CHAPTER I

INTRODUCTION AND DESIGN OF THE STUDY

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CHAPTER I

INTRODUCTION AND DESIGN OF THE STUDY

1.1 INTRODUCTION

The universal significance of milk has never been underestimated and efforts have continuously been made to augment the production of pure milk for consumption in various forms. Milk contains most of the essential nutrients for the maintenance of the physical well-being. Milk has been the elixir of life ever since the creation of the world. It has been a pure, unalloyed and unblemished food of all the mammals.

Nature with its bounty provides the diet of milk as a staple food for babies, the aged and all in general. The diet of the malnourished, convalescing mothers, patients and the balanced diet of the people in general is always accompanied with milk. Milk is used in many forms from panniers, curd, ghee to chocolates, toffees and the like. So milk is not only confined to domestic consumption but also it has grown into an important component in industrial products as well. The economic importance of milk is invaluable and fortunately it has been a source of economy more for the people of the peripheral (gross root) level.

Mahatma said emphatically that India lives in villages. It is always true and the millions of people habitat only in the rural areas even today. Migrants from
villages to urban areas in search of better prospects constitute comparatively less. Modern sophistication with "Knowledge Economy" is yet to dawn in these rural areas. The villagers still have to break their backs and strain their news to eke out their livelihood. The sweat on their brows never dries. They continue their relentless battle against all odds for survival.

Agriculture is not as prospective as it was thought to be. However the agro-based cattle rearing for milk production has proved to be a panacea to the villagers. Most of the households have milk animals and their domestic budgets depend mostly on the revenue from the sale of milk. Such micro finances satisfy the villagers of their needs and it's not for making them rich overnight. The villagers owning the milk animals find jobs to themselves in their own mini diaries.

The Government came out with the catchy slogan "White Revolution along the line of Green Revolution in the periodical budget proposals. What the green revolution could not achieve for the millions of the villagers, the white revolution has achieved securing economic independence to them to certain extent.

Gradually, the animal husbandry as an agro-based entrepreneurship gained momentum. Since it proved itself to be a remunerative occupation, many villagers dared to shift their occupations to animal husbandry either partially or fully from
agriculture. New varieties of nutritive fodder crops, enriched cattle feed advanced veterinary services and the like have been introduced.

There has been so much enthusiasm among the people of the rural India about starting their own individual dairy farms and Pondicherry is not an exception to it. With great deal of mass, Pondicherry the Union Territory has actively engaged in dairy farming as an agro based occupation. Today, dairy farming in Pondicherry has developed into an organization with cooperative network being governed by the statues of the Government of Pondicherry as Cooperative Milk Society across the length and breadth of the Union Territory.

Agriculture sector is regarded as the backbone of Indian Economy. Nearly 70 per cent of the people live in 5,87,000 villages and their main occupation is agriculture\(^1\). Agriculture is closely interwoven with animal husbandry and plays an important complementary role. The role of animal husbandry in providing main and subsidiary occupation or the main occupation to the rural population is well recognized\(^2\).

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1. India web.master@Diary.com ‘A Dairy Tale’, p.1094
Animal husbandry has secured an important place in Indian agriculture leading to the dairy development in India. Dairy development in India is being recognized as an effective and essential instrument for ameliorating the poor economic conditions of rural families, particularly those of the small and marginal farmers and the landless agricultural labourers.

The dairy industry not only provides employment opportunities to a sizeable population, but it also enables the downtrodden to earn a reasonable income. The output is milk and, various types of people almost all in different forms consume the milk products.

As per 1992 census, there were 288.79 million bovine populations in the country, of which 98.06 million milch animals produced 61 million tonnes of milk. During 1998-99 the total milk production was 77 million tonnes, making an increase of 25 per cent, within a period of seven years with the total milk

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production in the world being 526.7 million tonnes in 1999\textsuperscript{7}, with an increase of 6.84 per cent, during the same period. India possesses 7.3 per cent and 62.3 per cent of world cow and buffalo milk production respectively. The present rate of growth of milk production in India is about four per cent as compared to the global average of one per cent. In 2004, world milk production was estimated to be 612 million tonnes, nearly 0.5 per cent higher than the previous year and India contributed about 15 per cent to this. The contribution of cow milk and buffalo milk was 84 per cent and 12.5 per cent respectively. Buffalo milk Production increased by 1.9 per cent and cow milk production by only 0.25 per cent globally over the previous year. Most of the milk produced was consumed in the producing countries themselves and the share of international trade in overall milk production therefore continued to be low, around 7.8 per cent. The global per capita availability of milk in 2004 was 96kg – slightly lower than 96.6 Kg. in 2003.

Global prices of dairy products were on the increase throughout 2004-05. As a result, India’s exports of dairy products also increased during 2004-05 from the previous year and were worth about Rs.3,520 million. The value of milk product imports was close to Rs.514 million.

\textsuperscript{7} Dairy Hand Book, Alpha – Laval AB, Dairy and Food and Engineering Division, Sweden.
Today, Indian dairy is unique in its own way and it has found a prominent place on the world map. India stands number one in milk production worldwide. The total milk production in the year 1999 was 78 million tones, and the present growth rate is over 8 per cent per annum. In fact the introduction of Operation Flood I, II and III in India has helped her achieve a spectacular result in dairy sector White Revolution.

The production of Milk is a complex matter in which various factors are involved and likewise it’s marketing also. Among the different studies available, adequate focus has not been given in this area in recent years in Pondicherry. Hence, in the present study, production and Marketing of milk has been undertaken.

The people of Pondicherry realized the usefulness of co-operative concepts only after its defacto merger with the Indian Union during 1954. The Pondicherry Co-operative Milk Producers Union is the first society registered in Pondicherry on 14th February 1955.

Co-operative Movement has been strengthened in Pondicherry through apex and primary Societies. The Pondicherry Co-operative Milk Producers’ Union as an apex institution and 100 Primary Co-operative Milk Producers’ Societies in Pondicherry region have been rendering various services to the members who are
languishing in poor living conditions in the rural and semi urban areas within the framework of Co-operative Laws and Principles.

Co-operative movement has extended its helping hands and given avenue for the development of unorganized labour force, handicrafts, women co-operatives, irrigation and the like of Pondicherry Union Territory in recent years through registration of co-operative societies for the weaker section. The progress of co-operative movement between 1990 – 91 and 2000 – 01 has an increasing trend on the growth of number of societies, membership and share capital and plan assistance to Co-operative Societies.

The Dairy Development activities and related administrative control in Pondicherry are under the headship of Dairy Development Officer. There are 122 Milk Producers’ Societies in the Union Territory on the whole. Out of which, 101 are functioning in the Pondicherry region. As an apex institution, the Pondicherry Co-operative Milk Producers’ Union Ltd. is procuring milk from primary co-operatives as it has a chilling plant. The union in consultation with the Government determines Price fixation and marketing of milk. It also extends qualitative cattle feed to milk producers and first aid to milch animals.

The office of the Deputy Registrar of cooperative societies, Karaikal is the nodal agency for the development of the cooperative sector in the Karaikal region. There are at present 20 primary cooperative milk producer societies affiliated to
the Karaikal Co-operative Milk Producers Union, which was registered on 5.4.1955 and started functioning from 1.5.1955. At the time of starting the society, the average milk collection was 125 litres per day, which has risen to 20000 litres per day at present. Yanam has only one society. (Vide Appendix II)

The union is collecting milk from 19 primary cooperative milk producers’ societies functioning in Karaikal region and 92 milk yards in the adjoining areas of Tamil Nadu maintained by their society directly. The normal milk production in the region is in an increasing trend from March to August and the lean season will start from September to February every year. Due to issue of milch animal loans to the members of the primary societies by the commercial banks in the region under IRDP and other schemes, the milk production is in an increasing trend throughout the year.

At present the milk storage capacity of the union is 8000 litres of milk. The union has got financial assistance from the Government of Pondicherry for the implementation of a mini pasteurizing plant at the estimated cost of Rs.1.40 crores.

1.2 STATEMENT OF THE PROBLEM

Agriculture plays a very important role in the economic development of our country. Even now around 30 per cent of National Income is contributed by the agricultural sector. Further it provides livelihood to about 70 per cent of India’s
population. Out of the total Indian agriculture population, 60 per cent of them owned milch animals for their subsidiary occupation, besides, the landless agricultural labourers also own milch animals either for their main occupation or subsidiary occupation. Since the introduction of White Revolution, the milk production geared up many number of times with the implementation of different schemes and various approaches under the category.

With the financial assistance from different agencies, the cattle rearers invest more money for increasing the production of milk. The farmers who own milch animals and the cattle rearers are forced to sell their milk to the private traders, vendors and to the consumers. With the development of the Milk Producers’ Co-operative Societies in the rural and semi-urban areas, the milk producers are selling their milk to the societies. The Co-operative Societies rendered various kinds of services to their members for increasing the milk production and for fetching better prices for their milk sold. But in the recent years, due to the effects of LPG (i.e. Liberalization, Privatization and Globalization), the private competitors raced ahead. In this context it is imperative to analyze the position of the Animal Husbandry in the occupation category the average milk production the marketable Surplus the various production problems of milk producers and the channels through which milk producers sell their milk.
The researcher is also very anxious to study whether the respondents were satisfied with the services of the Union and the price paid for and the extent to which they are satisfied and to provide suggestion to overcome the problems. So an empirical study in this direction is the need of the hour and hence the present study has been undertaken by the researcher.

1.3 REVIEW OF LITERATURE

Numerous studies have been undertaken on dairy industry by different authorities at different periods on different themes. A few relevant studies are reviewed and presented.

1.3.1 Studies Relating to Production

Gore S.K. and Gone J.R. conducted a study (1980) on “Economics of Milk Production of Cross Breed Cows in Kolhapur district of Maharashtra State”. The study was undertaken during 1979-80. A sample of 12 cultivators was selected at random in the Chuye village and data were collected with the help of schedule and questionnaire. The main findings of the study were maintenance of at least a cross-bred cow to which assured market is available, will be better proposition for subsidiary occupation for the small and marginal farmers to earn additional income of about Rs.725 per year with the gainful employment round the year in the country side, otherwise left idle in off season. In this study 79.86 per cent of the cost were incurred in variable cost including the concentrated fodder 26.95 per
cent dry fodder 18.39 per cent green fodder 14 per cent. The gross income per cow received was worked out to Rs.5777. The per litre cost of production was Rs.1.65 on the amount received by the cultivators was Rs.1.89 leaving a net margin of Rs.0.24 per litre. The entire milk was purchased by the cooperatives. Hence there was no difficulty in marketing.  

Sharma P.K. & Singh. C.B. conducted a study (1986) on “Milk Production, Consumption and Marketed Surplus in Rural Karnal”. The study was undertaken to evaluate the impact of ICDP on production, consumption and marketed surplus of milk in rural Karnal. 10 stockman centres randomly and all the 4 civil veterinary hospitals were selected for study. Out of the 10 villages of the extension area, 100 beneficiary households were selected randomly on the basis of probability proportional to the number of households in each category. The study covered a period of one year i.e. 1986 and adopted the survey method and collected data through pre-tested schedule. The study concluded that beneficiaries of all categories of farmers of ICDP received more quantity of milk than that of non-beneficiaries of their counterparts. The ICDP Karnal had its direct impact on

the productivity of milch animals, production and marketed surplus and per capita availability and consumption of Milk.⁹

Chauhan Anil and Sharma conducted “Production, Consumption and Marketed surplus of milk in rural areas of District Bareily in Uttar Pradesh”. A.K. One block was randomly selected in the district. A total sample of 50 milk producers was drawn from different categories of farmers in the two villages having a large number of milch animals. The data were collected for 1987 through pre-tested schedules and by personal interview method. The study revealed that on an average the respondents had 5.2 acres of land owning 2.8 numbers of milch animals, invested Rs.1797 per animal and earnings of Rs.246 per month. The average production was worked out to 7.76 litre per house-hold among which 5.43 litres was consumed and only 3.33 i.e. 29.11 per cent was disposed as marketable surplus.¹⁰

Talukdar.K.C and Baruah, P.M., (1992) made an attempt (i) to analyze the economics of production of milk according to farm size, (ii) to examine the


¹⁰ Chauhan Anil and Sharma. A.K., Production, Consumption and Marketed Surplus of Milk in Rural areas of District Barilley, (U.P), *Agricultural Marketing*, Directorate of Marketing and Inspection, Ministry of Rural Areas and Development, Department of Rural Development, Govt. of India, New Delhi, Jan – March 1992, pp.37–39.
marketed and marketable surplus of milk and its pattern of disposal and (iii) to examine the constraints of the milk marketing system in a district. The study was conducted in Dimoria and Rani Development blocks of Guahati sub-division of Kamrup district as these two blocks produced the highest quantity of milk in the district. By following stratified random sampling technique, 25 per cent of the villages of these two blocks were selected at random and 8 small (upto 3 milch cows) 23 medium (4 to 6 milch cows) and 64 large (7 milch cows and above) farmers were selected at random. The study concluded that the marketed surplus of milk significantly influenced total production, which needed attention for increasing productivity through better breeds and management. Village level processing / semi-processing units with cooling facilities may further increase the total production of milk. The organized sector was playing a more prominent role in the programme villages.¹¹

Gupta Anil. K and others studied (1993) “The Production, Consumption and Marketed Surplus of Milk”, from a sample of 204 milk producer-sellers among different size of land owners in three district of Hariyana State and covered the period of one year (1991-92). The study observed that on an average 6.58 acres of landowners owned 4.48 units of milch animals in which more than 80 per cent

were buffaloes. The average quantity of milk produced per day per farm was 9.97 litre by the small farmers, 28.81 litres by the large farmers. More than 69 per cent of the milk was sold as fluid milk and rest was consumed at home. The per capita consumption of milk per day was estimated at 2.08 litres on an average.

Kushwaha, R.K.S. and others studied (1993) “The Economics of Production and Marketing of Milk in the District Kanpur (Dehat), Uttar Pradesh”. The study was based on an intensive enquiry of 50 milk producers’ 25 beneficiaries, and 25 non-beneficiaries, and the average number of milch animals on beneficiaries and non-beneficiaries were 1.80 and 1.24 respectively. The total maintenance cost per milch animal per year came to Rs.12035.00 for beneficiaries and Rs.9228.56 for non-beneficiaries. On an average, milch animals yielded a net income of Rs.8550.92 per year with a total value of output of Rs.18190.25 and a total value of input of Rs.9639.73. These values were higher for beneficiaries. The amount received by milk producer was Rs.6.50 per litre. The producer’s share in the consumer’s rupee came to 65 per cent and 59.09 per cent for beneficiary and

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non-beneficiary, respectively. Yearly income from milk per producer was Rs.19636.20 for beneficiaries and Rs.7678.13 for non-beneficiaries\textsuperscript{13}.

Babal P.S. and Dhaka J.P undertook a case study at Gopal Kanj District. On Production Utilization and Marketing of Milk in Bihar. The district was selected purposively due to the suitability of dairy farming and absence of previous studies in the area. 67 households were selected through stratified random sampling procedure on the basis of three herd size categories. The study was conducted in 1993-94 and concluded that cost plus method ensured 10 per cent normal profit to milk producers and recommended to fix the minimum support price to be revised in subsequent years\textsuperscript{14}.

"Comparative Economics of Milk Production in Urban and Rural areas Madhya Prudish" was examined by Gauraha A.K. (1994). The study examined and compared the cost structure, pattern of disposal and relative economics of milk production, based on data collected from a sample of 18 urban dairy farms in Raipur town and 24 rural dairy farms within a radius of 10 kilometres. The data were collected personally for the year 1993-94. The study revealed that the


average daily expenditure incurred on a milch animal was higher in the urban areas than in the rural area due to higher proportion of concentrate and green fodder fed to animal and their cost. The average cost of production per litre of milk for crossbred came to Rs.5.16 and Rs.5.44 in the urban and rural dairies respectively, while the corresponding figures for buffalo were Rs.6.32, 6.33 respectively. The net returns were Rs.3.84 and Rs.4.68 per litre. The profitability was lower due to the lower price of cow milk, as a result of lack of demand in the local market\(^\text{15}\).

Anjani Kumar; (1994-95) studied “Milk Production, Function and Factor Demand in Milk Production, in Muzaffarpur District In Bihar”. A multi stage stratified random sampling was used to select 180 households, consisting of 90 households having cross-bred cow and 90 households having buffalo and local cow. Primary data on consumption of green fodder concentrate and milk yield per day per animal and their prices were collected through well-developed questionnaire prepared specially for the study\(^\text{16}\).

The milk production for crossbred cow, buffalo and local cow were worked out taking green fodder and concentrate as independent variables and milk yield

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per animal as dependent variable to examine the factor demand for these major inputs. The regression co-efficient of concentrate was positive and highly significant for all the three categories of milch animals indicating there by that this input exerted significant influence on milk production. The elasticity concentrate input for crossbred cow, buffalo and local cow follow the highest. The additional quantities of green fodder and concentrate cannot increase the milk production with only small decrease in the prices. Only qualitative change in feeding schedule can increase milk production. It suggests that a marginal change in the price level of green fodder and concentrate may not enhance consumption substantially in dairy farming.

Subramaniam.S. studied (1995-96) “Variations In Milk Yields A Cross Breed and Agro Climatic Regions in Andhra Pradesh”. The study covered a sample of 512 households in A.P. selected from 42 villages from 24 mandals and classified on the basis of irrigation and rainfall. Four milk yield functions were estimated as a function of dry fodder, green fodder concentrates and using dummies. It was found that variations in feeding were note due to agro climatic conditions and breed varieties.\(^\text{17}\).

“Economics of Milk Production with Special Reference to Resource Use in the Existing Marketing Environment of Orissa” was conducted (1996) by Dibakar Naik and Mohanty Binod Ch. The study attempted to examine the structure of dairying farm, cost of production of milk and its market price, and factors involved through suitable statistical tools. A sample of 50 households from three size classes, according to the number of cows kept were selected from Bhubaneshwar block in Khurda District of Orissa. It was observed that the milk production environment was primitive where local breeds were found to be concentrated to the extent of 68 per cent in size class 1 and 79 per cent in size class 2. The number of dry cows was more (41% - 44%) of total among the different categories of cow owners. The concentrates and dry feeds played an important role in increasing the level of milk yield. It was also estimated that the cost of production of cow milk was worked out to Rs.3.87, Rs.5.20 and Rs.3.24 per litre respectively in all the three sizes.

Rajendran conducted a study on “Constraints in Milk Production in Rural Areas” in Dharmapuri District in Tamilnadu. K and Prabhakaran.R (1998). They studied 360 farmers who were selected by using simple random sampling method and adopted field survey method and personal interview technique for collection

of the required data from the selected farmers. The study revealed that the major constraints in milk production were high like feed cost, high investment, low price of milk, inadequate infrastructure facilities, marketing of milk, low milk yield, inadequate input supply, high cost of veterinary treatment, diseases and repeat breeding. It was concluded that by adopting improved feeding and breeding management practices could increase milk production\textsuperscript{19}.

Singh J.P. conducted a study (1999) on "An Econometric Analysis of Factors influencing Milk Production and Supply Response of Milk to Change of Price at the Producer's Level". The study was conducted in Ranga Reddy District, Andhra Pradesh. In this study he identified the factors that influenced the milk production and derived the short-run supply functions of milk for cows and buffaloes in the sample villages of Manchal Mandal and Ranga Reddy district, Andhra Pradesh. The primary data was collected for the study corresponding to randomly select, one Mandal, two villages and 60 farmers. All the farmers were classified into three categories i.e., marginal farmers, small farmers and large farmers. Thus there were 27 marginal farmers 19 small farmers and 14 large farmers. The study covered the period of one year 1998-99. The main findings of the study was the milk yield of cows and buffaloes is highly dependent upon the

number of milch animals and the quantum of concentrates fed to these animals. Except in the case of large farms, green fodder and dry fodder did not seem to influence the milk yield in the remaining two categories of sample farms\(^\text{20}\).

Sathya Sundaram (1999) conducted a market survey on “Dairy Industry Productivity in India”. He observed that dairying in India is a subsidiary occupation that needs to be stepped up to meet the growing demands of our increasing population. In this study, he analysed the reasons for low productivity of milk and the ways and means to overcome them. He found that the inadequate and poor quality of feed provided to the animals caused the low productivity. This problem can be solved by ensuing availability of feed and fodder. Concrete efforts are needed to improve the productivity of fodder crops, develop grazing land, promote agro-forestry systems like silvipasture, research on low cost feed items and giving free medical facilities (or) better health care services.\(^\text{21}\)

A study of “Milk Production in India – Perspective – 2020 was conducted by Kurup. M.P.G in 1998-99. He observed that the cow and buffalo milk productions were not uniform and the increase was not in the same trend. The


\(^{21}\) Satyasundaram, I, Dairy Industry Productivity holds the key, Facts for you, January 2000, p.10-12.
production of milk was influenced by the introduction of economic policies, infrastructure available in milk production, technology upgradation, institutional setup and quality assurance and the like. Such influencing factors were also the constraints for increasing the production. For better perspective, the supply of qualitative cattle feed, better arrangements for artificial insemination services, provision of adequate required infrastructure facilities for the milk production and arranging for the sale of the milk produced by the milk producers with the help of well organized institution set-up are suggested.

"The Economics of Milk Production" was studied by Koshta A.K. and Chandrisekar M.R. (1999). The study covered a sample of 100 milk producers in Raipur District in Maharashtra State in India. The respondents were selected by using Simple Random Sampling Procedure and on Field survey method. The required and relevant data were gathered through structured questionnaire with the personal Interview technique. The study analyzed the production of milk, size of the families of milk producers, categories of milk animals possessed, productivity cost and returns of milk production and sale. The study suggested supplying cattle feed and arrangements for the artificial insemination services for increased milk production and institutional arrangements for the sale of milk. It further suggested

the provision of such services and facilities at cheaper rate to the milk producers for enhancement of milk production.

Atkare Vilas G. and others studied (1999) the cost analysis in milk production for determination of the cost of milk production of herd basis milch and dry animals together as considered, and on wet basis only milch animals were considered. The study observed that the cost of milk production was a changing phenomenon and depends upon various components like feed, labour and supervisor, health cover (veterinary and medicine), miscellaneous item and replacement cost. The change in cost of any such component ultimately changes the cost of milk production, which also depends upon the level of milk production. Feeds and fodder contributed 70 per cent of the total maintenance cost of milch animals and yearly two third of total cost of milk production. It was also observed that cross bred cows were superior to non-descript cows.

"Seasonal Impact on Milk productivity" was studied by Sivasubramanian M (2000). The study examined the milk production, which adopted field survey method, and primary data were collected from 100


households from different herd size owners from two selected villages in Cuddalore District by using disproportionate random sampling. The study concluded that over all level in the cow milk production among the study households was 4.86 litre per day / per animal in lean season, increased to 5.67 litres per day in flush season, showing 16.67 per cent of increase. Like that the buffalo milk production was 3.33 litres and 4.17 litres during the lean and flush season respectively, indicating an increase of 26.26 per cent, the productivity was more among the small herd size than that of other categories.

Ahuja, U.R. and others (2000) conducted a study on “Factors Affecting the Milk Production in Arid Jona Western Rajasthan”. They adopted the field survey method and collected the required data, processed them and identified the factors that affect the production of milk. The important factors were the rupee value of milk, cattle feed and fodder. Such factors were accountable for 96 per cent in the case of large and medium households. Concentrates were most important inputs for milk production followed by the value of animal location and the number of animals. But the coefficient analysis on production variables in relation to the size of households indicated the positive elasticity in all size of households. Further there was a positive contribution towards the returns from milk production. The estimate of marginal value of products of the green fodder (> 1.1) in all the size

groups indicated that the quality feed did not need the requirements of the animal. Human labour was over utilized by most of the households except the large farm households.  

1.3.2 Studies Relating to Marketing

Chahal. S.S. and Inderpal Singh (1990) conducted a comparative study on the “Role of Organized and Unorganized Sectors in Marketing of Milk in Punjab”. The study was undertaken in Punjab to examine the pattern of milk production, consumption and disposal on the selected farms belonging to the organized and unorganized sectors. Multi-stage sampling technique was used to select respondents. The study sample included 219 and 213 dairy farmers belonging to the organized and unorganized sectors respectively. The data collected correspond to the year 1989-90. The production and productivity of milk on the farms supplying milk to the organized sector was relatively higher, but they were however, offering less milk for sale because of higher retentions for consumption as compared to those supplying milk to the unorganized sector. In spite of the best efforts of the organized sector to increase its share in the procurement of milk, this sector could handle less than 50 per cent of milk offered for sale in the selected

milk shed areas. The state level analysis indicated that the share of organized sector in the total procurement of milk was only 12.86 per cent.\textsuperscript{27}

Tarvinder Singh Chahal made an attempt (1991) to analyze The Disposal Pattern of Milk in Rural Punjab. The study was based on field survey of 2106 rural households selected from 12 villages randomly chosen from three districts of Amritsar, Hoshiarpur and Ferozepur respectively and the central plain, sub mountainous and western zones of Punjab. Milk production in rural areas was found to be the domain of small and marginal farmers constituting 82 per cent of the total milk producing house hold, of which 46 per cent house holds and 46.16 milch animals belonged to the small category alone. For disposal of milk outside the home, the medium, large and big farmers mainly depended on milk cooperative societies to the extent of 66.8 per cent, 87.5 per cent and 100 per cent respectively. While 88.6 per cent of the marginal milk producers depended on direct consumers, 48.5 per cent small milk producers relied upon the services of milk vendors.\textsuperscript{28}


\textsuperscript{28} Tarvinder Singh Chahal, Disposal Pattern of Milk in Rural Punjab, \textit{Indian Journal Agricultural Marketing}; Special Issue (Anand VII conference) 1993, pp.5,6.
In 1991, Ahir. N.J., and Singh. P.K. made an attempt to analyze the "Farmers Milk Disposal Decisions in South Gujarat (Heavy rainfall) Zone". Production, consumption, marketed surplus, and the pattern of milk from the farms of different sizes have been analyzed. At the overall level, the per farm milk production, consumption, and marketed surplus were 2923 liters, 860 liters, and 1915 liters respectively and were observed to increase with the farm size. Thus, production and consumption were skewed towards large farmers. However, the pattern of marketed surplus revealed that it was fairly and uniformly distributed, varied in a close range of 22.44 per cent on landless group to 26.22 per cent on large size group. The main findings of the study, the smaller milk producers belonging to small, marginal, and landless groups preferred to sell their milk particularly buffalo milk, through private trade as the vendor paid better prices for buffalo milk. Large farmers sold their produce, particularly the surplus cow milk through co-operatives^29.

Raveendra Mattigati et al., (1992) in their study entitled, "Marketing of Milk in Dharward District, Karnataka-An Economic Analysis" identified three different channels for distribution of milk and concluded that member producers sold their produce through organised co-operatives (Channel-1) and received

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remunerative price in addition to availing the services rendered by the co-operatives like extension, technical input and veterinary services, as compared to non-members who disposed off their milk by choosing Channel II or Channel III. It indicated that the degree of elasticities of explanatory variables affected the selling behaviours of milk producers to a large extent.

B.K. Singh et al., (1993) in their study entitled, “A Study of Marketing Margins and price-spread of Milk in Tarai Region of Uttar Pradesh”, revealed that the traditional milk marketing methods were not practiced in the study area. Middlemen were found in the marketing process. Milk co-operative societies acted as intermediaries, who disbursed the milk surplus. Middlemen received higher profit margins than milk co-operative societies.

Singh J.P. and Ameeta conducted (1993-94) a study on “Supply Response of Milk to Change in Price of Milk at the Producer’s Level”. An empirical analytical study was made in Khurda district of Orissa. The study was to identify the factors that influenced milk production and to derive the short-run supply functions of milk for cows and buffaloes in the sample village of Khurda block.


The data collected for the present study correspond to randomly selected one block, five villages and 61 farmers. All the farmers were classified into three categories, i.e., marginal farmers, small farmers and large farmers. Thus, there were 28 marginal farmers, 19 small farmers and 14 large farmers. The study covered the period of one year 1993-94. From the main findings, it may be inferred that the milk yield of cows and buffaloes was highly dependent upon the number of milk animals and the quantum of concentrates fed to these animals. Except in case of large farms, green fodder and dry fodder did not seem to influence the milk yield. But in the absence of adequate purchasing power of marginal and small farmers to the needed concentrates, judicious and balanced combination of three components were not possible to take advantage of the inherent potential of cross bred cows.\footnote{Singh, J.P and Ameeta, Supply Response of Milk to change an price of Milk at the producer’s Level: An Empirical Analytical Study in Khuda District of Orissa, \textit{The Bihar Journal of Agricultural Marketing}, October – December 1996, Vol.IV, No.4, pp.377-383.}

NDDB proposed to the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India to undertake a study (1996-97) on “Production and Utilization Pattern of Milk of the Rural producers Level across the region through its AER centres”. Accordingly, the study was assigned to one state from each of the four zones, north, west, east and south for an all India representation. Thus, waltair, Bhagalpur, Vallabhvidyanagar, Delhi and Vishwa-Bharti AER
centres undertook the study for Andhra Pradesh, Bihar, Gujarat, Punjab and West Bengal States.

The broad objectives of the study were

1. To estimate the milk production, retention, conversion of milk into ghee, white butter, khova, curd and the like across seasons.

2. To study the marketing channels adopted.

3. A multistage sampling design was followed in selection of households in consultation with NDDB. In overall, 1290 households were selected in 5 states. The study covered a period of one year 1996-97 with three distinct seasons namely winter, summer and monsoon. The study revealed that the average animal milk production for sample households was estimated at 6476 litres in Punjab, which is highest across the State followed by 4179 litres in West Bengal, 2638 in Bihar and 1092 in Gujarat. Of the total milk production the sale ranged between 53.2 per cent to 82.5 per cent and between 17.2 per cent to 46.73 per cent across the states.

The weak financial condition, lack of adequate green and dry fodder, Government sponsored programmes for promotion of milk production were the important constraints. The milk sales were effected through dairy societies, village
families, milk vendors and others. Of the total quantity sold, 41.62 per cent to 63.07 per cent of the milk was sold to dairy cooperative societies\(^3\).

Dorge studied “ Marketable Surplus of Milk in Konkan Region and Western Maharashtra” J.T. and others (1998). The important objectives were 1) To estimate the marketable surplus, the pattern of disposal and the like 2) Two distinct regions were purposively selected for comparison, one was Western Maharashtra in Ahmedabad District and another Konkan. All 72 milk producers were selected by using multistage sampling. It was observed that the performance average of milk production in the Western Maharashtra was 34.74 litre/per days, which was twice than in Konkan district (15.11 litre/per day). The performance average of marketable surplus of milk from in the Western Maharashtra was 31.85 litres per day while in Konkan it was 13.85 litres per day. The percentage of marketable surplus was more or less the same in the selected regions. The cooperative societies were performing a primary role in both the regions\(^4\).

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1.3.3 Studies Relating to Cost

C.G. Ranade, et al., (1988), analysed the cost of milk production by using the concepts used in farm management studies with suitable modifications, for members and non-members of societies in Gujarat and Maharashtra States separately.

They came out with a significant conclusion that the total cost (Cost C) of milk production per litre was less in Gujarat (Rs.4.35) compared to Maharashtra (Rs.5.39) for the members of co-operative society. A similar situation also existed in respect of non-members, as the cost was Rs.6.32 per litre in Maharashtra and Rs.4.48 per litre in Gujarat. The difference in the total cost was to the extent of Rs.0.93 per liter for members in Maharashtra as against Rs.0.13 for members in Gujarat. Paid out costs were most important in influencing the total cost of milk production of both members and non-members.\(^{35}\)

Jai Singh and Singh.V.K. (1992), conducted a Study on “Price Spread and Marketing Margins in the Marketing of Milk in Hisar District of Hariyana” and analyzed the present status of milk marketing in the State. 50 farmers were selected from rural and sub urban villages and further a sample of 15 middlemen

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and 25 consumers were also selected for a study and covered a period of one year i.e. 1991-92. It was observed that nearly 5000 and 6700 liters of milk was produced. A sample farm-holding in rural and suburban villages respectively and 61 per cent and 39 per cent of the milk produced was consumed at home respectively. Milk vendor was the major agency handling more than 75 per cent of milk produced in the sample villages\(^\text{36}\).

Pannu, R.S and Others conducted a study (1993) on the “Marketing Pattern, Cost and Margins of Milk in Hisar Districts of Haryana”. They selected 30 farmers of feeding area of Hisar. The study concluded that 73 per cent of the respondents sold the milk, directly to the milk vendors at the village itself and 20 per cent in the form of Ghee and the rest 7 per cent consumed the whole quantity. With the per capita consumption of 561 gms /day the study area was found lower than the stage average of 589 gms/day. Mainly, due to close vicinity to city, the farmers received about 56 per cent share in consumer rupee, while the margin of milk vendors comes about 32 per cent. The lower share of the producer in consumer

rupee, untimely payment, non-regularity on part of the milk vendors are the major problem.

Pandey. R.N and others, (1993), made an attempt to analyze the “Production Costs and Utilization Pattern of Milk by Farmers in India”. Mixed farming is the most predominant farming system on typical farms in Haryana. Cattle and buffaloes were the most important farm animals which account for about 80 per cent of total livestock population. With the passage of time, the relative importance of milch buffaloes has substantially increased whereas it has declined in the case of cattle. When all the costs were taken into consideration, there was a net loss from milk production at the rate of Rs.2953 (range Rs.1133 to Rs.3417 on various categories of farms) in case of cattle and Rs.2510 per milch animal per year (range Rs.1374 to Rs.2766) in case of the milch buffaloes. For attaining the breakeven point, either price of milk be increased from Rs.4.48 to Rs.7.21/Kg in case of cattle and from Rs.4.88 to Rs.6.61/kg in case of buffaloes or their productivity levels be raised from 1183 kg to 1901kg/year in case of cattle and from 1755 kg to 2378 kg in case of the buffaloes. In case of landless, small, medium, large and overall average farmers 90, 97, 96, 79 and 92 per cent of total cow milk and 61, the farm households consumed 71, 72, 70 and 70 per cent of

total buffalo milk as fresh respectively. The remaining cow milk was converted into ghee and the farmers did not sell it. About 9 per cent of the total buffalo milk was sold as fresh milk and 20 per cent converted into ghee of which 75 per cent consumed by themselves

Nandal.R.S., and Chhikara. O.P., analysed (1993) the “Cost of Returns to a Farmer in Marketing of Buffalo Milk in Hisar District of Hariyana”. The study shown that the milk producers received a net margin of Rs.0.95 / litre in marketing of pure milk of buffalo, where as a middleman earned a net margin of Rs.1.93/litre. This shows that returns to a middleman in the marketing of milk were more than double as when compared to producers’ returns. On the other hand producers should increase the milk yield of their milch animals by feeding with adequate and balanced nutrition, proper care and management. And along with this, animals of good breed should be supplied to the farmers

1.3.4 Studies Relating to Problems

The National Commission on Agriculture during the analysis, before submitting the final report, prepared an interim report and submitted to the Govt.


of India in 1971, about the position of agriculture problems, the scope for milk production, linking of milk production programme with SFDA and MFAL agencies and the over all approach to Milk Production. The committee identified the causes for the poor economic conditions of weaker sections, and the problems faced by them. It observed that milk production, through cattle rearing as a part of subsidiary occupation, will help for the employment and income generation, particularly to the economically downtrodden. The agencies recommended for helping the small farmers, marginal farmers and the agricultural labourers may help through the implementation of the poverty eradication programmes, employment generation programmes and the like through the agencies and also by arranging for providing subsidies to these sections.\footnote{Government of India, \textit{National Commission on Agriculture, Interim Report}, New Delhi – 1971.}

“Factors Influencing Milk Production” was studied by Singh J.P. and others in Khurdha block of Kuhurdha District (Orissa). The study was based on a sample of 16 households rearing cows and buffaloes in the area. The study was pertained to 1993-94 and used Cob-Douglas production function. The study revealed the superiority of buffaloes over cows. The three important variables namely feed cost, milk yield and milk prices were the important economic variables. Coupled with inherent genetic potentiality and conception; quality feed and quality milk production comparison of production function estimated between farm size classes...
showed that the dry and green fodder had least impact on milk yield due to the excess milk\textsuperscript{41}.

Aneja, R.P. had conducted (1994) "A study on Dairying in India". He analyzed the dairying and observed the factors contributed for its success and completed that it was a successful story. The study of milk and milk products continues to rise in our country year after year due to growing income of families. The author suggested that an assured market and fair prices now available to Indian milk producers, even during the flush season played a major role in increasing the milk production. He pointed out that milk producers receive approximately two-thirds of the consumer price. The author identified the causes for the increased milk production and productivity of milch animals. They took the due care to the quality and health of the farm animals, availability of fodder resources and the like\textsuperscript{42}.

"Constraints Faced by Milk Producers in Adoption of Dairy Technology" was the study conducted by Vyas H.U. and Patel K.F. (2000). The study covered a sample of 300 respondents selected though multistage sampling procedure in


Panchamahal District of Gujarat state with controlled and non-controlled villages and tribal and Non-Tribal areas. A Two-point response category namely Agree and Disagree were used for the collection of data. The non-availability of known facilities for purchase of milch animals and fodder, the non-availability of artificial insemination and milk marketing facility and lack of knowledge of scientific animal feeding were identified as the constraints.

1.3.5 Studies Relating to Co-Operatives


The study revealed that for members and non-members respectively, overall average annual milk production per household was 2806.85 kgs. and 1556.72 kgs. Average daily milk consumption per household was 2449 grams and 1523 grams. The percentage of surplus production marketed was 75.3 and 29 for members and non-members respectively.


“Making Milk Production Viable to Farmers: An Analysis of Cooperative Approach” was done by Despak Shah (1990) and the study was conducted in Bulanshahar District which was the only district in western Uttar Pradesh contributing surplus milk to Delhi, Lucknow, Bilaspur. Samples of 200 households were selected by using probability proportionate sampling and by computing cumulative square root method of stratification from 4 villages elected on stratified random sampling. The required primary data were collected with the help of designed schedule and field survey method. The study analyzed the variable cost, and fixed cost involved in the milk production. The study revealed that the net cost per litre of milk was higher for local non-descriptive breed comparative of other categories. The feed was the major component of production cost, accounted for more than two-third. The positive impact of milk cooperatives was also observed in terms of superior breeds.45

D.S Jithendra Kumar and H.G. Snakara Murthy (1992) in their study “Impact of Dairy Co-operatives on Income and Employment in Chittoor District, Andhra Pradesh – An Economic Analysis”, came out with the findings that the income earned from dairying was more by members of societies than non-members. The agricultural labour and non-agricultural labour earned more income

from dairying than small farmers. The dairy co-operatives had contributed in
generating more income and employment to the dairy farmers\textsuperscript{46}.

T. Usha Rani \textit{et al.}, (1992) in their study “Impact of milk Producers Women
Co-operative Societies on Milk Production and Marketed Surplus of Milk in the
Chittoor Milk Shed Area. Chittoor”, Compared the milk production, marketed
surplus of milk for two periods, that is, before becoming a member of the society
and after becoming a member of the society. The study revealed that on an
average, milk production increased by 106 per cent, milk consumption increased
by 8 per cent and marketed surplus of milk increased by 150 per cent between the
two periods of study.\textsuperscript{47}

K. Sree Devi, and others conducted a study (1992) on “Impact of Milk
producers’ Cooperative Societies on production of milk in Guntur District of
Andhra Pradesh”. The study was undertaken to assess the impact of dairy
cooperatives on production of milk. This investigation was carried out in Guntur
District of Andhra Pradesh, which was purposively selected. Four village

\textsuperscript{46} Jithendra Kumar and H.G. Sankara Muthy, “Impact of Diary Co-operatives
on Income and Employment in Chittoor District, Andhra Pradesh – An
Economic Analysis”, \textit{Indian Cooperative Review}, Vol.XXXIX, No.3,

\textsuperscript{47} Usha Rani, T. Chandra Reddy and K. Subramanyam Reddy, “Impact of Milk
Producers’ Women Co-operative Societies on Milk Production and Marketed
Surplus of Milk in the Chittoor Milk Shed Area, Chittoor”, \textit{Indian
cooperative societies were selected by using random sampling method, and 60 members and 60 non-members of the milk producers were selected for this study. Survey method was adopted for collecting the data. The study compared the members and non-members in many respects and revealed that members were better off in many respects compared to the non-members. It showed the impact of Milk Producers Cooperative Societies, which had great impact on the increase in milk production and income of the rural masses and also created awareness among the milk producers about the dairy enterprises. The production function analysis reveals that there existed potentialities for maximizing the level of income, from the sale of milk through resource reallocation among members and non-members.

Tilekar, S.N. and Nawale, S.K conducted a study (1994) “Dairy Cooperatives: A Boon to Milk Producers in Maharashtra”. The empirical study was carried out in Ahmednagar District of Maharashtra State. The main objectives of the study were to estimate the cost of milk production and net return received for the milk by the producers and also determines the optimum size of milch animals herd to be maintained by various categories of sample households. A sample of 120 milk producers was selected randomly. The selected sample

households were grouped according to number of milch animals maintained by them. The study concluded that on an average marketable surplus of milk varies from 85 to 95 per cent of total milk production in different size groups of holding. The average cost of milk production in crossbreds of Holstein – Friesian and Jersey Cows and buffaloes for the period of lactation has been estimated as Rs.13,642, Rs.12,352 and Rs.13,106 respectively. Net returns realized per animal from Hostein – Friesian crossbreeds and jersey were to the tune of Rs.2160 and 1380 respectively.

Ranjit Kumar & Sharma A.K., conducted a case study on “Impact of Dairy Co-Operatives on the Rural Economy, Nalanda district in Bihar” (1998). The study was analyzed in various aspects of size of the family, income of the family, number of milch animals owned, cost of milk production, of use cattle feed, green fodder and dry fodder, and the like. Sale of milk to the co-operative provided better returns to the producer members, and thereby helped for the improvement of socio economic conditions. The author observed that most of the milk producers gained a lot of income and got many other facilities from the dairy cooperatives and through which they raised their standard of living.

K.P.S. Sangu (1995) in his study, "Impact of Dairy Co-operative Societies on Production, Consumption and Marketed Surplus of Milk", revealed that the average landholding was 1.16 hectares each by members and non-members respectively. The members and non-members had 1.65 and 1.57 animals producing 4.69 kgs. and 4.40 kgs. average of milk per day respectively. The milk consumption per head was 340.77 grams and 285.52 grams by member and non-member households respectively.

The highest proportion of total production came from small farmers in both categories and the greatest contribution to total marketed surplus was from landless labourers (25.41%) in the member category and from small farmers (26.9%) in the non-members category. The proper management of the milch animals should be encouraged in order to reduce the monthly variation on production of milk from small farmers in the non-member category. Buffalo milk accounted for 88.62 and 88.72 per cent of milk production and 94.79 and 86.72 per cent of marketed surplus in member and non-member categories respectively.

Ranjit Kumar and A.K. Sharma (1999) in their article, "Impact of Dairy Co-operatives on the Rural Economy in Nalanda District", found that there was

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an inverse relationship between proportion of investments in dairy animals and farm size. Higher productivity of milch animals on beneficiary households was observed for individual category of households. Dairy enterprise contribution was found to be 28 and 20 per cent to total family on beneficiary and non-beneficiary households respectively. The dairy enterprise provided employment of about 217 and 210 man-days per year for family members of beneficiary and non-beneficiary households respectively. Thus, rural dairy co-operative society has been successful in improving the socio-economic conditions of milk producer households especially weaker section households\textsuperscript{52}.

Nanak Ram Lakwani (1999) in his study entitled, "An Economic Analysis of Milk Producers’ Co-operative Societies", calculated the cost of milk production, gross return, net return per farm per day and benefit cost ratio for members and non-members of milk producers' co-operative societies. The operational cost per farm per day was Rs.83.61 and Rs.83.61 and Rs.88.89 for members and non-members respectively. Thus, the operational cost for non-members was Rs.5.28 per farm per day more than that of members. Milk yield per farm per day was 14.80 and 14.22 litres for members and non-members respectively. Average operational cost was Rs.5.65 per litre and Rs.6.25 per litre

for members and non-members whereas, per litre average milk price was Rs.9.10 and Rs.10 for members and non-members respectively. Benefit cost ratio was more in case of members (1.66) than that of non-members (1.63)\(^53\).

"An Opinion Survey on the Socio Economic Characteristics of the Dairy Farmers with Village Co-Operatives" was conducted by Rupendra Kumar Jha and Singh J.P (1999). The survey was conducted in the Western part of Uttar Pradesh. The study covered 36 members from four different dairy cooperative society area belonging to one milk shed area. The study examined the sale of milk and various related aspects like the family, size of milch animal, local consumption, marketable surplus and the like. For getting fair prices for the milk produced the various institutional and non-institutional agencies like milk producer's cooperatives, private traders and the like, were examined with the role in helping the sale of milk for the milk produced. It is observed that 90 per cent of milk produced was sold to the best agencies like cooperatives and the rest 10 per cent of the milk was sold to the private organisatinos\(^54\).


Miranda J.C. conducted a study on "Dairying Co-Operation and Rural Development" (1999), with the main objectives of analyzing the orderly growth of the milk industry and the availability of liquid milk and the like. He studied 24 primary dairy cooperative societies selected from two districts of Karnataka (Bangalore and Dakshina Kannada Districts). The study revealed that the presence of the dairy Co-operative society in a village assures the dairy farmers for the marketing of products. The primary dairy cooperative societies supply a number of farm inputs such as animal feed, dry fodder, mixtures etc. and also helps in rendering the veterinary services and also artificial Insemination. The existence of primary dairy cooperative society helps in the availability of liquid milk, the growth of milk industry and in turn to rural development. The performance and viability of the primary dairy cooperative society depend upon the proximity of the markets and other factors.

1.4 SCOPE OF THE STUDY

The study covers all the rural and semi-urban Co-operative Milk Producers' Societies functioning in Pondicherry and Karaikal Region including the Pondicherry Co-operative Milk Producers' Union Ltd. in Kurumampet, Pondicherry.

1.5 OBJECTIVES OF THE STUDY

The present study has been undertaken with the following objectives.

1. To study the profile of dairy at the International, National, State District and Taluk level.

2. To assess the working and performance of the Pondicherry Co-operative Milk Producers’ Union in Pondicherry.

3. To identify the Production and Marketing aspects of Milk in the study area.

4. To measure the extend of satisfaction of respondents (Producers of Milk) towards the services of the union.

5. To suggest ways and means for overcoming the problems of members of Co-operative Milk Producers’ Societies in Pondicherry and Kariakal region.

1.6 HYPOTHESES

Based on the objectives of the study the following hypotheses have been framed.

There is no difference in the importance ratings given by the respondents on the following statements. Namely

1. The services rendered by the PCMPU are adequate and satisfactory.

2. There is proper machinery for redressal of grievances.

3. The PCMPU strives hard to get price to milk for its members.

4. There is quick settlement to members
5. There exists good relationship between authorities and members
6. The union provides cattle feed to its members
7. There is good supervision and control
8. The unions pasteurize milk
9. The union imparts training to its members
10. The union acts as linkage machinery
11. The union helps in the form of loan subsidy
12. All members are treated equal.

1.7 OPERATIONAL DEFINITION OF CONCEPTS

1.7.1. Milk Producers

People who are engaged in the activities of milk production through cattle rearing.

1.7.2 Landless Labourers

Agricultural labourer who do not possess any agricultural land

1.7.3 Small Farmers

Those farmers who possess up to 2.0 acres of land used for carrying some kind of agricultural activity.

1.7.4 Medium Farmers

Marginal farmers are those farmers who posses agricultural lands up to 2 acres to 5 acres
1.7.5 Large Farmers

Farmers who have land used for agriculture above five acres are defined as large farmers for the purpose of the study.

1.7.6 Indigenous Cow

It is a local variety of milch animal commonly found in major parts of Tamil Nadu and Pondicherry.

1.7.7 Cross Breed Cow

A variety of milch animal obtained through crossing a high yielding variety stud bull or from its semen. Jersey, Holistin Frisian is examples.

1.7.8 Buffalo

It is variety of milch animal with black colours other than cows and found in selected areas.

1.7.9 Ponlait

It is the French term which means Pondicherry Milk. Here the term ‘PON’ stands for Pondicherry and ‘LAIT’ stands for milk. In French lait means Milk.

1.8 METHODOLOGY

The present study empirical as it is, based on field survey method and the data on the performance of the Societies collected from the Primary Co-operative
Milk Producers' Societies in the study area. The research problem, objectives, hypothesis and interview schedule have been formulated accordingly. The suggestions of the study come up from the inferences drawn from the analysis of data collected.

1.9 SAMPLING

The union Territoy of Pondicherry consists of four regions namely Pondicherry, Karaikal, Mahe and Yanam. Among the four regions Mahe and Yanam were not selected for the study, as they are located in other district statues and their area of operation are also meager. Hence Pondicherry and Karaikal were selected.

Three hundred respondents (200 form Pondicherry and 100 from Karaikal) were selected from the primary cooperative milk producers' societies by applying stratified random sampling technique.

A sample of 200 respondents were selected from the primary cooperative milk producers societies functioning under the control of the Pondicherry cooperative milk producers' union which has 97 such societies of the total, 20 primary cooperative milk producers societies were chosen on the basis of the tenure of their establishment with the help of the list supplied by the Registered of societies Pondicherry. Ten members each from every primary society were selected who were having long period of membership as the strata.
There are 20 cooperative milk producers societies functioning in karakkal region applying the same procedure followed in selecting respondents of Pondicherry region, ten primary cooperative milk producers societies and ten respondents from each selected society were chosen. The selected respondents consisted of male, female and landless, small, medium and large farmers, which is presented in Table 1.1

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Type</th>
<th>Pondicherry</th>
<th>Karaikal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M</td>
<td>F</td>
<td>T</td>
</tr>
<tr>
<td>1.</td>
<td>Landless</td>
<td>27</td>
<td>51</td>
<td>78</td>
</tr>
<tr>
<td>2.</td>
<td>Small</td>
<td>33</td>
<td>16</td>
<td>49</td>
</tr>
<tr>
<td>3.</td>
<td>Medium</td>
<td>40</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>4.</td>
<td>Large</td>
<td>28</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>128</td>
<td>72</td>
<td>200</td>
</tr>
</tbody>
</table>

M- Male; F-Female; T-Total

1.10 CONSTRUCTION OF TOOLS

The study is based on both Primary as well as Secondary Data collected. The data relating to the Co-operative Milk Producers’ Union were collected from various sources like standard textbooks, periodicals, circulars, journals, by-laws, and annual accounts and reports of the Co-operative Societies. Specific data
on the performance of the co-operative Milk Producers’ Union Ltd. and Co-operative Milk Producers’ Society in the study areas were collected from the respective society functioning in Pondicherry and Karaikal Region.

With a view to have an in-depth study in the research problem the first hand information were also obtained from the Members of the Co-operative Milk Producers’ Societies in the study area using an interview schedule framed for the purpose. Before preparing the schedule, the researcher discussed the various concepts and problems relating to his study with the officials of the department of cooperation and a few experienced members of the dairy cooperatives functioning in Pondicherry and Karaikal. The variables to be studied were identified by the researcher with the help of officials of the department, presidents, secretaries and some of the members of five dairy cooperative societies. The available literature in the study area was also consulted. After having identified the variables, the interview schedule was prepared and tested with selected members. Then it was circulated among a few researchers for opinion and suggestion. It was redrafted in the light of the criticisms and suggestions put forth by them. Then it was pretested with 15 members. once again it was modified to incorporate all pertinent suggestions in the schedule for the purpose of bringing it to its present form.
1.11 GEOGRAPHICAL AREA COVERED

The geographical coverage is restricting only two regions namely Pondicherry and Karaikal and the other two regions namely Mahe and Yanam have not been included. The study area covers cooperative societies; the list has been appended at the end.

1.12 PERIOD OF STUDY

The present study covers a period of 10 years. Primary data is collected for a period of one Year (i.e. from January, 2006 to December, 2006).

1.13 DATA PROCESSING

After the completion of all the interview schedules, a thorough check up of data was made. The missing data were collected immediately either by referring to the members or the society and afterwards, coding of the data was completed. The coding of the data was made with the help of a Master Table. The coded information was transcribed on transcription cards for further processing.

Afterwards classification tables were prepared for further analysis from transcription cards. The analysis of the data was made with the help of Desk calculators and computers.

1.14 FIELD WORK AND COLLECTION OF DATA

The researcher himself carried fieldwork for the study. It was conducted during the period January to December 2006. For collecting the primary data from
the respondents an interview schedule was used (Vide appendix A). They were interviewed in their houses by the researcher generally during their leisure time, with the help of the interview schedule. In order to have close rapport with the respondents, the staff of the society first introduced him to them. The interview was quite informal and was in a conversational style. The interview schedule was administered to the members in the vernacular and the data were recorded by the interviewer in the schedule. After the completion of each interview, a check up of the data was made to ensure completeness and accuracy.

After the interview of all the sample members of a particular dairy cooperative society, the data relating to their transactions with the society were also collected from the records of the society.

1.15 FRAMEWORK OF ANALYSIS

Growth rate has been applied in fluid milk production, consumption, cow number and production per cow trend values were computed by applying the formula

\[ Yc = a + bx \]

Compound Growth Rate has also been applied. The personal, financial and milk animal profiles were measured by applying percentage to total. The marketed surplus was calculated by using the following formula.
Garrett’s Ranking Technique was applied to analyse the reasons for selecting societies or other middlemen and to assess the marketing problems by the following formula:

\[
\text{Per cent Position} = \frac{100 \times (R_j - 0.5)}{N_j}
\]

A set of twelve hypotheses was framed regarding the opinion of the respondents to the services of the PCMPU. The difference in the important ratings given by the respondents were tested by Kolomogorov Smirnov test (KS test).

In order to identify the determinants of yield of milk, Cobb-Douglass type of production function has been used.

\[
\log Y = \beta_0 + \beta_1 \log X_1 + \beta_2 \log X_2 + \beta_3 \log X_3 + \beta_4 \log X_4 + \beta_5 \log X_5 + \beta_6 \log X_6 + U.
\]

Where

- \( Y \) = Value of milk yield per animal per day in the lactation period in rupees.
- \( X_1 \) = Human labour cost per animal per day in the lactation period in rupees.
- \( X_2 \) = Value of green-fodder per animal per day in the lactation period in rupees.
- \( X_3 \) = Value of dry-fodder fed per animal per day in the lactation period in rupees.
- \( X_4 \) = Value of concentrates fed per animal per day in the lactation period in rupees.
- \( X_5 \) = Lactation periods (days)
- \( X_6 \) = Miscellaneous expenditure per animal per day in the lactation period in rupees.
- \( U \) = Disturbance term.
$\beta_0, \beta_1, \ldots, \beta_6$ are the parameters to be estimated. The above model was estimated by the method of least squares.

1.16 LIMITATIONS OF THE STUDY

Most of the customers are illiterates and do not have the practice of maintaining accounts regarding their income and expenditure. They do not even have the habit of diary keeping. They could furnish the required information only from memory. The information provided by them has been accepted without much chance for verification.

1.17 SCHEME OF REPORT

The present study titled “Production and Marketing of Milk – A Study in Co-operative Milk Producers’ Union in Pondicherry” has been organised in seven chapters.

The First Chapter presents the “Introduction and Design of the Study”. It covers introduction, statement of the problem, review of literature, scope, objectives of the study, hypotheses, operational definition of concepts, methodology, sampling, geographical area, period of study, data processing, field work, frame work of analysis, limitations of the study and scheme of report.

The Second chapter titled “Dairy Profile”, presents the over all view of the Dairy Industry at the Inter-national, National, State and District levels.

The Fourth chapter named “Milk Production” identifies the various production aspects of Milk by the respondents.

The fifth chapter titled “Marketing of Milk”, identifies the various Marketing concepts and Problems faced by the respondents.

The Sixth chapter titled “Attitude of Milk Producers”, measures the extent of satisfaction of the respondents (producers’ of milk) towards the services of the union.

The Seventh Chapter named, “Summary of Findings and Suggestions”, is allotted for findings of the study and the suggestions put forth for the betterment of the Pondicherry Co-operative Milk Producers Union in Pondicherry.