viability and profitability of these enterprises. The net profitability varied from 43 percent in Tamil Nadu, 70 percent in Andhra Pradesh and 83 percent in Karnataka. The study has further brought out the fact that higher fat content provides higher prices as milk is priced based on fat and Solid-Not-Fat (SNF) content by dairies. Hence proper scientific breeding procedure is to be followed to improve fat content in the milk as well as milk production per animal.

Thakur and Singh (2004)\textsuperscript{12} conducted surveys in the year 2002-03 to assess the energy and cost requirement for milk production in different commercial dairy farms in four locations, viz., Maharajpur, Imaliya, Pariyat and Mohaniya, around the Panagar block of Jabalpur district, representing the Kymore plateau and Satpura hills zone of Madhya Pradesh. The locations for conducting the survey were selected at random


without following any statistical method as there are enough number of commercial dairy farms to get a good comprehensive data on the different activities in milk production. It was inferred that cattle rising was not only an important occupation for supplying the nutritional diet to the people but also it has greater concern to uplift the socio-economic status of the people related to agricultural sector. Likewise raising goats, cows, buffaloes and birds as a supplementary occupation in the agricultural sector is apparently most economical for the development of socio economical status of rural people particularly in weaker sections, having small and marginal holdings or low investment capacity and tribal communities.

Sharma, et al., (2007)\textsuperscript{13} had analysed the inefficiencies existing in improving milk production, procurement pattern, marketing channels, and price spread of a dairy cooperative, Uttranchal Cooperative Dairy Federation Ltd (UCDFL), also known as ‘Anchal’ in the Kumaun region of Uttarakhand. Nainital and Almora districts of Kumaon region had been selected for the study on the basis of their annual milk production. Three blocks were selected from each district and fifty farmers were selected from each selected district by using Multi-stage sampling technique. It had been found that due to insufficient margins, the number of agents working for other private dairies had increased. Lack of business development services related to dairy industry had been found leading the farmers to disassociate from Anchal.

The study had 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. Local sale of milk at the society level should be encouraged to increase the popularity of Anchal brand.

Neeraj Rao et. al, (2004)\textsuperscript{14} studied the economics of milk production in Kanpur (dehat) district of Uttar Pradesh two blocks from the selected district and five villages from each selected blocks were selected randomly in proportion to the number of farmers categorized under three size groups of 0-1,1-2 and above two hectares. The study revealed that the total maintenance cost of a milch animal per lactation increased as farm size increased. On an average the maintenance cost of milch animal during a lactation period came to Rs 10278. Amongst all labour charges accounted for the highest share followed by fodder and concentrates. The gross income from milk production was higher on large farmers because of excess utilisation of concentrates by large farmers. Input output ratio was the highest on small farmers and it was 1:1.31. Elasticity of production for fodder was the highest followed by human labour and concentrates for all farms.

Srikanth, K.N. (2007)\textsuperscript{15} had undertaken a study with specific objectives of evaluating the working of dairy cooperatives, to assess the cost-return structure and their


impact on milk production, income and employment in Kolar District of Karnataka. The study was divided into two areas, namely, above average milk procurement area and below the average milk procurement area. Eight societies were selected and at the rate of four each from the societies from 120 respondents for the year 2005-06. The physical performance of the societies in the study area revealed that the overall physical indicators had an increasing trend except the number of employees working in the societies. The profits of both the areas also showed increasing trend. In area-I per animal rearing cost per annum amounted to Rs.16,655.90. On an average an animal in the study area realised a milk yield of ten liters/day. In case of area-II per animal rearing cost amounted to Rs.14,943.44 and milk production per day was eight litre. Net returns were more (Rs.14,209.09/annum) than in area-II (Rs.10,095.92/annum).

Gangasagare and Karanjkar (2009)\textsuperscript{16} had conducted an investigation to review the situation of dairying in Marathwada with the objectives to study various trends of milk production and socio-economic status of the dairy farmers. The survey work was carried out for the milk pocket areas of eight districts of Marathwada region. About 59 per cent of the dairy farmers belong to general (unreserved) category, 25 per cent were backward class and only 8 per cent each of SC and S.T. The landless dairymen equally contributed with dairymen having (large) land; 13 landless dairymen reported comparable lactation yield with 08 dairymen holding 10 ha land. The significant differences among the means indicated that as the number of milch animals increased, the herd lactation performance

decreased. The animals maintained by joint family were not properly cared for while they were better cared for by single family.

Venkata Subbaiah K., K. Narayana Rao and K. Nookesh Babu, (2009)\textsuperscript{17} had developed a supply chain model for a dairy industry, located in Andhra Pradesh, India. The supply chain had included four echelons namely raw milk suppliers, plant, warehouse and customers. In that model, emphasis was 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. From the results it was observed that the total cost of the supply chain is 9.8 percent lesser than the existing cost. This model could extend to varying demand and costs.

Debanarayan Sarkar and Bikashkumar Ghosh (2010)\textsuperscript{18} had reported the constraints that co-operative and non-cooperative dairy farms faced in expanding milk production in the West Bengal. Various constraints faced by milk producer households were categorised under five groups, namely, infrastructural, economic, marketing, technical and socio-psychological. The study had shown that non-cooperative farms face major constraints and high severity compared with co-operative farms in expanding milk production. Also important is that most of the severe or more severe constraints are


infrastructural in nature. The study had suggested that for expanding milk production, the expansion of co-operative dairy farms other than non-cooperative dairy farms may overcome most of these difficulties.

Anjanikumar and Steven (2010)\(^{19}\) had estimated the costs and returns of milk marketing and processing. They also identified the drivers for participation in high value milk processing and value addition and estimate the cost efficiency and its determinants in the traditional milk sector in nine districts of Assam (Barpeta, Kamrup, Sonitpur, Nagaon, Morigaon, Jorhat, Tinsukia, Cachar and North Cachar Hills). The study observed that raw milk trading and processing offers good opportunities for income generation to small scale milk traders and processors. The raw milk marketing and trading was reasonably efficient and has the potential for continued dominance in spite of emerging integrated food supply chains.

Gangasagare. P.T., L.M.Karanjkar and S.A.Kulkarni, (2010)\(^{20}\) conducted a study to review the situation of dairying in Marathawada with the objectives to study the various trends of milk production and socio-economic status of the dairy farmers. The survey work was carried out on 295 dairy farmers from the milk pocket area of eight districts of Marathwada region. Higher proportions of the dairy farmers were enjoying the benefits of cooperative societies. Twenty per cent dairy farmers believed in proper


supply of quality feeds at subsidised rate, 74 per cent dairy farmers have availed the financial facility, 4 per cent get the technical advice from society and only-dairy farmers satisfied with the purchase rate of milk of the society.

Meena G.L., D.K.Jain and B.S.Chandel, (2010)\textsuperscript{21} had made a study to compare the cost and returns from milk production across members and non-members of dairy cooperative societies in Alwar District of Rajasthan during the year 2005-06. The study covered 75 co-operative member milk producers and 75 non-member milk producers. The results of the study revealed that the net cost of maintaining a buffalo was relatively higher in the case of member group as compared to non-member group, while corresponding figures for maintaining a cow were Rs. 38.42 and Rs.36.56 respectively. The net maintenance cost was found to decrease with the increase in herd size categories in both member and non-member groups. The per litre cost of buffalo milk production was worked out to be Rs. 11.43 and Rs.11.76 for member and non-member groups, respectively. The net income of buffalo per day was relatively higher in the case of member group compared to non-member group while corresponding figures for maintaining a cow was Rs.5.37 and Rs.1.82.

Nishi A. K. Sah, and Ram Kumar (2011)\textsuperscript{22} assessed the dairy farmers’ satisfaction with dairy cooperative societies (DCSs), covering eight selected DCSs in Pradeshik Cooperative Dairy Federation (PCDF), Uttar Pradesh. According to their study, majority

of member farmers were modest in participating different activities of the DCSs. The average herd size among the respondents of the study area was seven dairy animals per household. The good quantity of milk produced and sold by member farmers to the societies indicates the commercial viability of dairy farming in the area. About one third of the respondents were happy with the functioning of societies. Organisational participation, market potential and economic motivation were found to have strong influence on the satisfaction level of farmers; however, the prevailing constraints negatively contributed towards farmers’ satisfaction with the functioning of DCSs.

Babita Bohra, Mahak Singh, Anil Kumar and Vir Singh \(^{23}\) had analysed the milk production, marketing and consumption pattern at peri-urban dairy farms in Uttranchal. Necessary data were collected from Six mid-altitude villages in the Periphery township of Lohaghat in the district of Champawat. In each village, 20 per cent of the farm households were selected for detailed investigation. It was found that a farm, on an average sold 2.44 litres of milk per day and retained 3.07 litres for family consumption. Average amount of milk retained at peri-urban farms actually amounts to per capita per day milk consumption, which was 492 ml, that is, 242 ml higher than the recommended amount. Average daily per capita availability of milk in the study villages came out to 698 ml. The average daily per capita surplus of milk production per villages was 448 ml and none of the villages in the peri-urban area showed a deficit in per capita milk

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availability. On an average, 192 litres of milk were marketed per day per village through this channel, which was about 79 per cent of the total milk marketed.

Shinde, S.V., (2011) had presented a study in relating to the socio-economic profile of dairy farmers in Sholapur district of Maharashtra State. The entire study area of the district had been divided into two regions namely irrigated regions and non-irrigated regions and from each region 130 respondents were selected by using stratified random sampling, purposive random sampling method the total sample size was 260. The findings of the study had revealed that access to milk collection centers was better in the non-irrigated regions. The average milk yield from cow was highest in case of commercial dairy farmers and also in case of buffalo in the irrigated regions. In non-irrigated regions the average milk from cow were 16 liters and highest was in case of commercial farmers lie 17.6 liters. The average per capita availability / consumption of milk and milk products was much in irrigated regions (1016 gms / day) than in non-irrigated taluks (700 gms / day). The average price received for the milk of per litre of crossbreed cows was Rs. 11.23; buffalo Rs. 16.63 in the irrigated regions. In the non-irrigated regions the prices were Rs. 11.51 and Rs. 16.50 respectively for cow and buffalo milk.

2.2 Studies Relating to the Marketing of Milk

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Chahal, S.S. (1996) had examined the role of co-operatives in marketing of milk in Punjab. The primary data were collected from 130 members of Milk Producers’ Co-operative Societies (MPCS) of co-operative milk plant, 90 milk sellers who sold milk to centers attached to private milk plants and 213 respondents selling milk to the milk vendors, sweets shops and local consumers. It was found that 73 per cent of the milk was purchased by agencies other than the milk co-operative societies in rural Punjab. The major portion of milk market was still monopolised by the private milk traders. On the whole, milk co-operatives were playing a positive role in rural market by providing tough competition to the private milk traders. The author suggested that there was a need to strengthen the milk co-operatives so as to make milk production activity a successful venture by eliminating the malpractices committed by private traders.

Virender Singh and K.N. Raj (1998) had studied the Economics of Production and Marketing of Buffalo Milk in Haryana through co-operative and private sectors of the State. The break-even analysis was employed to work out break-even output for a buffalo. To study the factors affecting marketed surplus of milk in the case of both members and non-members of milk co-operatives in different season, multiple linear regression and Cobb-Douglas function were carried out. To compare the economic efficiency in milk marketing, the marketing efficiency index analysis was applied. Price of milk was focused to be the most important factor influencing volume of milk business.


significantly, besides production level. The establishment of milk co-operative societies in the rural areas had positive impact on the marketed surplus of milk. The milk vendor being an important intermediary in milk marketing was making huge profits by adopting various types of malpractices. The net gain was higher to the producer selling milk through milk co-operative society (Channel-III). However, producer’s share in the consumer’s rupee was higher for those selling milk through private milk vendors (Channel-I). Thus, the indicators of marketing efficiency conformed that Channel-I of private sector was the most efficient channel in milk marketing in the study area.

Prateep Singh and P.S Khattra (1998)27 studied the factors affecting milk marketed surplus and marketing channels for milk in Faridkot District in Punjab. The comparative costs and margins in the sale of milk to different buyers were studied by using tabular analysis involving averages and percentages. Two-stage least square method was used. Log-linear form of function was chosen on the basis of best fit criterion that is the magnitude of R² logicality of signs, and levels of statistical significance. Milk marketed surplus witnessed higher positive responsiveness to the changes in milk production and milk prices in semi–urban area as compared to those in rural area. The increase in milk production, milk price and reduction in family size could go a long way to improve milk marketed surplus in the study area.

Biradar (1999)\textsuperscript{28} employed Break Even Analysis technique in dairy enterprise in Udyir taluk, Lathur district of Maharashtra. He observed that the break even milk production among beneficiaries was 1291 litres at the given price of milk such as, Rs 7.23 further, the average BEP price per litre of milk Rs 7.55. He concluded that either milk producers should able to procure 1291 litres for BEP level or the price should be raised from Rs 7.23 to Rs 7.55. The prices paid to milk producers were not remunerative.

Kale N.K., Tilekar, S.N., Borude, S.G. and Hinge, B.J., (2000)\textsuperscript{29} studied the financial position working and operational efficiency of 23 Dairy Cooperatives in Raigad district of Maharashtra. They studied the economic efficiency through income expenditure ratio, expenditure income ratio, rate of return on capital and rate of turnover. They concluded that (i) the societies had low owned capital and were dependent on borrowing from financial institutions (ii) even though the working capital of the dairy cooperatives was low, their turnover was high because dairy cooperative did not make payment to milk producers from their own funds. Therefore, dairy cooperatives were able to carry on business with limited capital and (iii) majority of the societies was trading profit.

Dhanabal. M. (2001)\textsuperscript{30} has studied on Emerging trends in the marketing of milk in madurai district in Tamil Nadu. The main objective of the study is to analyse the cost and returns of the milk of cows and buffalo, to assess the break even output for milch

animals during lactation and inter-calving periods to analyse the determinants of milk yield and resource use efficiency to assess the marketing cost margin, price spread of milk and to analyse the factors affecting the marketed surplus of milk. The study used Cobb-Douglas production function, Break-even analysis marginal value productivity, marketing cost, margin, price spread and the efficiency of marketing for three dominant channels by using the shepherd’s method, Acharya’s and Aggarwal is method and composite Index method. The Study also used multiple linear regression model to interpret the marketed surplus of milk. In order to study the consumers differing opinion, F-test was adopted.

Major findings of the study are the profit volume ratio during lactation period was 42.11 per cent for cow and 42.60 per cent of buffalo whereas during the intercalving period it was 21.58 per cent for buffalo. The $R^2$ value of 0.8309 shows that the five explanatory variables have accounted for 83 percent of the variation in the yield of milk. The study reveals that structural differences existed between cow and buffalo. The study confirms that green fodder, dry fodder, concentrates and maintenance cost were statistically significant at 5 per cent level.

The study confirms that the family size and family income were positively correlated to average family consumption. The study observed that the large category of herd size had the highest marketed surplus because of high production and less family consumption of milk. The study reveals that milk production and family size were found to have non-significant impact on marketed surplus of milk. The marketing efficiency of the various channels, measured by Shephard’s Acharya’s and Aggarwal’s and Composite
Index methods reveals that channel – I had the highest efficiency, because the total marketing cost were found to be the least.

Ashoke Kumar and Keshav (2002)\textsuperscript{31} had undertaken a study to understand the general features of milk marketing in Bangladesh and explored some of the issues on milk production dairy households and their conditions under various milk marketing channels. The study highlighted the share of milk marketed in urban and rural region, quality of milk and price variations under different stages of marketing and selling spots. The study also identified the problem faced by farmers in milk marketing and their probable solutions. It was observed that most of the dairy farmers were small in size, their milk production low and they market the surplus milk after consumption. Price fluctuations in marketing were the important constraints for small dairy farmer. The seasonal price fluctuations were higher for both the urban and rural regions and the infrastructure and for milk marketing were not available in the markets. But the co-operative societies provided all marketing facilities to their members for marketing milk. The milk supplied under cooperative system was hygienic and guaranteed with price and quality. Finally, the dairy farmers were satisfied with co-operative marketing system.

Sharma and Sharma (2002)\textsuperscript{32} studied the issues of efficiency and global competitiveness of the Indian dairy sector in an open economy environment. The findings


of the study indicated that the Indian dairy industry (both production and processing sector) was technically highly efficient and the Indian dairy industry had achieved remarkable progress during the last three decades despite the restrictions on the imports and exports of dairy products. The major policy implication of the study is that the Indian dairy industry is globally competitive but must be protected from distorted and unfair trade competition from developed countries in a liberalized environment. The study also shows that the effects of commitments by developed countries to reduce tariffs, domestic support and export subsidies had been minimal and unless these countries significantly reduce the trade distorting supports to their dairy sector it will be difficult for India to compete in the world market.

Chawla (2003)\textsuperscript{33} in his article presented the policies needed in improving India's global dairy position. The National Agriculture Policy including the technological, environmental, and economic sustainability; regulations for imports, and compulsory export inspection were discussed. Apart from this the following policy imperatives for global positioning were also discussed: setting up of high-powered monitoring and steering task force, enactment of central prevention of infectious and contagious diseases in animals bill, mandatory HACCP for all export oriented dairy units, integrating and restructuring the enforcement machinery and making it accountable, incentive for clean

\footnotesize{\textsuperscript{33} Chawla, N.K., “Policy Imperative for Building India's Global Dairy Position”, \textit{Indian Dairyman}, Vol. 55, No.3, 2003, pp.144-147.}
Singh and Rekha Dayal (2004)\textsuperscript{34} studied the economics of production and marketing of milk in the state of Uttar Pradesh. Linear and log-linear functions were used to work out the estimates of factors affecting marketed surplus of milk both for the private and co-operative systems. The results of the study indicated that the feed and fodder cost was the most important item of the total maintenance cost accounting for 55 to 65 percent of the total cost in zone-I and 51 to 66 percent in zone-II. The net profit per day of a milch buffalo was very low due to the higher maintenance and low milk yield of milch buffalo on each herd size group in each zone of the state. The net profit of milk production per buffalo per day was observed to be higher in the case of small size group due to higher milk yield of milch buffaloes in this size group as compared to medium and large herd size groups in both the zones. The establishment of milk co-operative societies in the rural areas had positive impact on the marketed surplus of milk. The study further showed that the milk vendor being an important intermediary in milk marketing made huge profits by adopting various types of malpractices. Lender utilization of plant capacity was the major factor for incurring losses by co-operative milk plant in fluid milk marketing.

Ramachandran (2004)\textsuperscript{35} studied the income and employment potential of dairy farming in different stages in Kanyakumari District of Tamil Nadu. The primary data were collected from 100 farmers engaged in farming activities of five selected villages of Kanyakumari district. The study revealed that the dairy farming is an activity with great potential and has offered considerable scope for employment and income generation in Kanyakumari district. The dairy farming gives employment opportunities in the form of collecting dung, cleaning shed, watering and feeding animals, grazing and cutting grass, milking, sale of milk, processing of milk and milk products. It may be concluded that dairy constitutes the major proportion of the cattle population in the sample households. Cattle rearing occupier a pivotal place among women folk of the rural areas. Thus, dairy farming plays the main source of employment and income generation in the study area.

Sharma, B.L., and Sharma, R.C., (2004)\textsuperscript{36} carried out a study to estimate the contribution of dairy and crop enterprises towards income and employment in relation to different size of holdings in the semi-arid region of Rajasthan. For this study data were collected from 60 farmers in the four adopted villages of Sikar tehsil of Sikar district during the agricultural year 2003-2004. The farmers were classified into different size groups, namely, small (upto 2 ha), medium (2 to 4 hec.) and large (4hec. and


above). From each village and each size group, 5 cultivators were randomly selected. Dairy enterprise provided maximum employment of 338 man-days and crop farming provided 219 man-days. Per worker employment from crop and dairy farming were 80 man-days and 123 man-days, respectively. Thus, dairy farming plays a key role in increasing employment and income in the semi arid tract of Rajasthan.

Vinod Duhan, Khatkar, R.K. and Singh, V.K., (2004)\textsuperscript{37} conducted a study with reference to 120 respondents scattered in six villages of two blocks in Rewari district of Haryana to analyse the nature of markets and role of co-operatives in marketing of milk. It was observed that on medium and large category of farms the milk sold through co-operative society was found to be higher than the disposal through milk vendors and directly to the consumers mainly due to more marketable surplus. While on small farms the disposal was found to be almost equal, that is 35 per cent through milk vendors and directly to the consumers, the disposal of milk through co-operative society was less due to lower marketable surplus owing to smaller heard size.

Rajendran, K. and Samarendu Mohanty (2004)\textsuperscript{38} had reviewed the existing status of milk marketing and dairy co-operatives in India and provided some recommendations to meet future challenges. The results of the study indicated that 80 per cent of the milk produced by the rural producer was handled by an un-organised sector and the remaining 20 per cent was handled by an organised sector. It was found that the dairy co-operatives


play a vital role in alleviating rural poverty by augmenting rural milk production and marketing. According to the study, involvement of intermediaries; lack of bargaining power by the producers; and lack of infrastructure facilities for collection, storage, transportation, and processing were the major constraints which affect the prices received by producers in milk marketing. Milk quality, product development, infrastructure support development, and global marketing are found to be future challenges of India’s milk marketing.

Edang Sularstri and Keshav Lall Maharjan (2005)\textsuperscript{39} had analysed the milk marketing channels and the milk consumption pattern and its relation with the household income and housewife education level. The study was conducted from 88 milk producers with regard to marketing channel and 270 housewives were interviewed for the consumption pattern in Istimewa Yogyakarta Province of Indonesia. It was found that milk producers price of milk in urban and sub urban areas was better than cooperative price. The availability of such producers in the locality, the refrigerator facility and the milk drinking habit of the consumers directly affect such marketing of fresh milk and indirectly affect in the marketing channel.

On the consumption part, the findings of the study had shown that the household income was one of the factors in the milk consumption. The household’s income influenced the choosing of milk type such as sweetened milk, ultra heat temperature milk, milk powder and fresh milk among the people. Housewife’s education level was also a

factor in the milk consumption. The share of milk in monthly per capita food expenditure was 16.3 per cent and 14.8 per cent in urban and sub urban areas, respectively, for the people who consume milk every day. It was 5.0 per cent and 4.1 per cent in urban and sub urban, respectively, for people who consume milk frequently.

Dwaipayan Bardhan Y.P.S.Dabas, S.K. Tewari and Avadhesh Kumar, (2006)\(^{40}\) had carried out a study in the Rudrapur Block of Singh Nagar District of Uttaranchal state to (i) identify the sources of risks perceived to be relevant by the farmers, (ii) examine farmers’ risk attitude, (iii) identify the factors that affect risk attitudes and (iv) evaluate the relative importance of different risk management strategies. Four villages from block were selected randomly and a total of 59 farmers were selected for the study. The study revealed an overall mild degree of risk aversion among farmers. But, a certain degree of risk taking behaviour was also seen in regard to certain risk management tools, especially livestock insurance. The study established a high degree of risk aversion as revealed by the adoption of such risk management tools like vaccinating the animals, calling a veterinarian, prevention of illness, maintaining hygienic conditions, and feeding adequate concentrates. Regression results showed that with increase in herd size and hours spent in off-farm work, risk aversion attitude increases. On the other hand, with increase in number of dependents, risk taking behaviour increases. The variables included in the study explained about 55 per cent of variation in risk attitude score. Herd size and hours

spent in off-farm work showed negative and significant impact upon the risk attitude score.

Mithleshkulmar (2006)\textsuperscript{41} documented the exiting government policies on imports and exports of dairy products and their impact on exports and imports on selected dairy products in India. It was found that India’s ghee + butter oil and skimmed milk powder exports were decreased during pre WTO period, but ghee + butter oil, milk food for babies, butter and whole milk powder were drastically increased after WTO implementation. In over all period, exports of dairy products were increased except whole milk powder. Similarly, in the case of India’s import, the policies were mainly concerned with domestic market, import regulations as well as import substitutions during pre WTO period (1985-1994). But after liberalizations (1991-92) the concern was on export quality control and import of dairy products in the country. In the case of ghee and butter oil, export was found to increase non-significantly in pre WTO period with the time variation (16 per cent) in export, while in post WTO period; it decreased significantly and revealed 93 per cent fluctuation in data due to time only.

Siddaram Houde, J. S. Sonnad, K. Shivashankar and Basavaraj Banakar, (2007)\textsuperscript{42} had undertaken a study in Dharwad and Belgaum districts of Karnataka. The findings of the study had revealed that both the co-operative and private sector units marketed their

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finished products through only one channel. The installed capacity of private sector unit was higher than co-operative sector unit but the percentage capacity utilisation was less in the private sector unit. Therefore, the private sector unit should accelerate their capacity utilization by increasing procurement of raw milk, adequate planning and increased market sales. The number of byproducts in the private sector unit was comparatively less than co-operative sector unit. Therefore, the private sector unit should increase product mix to increase their sales realisation.

Rangasamy, N and J.P. Dhaka (2008)\textsuperscript{43} analysed the marketing efficiency of the marketing of milk and milk products by dairy plants of co-operative and private sectors in Tamil Nadu. The study was based on the data collected for toned milk, standardized milk, full cream milk, flavoured milk, butter and ghee from the selected co-operative and private dairy plants of the Coimbatore district for the financial year 2001-2002. It was found that the marketing cost for toned milk was same in both the dairy plants, whereas it was higher for standardized milk, full cream milk and flavoured milk in the co-operative dairy plant. The marketing cost has been found less in the co-operative plant for products like butter and ghee. All the dairy products earn more marketing margins in the private than co-operative dairy plant, except for toned milk. The marketing efficiency of co-operative dairy plant for all dairy products has been observed relatively less than that of private dairy plant, except toned milk. The study has suggested the development of co-operative dairy industry in a sustainable manner, the co-operative dairy plants should

formulate long-term vision and strategy.

Nithin, R (2008)\textsuperscript{44} in his study had assessed the management of dairy processing units in cooperative and private sectors in Karnataka. The study revealed that both co-operative and private sector units procured highest quantity of raw milk during flush season, due to high production. Of all the three sectors, the co-operative unit utilised maximum installed capacity compared to other sectors. The benefit cost ratio was also high in co-operative sector, followed by private small scale and private large scale units. The total quantity of milk processed and demanded was highest in co-operative unit, followed by private large scale and private small scale units. The variable costs were the major cost component in processing of milk in all the three sectors. The total cost of marketing of processed products was the highest in co-operative unit, followed by private large scale and private small scale units, since co-operative unit had large area of operation and well established brand loyalty. Sales realisation was more in co-operative sector unit compared to other units, because the quantity sold was more. In co-operative unit processing was the most acute problem, whereas in the case of private (large and small scale) units, finance was the major problem. The major constraints observed in milk processing units were the lack of cost effective technology, irregular power supply and higher taxes for processed products.

\textsuperscript{44} Nithin, R.R, “Supply Chain Management in Dairy Processing Units-A Comparative Analysis of Private and Cooperative Units, Thesis Submitted to the University of Agricultural Sciences, Dharwad, 2008.
Tsourgiannis, L J. Eddison and M. Warren (2008)\textsuperscript{45} had identified the factors that affect the sheep and goat farmers in the Region of East Macedonia and Thrace in Greece in their milk distribution channel choice. The survey was conducted from 343 farmers that were selected at random. The main marketing channels that the sheep and goat farmers in the study area were: (a) to local private milk processing plants, (b) co-operative milk processing plants, (c) big national dairy firms and (d) private use of milk. According to the study, farmers’ characteristics such as the size of the block, volume of milk production, farm income, debt, found to affect the distribution channel choice. Factors including sales price, speed of payment, loyalty also have a significant influence on a marketing outlet selection.

Khan M.Z.U. A.U. Khan, F.M. Khattak, Saima, M.I. Anjum, Z.H. Kuthu and Z. Naseer, (2008)\textsuperscript{46} in their study had assessed the production and marketing patterns of milk in Muzaffarabad city, the capital of Azad Jammu and Kashmir and the investigation was undertaken by randomly interviewing the farmers in three zones of the area. For this purpose, a total of 569 farmers (producers), 86 middlemen and 45 retailers were interviewed and information was recorded. It was observed that out of 569 farmers 333 (58.52 percent) were literate and 236 (41.48 percent) were illiterate. The


results of the study indicated that middlemen earned more profit than the producers and retailers. Middlemen earned Rs 0.63/liter in zone I, Rs. 2.23/liter in zone II and Rs. 2.64/liter of milk in zone III. The retailer earned equal amount from three zones i.e. Rs. 1.67/liter of milk because of the retailer stationed in the city. Whereas the producers who invested for enterprise earned Rs.3.44/litre in zone I, Rs.1.44/litre in zone II and Rs.0.44/litre of milk in zone III. The statistical analysis showed that there were non-significant difference among the net margins of the producers, middlemen and retailers.

Bhupenda singh V, Guruprasad Sigh, and K. R. Chatuvedi, (2009) conducted a study relating to the marketing strategies of milk producing units of the Purvanchal region of Uttar Pradesh based on a sample size of 280 drawn randomly from the region using a questionnaire. It was found that sixty per cent of the people chose to have control over production and marketing both. Only 35 per cent of the people approved of the process of whole-seller and retailer. This makes out a total of 85 per cent of the people who chose the two responses. The average order getting type and expenditure was 1.15 and Rs. 33,775 respectively. Most of the people were resorting to direct selling and they were also making some expenditure. This was 85 per cent remaining 15 per cent of people have direct selling and through intermediaries.

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Moreover, the cost of physical distribution cost varies from Rs. 1000 to Rs. 8000 that has a very uniform distribution in the sense that higher frequency value lie in the middle of the distribution.

2.3 Summing Up

Variety of studies have analysed cost and returns structure of both cow and buffalo. The study related to break-even analysis of milk production has been very much limited in India. Hence, the present study is made an attempt to analyse the cost, returns structure, break-even of both cow and buffalo in the industrially backward district of Tamil Nadu to fill this gap.

CHAPTER III
PROFILE OF THE STUDY AREA

3.0 INTRODUCTION

The usefulness of any research study can be fully appreciated only when the results are studied with the demographic features such as location, soil conditions and cropping pattern. Hence, an attempt is being made to present a brief profile of the study area. The chapter has been divided into two sections. The first section deals with profile of study area. The second section presents the profile of the sample respondents.