CHAPTER I
INTRODUCTION

1.1 DAIRYING

From time immemorial, in the dietary habits of Indian people, milk and milk products have been accepted as items of choice. In ancient days the population was small and life was simple and confined almost exclusively in rural areas. Cows were maintained in many homes, in self-sufficient villages; there was no dearth of milk. Fluid milk and its products were generally not salable commodities and there was no long distance movement of these products from one place to another. With the growth of population and change in pattern of life with urbanization, there was rapid increase in demand of milk and its products particularly in urban areas where these items could not be and were not produced in any large quantity. And at the same time the increasing pressure on land, fragmentation of land holdings and decrease in pasture made it difficult for rural milk production to keep up with the demand in the growing towns and cities. As a result, there was an upsetting in the ancient system of production and consumption of milk and milk products and they’re developed an imbalance between production in the villages and supply to fast growing demand centers in congested urban areas. Due to the lack of attention to organise a system of dairying based on commercial rural milk production, bulk
collection, transportation, processing and supply of milk and milk products as required for the altered situation, it became increasingly difficult to meet the demands in cities and towns.

The gap between supply and demand of milk in cities continued to grow and acute shortages became patent in more and more areas. Widespread adulteration of milk with water and undesirable practice of urban milk production came into existence and became a part of the general system of dairying in the country. Because of shortages, prices of milk and milk products continued to soar higher and higher taking these out of reach of the poorer sections of the community, Impoverishment of the villages and tempting price in urban areas funneled out milk and milk products from many rural areas leaving little to meet the village need.

After independence, with the initiation of Five Year Plan Programmes, dairying progressively received more and more emphasis and got greater allocation of funds. There was realisation that promotion of dairying not only contributes towards national health building but also creates substantial employment opportunities. Properly organised and developed, dairying could be effectively used as an instrument of social justice.

1.1.1 Earlier attempts made at developing organised dairying

The first official move for organised dairying in the country was taken during the British regime when military dairy farms and
creameries were established towards the end of the 19th century to meet the demands of the forces and their families. Efforts were also made to encourage private entrepreneurs to manufacture wholesome butter, particularly for the British troops. As a result, modern Dairy Plants were founded mainly for the manufacture of butter at Aligarh, Bombay, Calcutta, Darjeeling, Kanpur, Poona and some other owns by Messrs. Keventers in the early part of the 20th century. Messrs. Polson’s started manufacture of butter in 1915 in Bombay primarily for use by the British military personnel.

The Royal Commission on Agriculture (1928) expressed the opinion that in India a cow for dairy purpose should average 2,300 kg of milk during a lactation period and the aim should be to get an animal with an average of 3,600 kg. The Commission recommended improvement of indigenous cows with bulls of exotic dairy breeds. It further recommended that municipal corporations of the larger cities, in addition to organising cooperative societies for the supply of milk should promote the establishment of large dairy farms and devise means by which capital and business ability may be attracted to large scale milk production.

Dr. N.C. Wright, the Director of Hannah Dairy Research institute, United Kingdom, visited India in 1936 to study the then existing dairy situation and to recommend measures for further development of dairying. His recommendations focused on measures to organise milk
production, such as the registration of all cattle and the need to organise hygienic city milk supplies.

At that time the portent of another World War was looming large, which put new pressure on the Imperial Government to provide indigenous supplies of milk and milk products for British troops. Efforts were made to meet the demands of the newly developed situation through private enterprise. Because of this move, Poison’s dairy, for example, attempted to manufacture cheese for the troops from milk procured in Kaira district in Gujarat while stepping up their procurement of cream for production of butter.

In 1945, R.A. Pepperall, Chief Executive Officer of the Milk Marketing Board of the United Kingdom was appointed as the Milk Marketing Adviser to the Government of India for advise on development of milk marketing on sound lines. Drawing attention of the Government to the lack of organisation of various functionaries in the milk business and the low efficiency of the industry, Pepperall recommended inter alias the setting up of Milk Commissions in each state with a Commissioner, paid Director and a nominated Advisory Board.

1.1.2 Other alternatives attempted before the start of Operation Flood

In 1945, the Government of India decided to take measures to safeguard supply of hygienic milk to major cities. A beginning was made in Bombay and for the first time in India. Milk produced in rural areas of
Kaira district was collected in bulk, pasteurised and transported by rail for distribution in Bombay. Regulatory orders were passed for controlling the movement of milk, milk products and cattle in the milk shed of Kaira district to protect the scheme for milk supply to Bombay.

The milk sub-committee of the Policy Committee on Agriculture recommended organising collection of rurally produced milk through Government agency, private or producers’ cooperatives and its transport to urban areas. The subcommittee further recommended replacing numerous agencies concerned with milk distribution by a few selected agencies (even to the extent of granting a monopoly) and constitution of a Milk Control Board in each town with powers to control purchase and sale prices. The milk supply to cities, the subcommittee visualised, should be re-organised zone by zone so that gradually the entire milk supply for the cities is drawn wholly from the rural areas.

The, then, Government of Bombay took a number of measures on the milk front as early as 1943 by starting a subsidised milk distribution scheme. The Bombay Municipality operated the scheme and the Government of Bombay met all the expenses and the subsidies. Salvaging dry buffaloes from Bombay stables was also undertaken and for that purpose Government dry-stock farms were established. Permits for import of new buffaloes were given strictly against the number salvaged by a stable owner. To make milk available for the subsidised scheme, and to conserve the supply generally, hotels and restaurants
were banned from using fresh milk for tea, coffee and ice cream. Instead they had to use skim milk powder, imported and supplied exclusively by the Government to the hotel trade. The thousands of users themselves did the reconstitution into the milk. A cattle colony was established for producing milk for supply to Government Milk Scheme at Bombay. Similar attempts at establishing cattle colonies were tried in Calcutta and Madras, two other metro cities in the country.

In the First Five Year Plan (1951-56), the programming for dairy development was initiated in a relatively small way, as funds for dairy development were made available only out of overall savings from other sectors. Work on dairy development was undertaken in the States of Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Tamil Nadu, and Uttar Pradesh.

In the Second Five Year Plan (1956-61), dairy development programme envisaged the establishment of 36 liquid milk plants for supply of milk to large consuming centres with more than 1,00,000 population; three creameries, three milk products factories and expansion of some cattle salvage and fodder farms.

The Third Five Year Plan (1961-66) included establishment of 55 milk supply schemes for cities and industrial townships; 8 rural creameries; 6 milk product factories; and completion of spillover schemes of the Second Plan. During this Plan period, 23 liquid milk plants and 27 milk schemes were in operation and the daily average
throughput of milk in the organised sector was 1,300,000 litres. Four milk products factories and three creameries were also commissioned. Work on the establishment of another 37 liquid milk plants was initiated.

In 1959, Government milk scheme viz., Delhi Milk Scheme was setup in Delhi, the Fourth Metro City in the country to supply milk to the urban population. This scheme adopted the method of departmental milk procurement from the milk producing areas around Delhi by setting up its own milk collection and chilling centers. Though the collection was started from small milk vendors initially, it ultimately ended up creating big contractors who purchased milk from the small vendors and supplied in bulk to the milk scheme.

Both the above experiments viz., Setting up of captive cattle colonies around the big cities for supply of milk to the Government Milk Scheme and collecting milk through vendors and contractors ultimately failed. The first option led to creation of unhygienic conditions in the cities and destruction of good quality cattle/buffaloes because these cows and buffaloes were brought to the colonies when in milk but were slaughtered or starved to die after first lactation when they became dry. The second option of collecting milk through the middlemen exploited the milk producers because the middlemen or contractor retained a major portion of the milk price.

In the meanwhile Government of India took one of the most far reaching policy initiatives in the dairy sector and articulated it into a plan
during the period between India’s Third and Fourth Five Year Plans and the early years of Fourth Plan. This was: Dairy development through producer’s cooperatives and milk production based on milk sheds in the rural hinterlands.

This policy initiative so effectively intervened in the turn around of the dairy industry that it has led to an all round growth with several unarticulated spread effects. Milk production grew phenomenally. Milk procurement, processing capacities, urban supplies all grew in matching proportion transforming India into the only self reliant and to a very large extent self sufficient, and modern dairy country in all of Asia- without any parallel in any of the other developing countries\(^2\).

1.1.3 The launching of Operation Flood

The Government of India launched a massive dairy development programme popularly known as "Operation Flood" (O.F.) from 1971 to 1996. The programme was initially started with the help of World Food Programme (WFP) and later on continued with the dairy commodity assistance from European Economic Community & soft loan or credit from World Bank. The Programme helped in increasing milk production in the country from about 21.2 million tonnes per annum in 1968-69 (20.7 MMT in 1969-70) to 66 million tonnes in 1995-98 i.e. the end of the project period. The annual rate of increase in milk production has been about 4 to 6 per cent. FAO provided considerable technical assistance during the 1970's and 1980's. The per capita availability of
milk increased from 112 grams per day to about 197 grams per day during the same period despite increase in population at the rate of about 2 per cent per annum.

The Modus operand! was to organise small farmers into cooperatives, provide them with a steady year round market and a remunerative price and inputs for milk production enhancement like Veterinary first-aid, vaccination against prevailing animal diseases, better feed and fodder, breed improvement through artificial insemination with the semen of proven bulls, cross breeding the indigenous cattle with high yielding breeds.

The programme was unique in its approach in as much as the gift dairy commodities received from the World Food Programme (WFP) were not consumed away by free distribution but were sold to metro and other city dairies for recombination into milk and the funds thus generated were ploughed back (reinvested) into milk production enhancement activities. The overall impact of this co-ordinated and innovative effort has been that if has given milk production in the county a great fillip and ushered in an era of “White Revolution” making India the World’s second largest milk producer today - likely to become number ONE by the end of the year 1398-99.

The programme was implemented in three phases named Operation Flood (OF) I, ii and III. OF- I launched in 1970 aimed at setting up dairy cooperatives in 27 milk sheds covering 10 States of
India so as to link them with the 4 metro cities of Bombay, Calcutta, Delhi and Madras. This programme was taken up with commodity assistance in the shape of 1,27,517 MT Skim Milk Powder (SMP) and 39,696 MT of Butter Oil (BO) from the World Food Programme (WFP). The programme ended in March 1981. An expenditure of Rs.1165.4 Million was incurred.

OF-II was implemented during a seven-year period (1978-85) through a three tier cooperative structure. There was an overlapping of phase -I and II from 1978 to 1981. A World Bank credit of US $ 150 Million and EEC commodity assistance of about 2,16,584 MT of SMP and 62,401 MT of BO & 16,577 MT of Butter was provided. An expenditure of Rs.2771.7 Million was incurred. At the end of OF-II (March, 1985) the project was in operation in 136 milk sheds covering 34,500 village level Dairy Cooperative Societies (DCS) with participation of about 3.6 million farmers.

During 1985-87 when no aid was available, the project was financed by the erstwhile Indian Dairy Corporation (IDC)-later merged with NDBB, for a total investment of Rs.2093.2 Million. For the phase III a loan of US $ 200 Million from International Bank of Reconstruction and Development (IBRD) and credit of SDR 121.2 Million equivalent to US $ 160 Million from International Development Association (IDA) of the World Bank was available. Commodity assistance (75000 MT of SMP and 25000 MT of BO ) from EEC equivalent to Rs.2227 Million.
was also agreed to (although in the end much lesser quantities were actually received). Apart from this, Rs.2063 Million from National Dairy Development Board (NDDB)'s internal resources were also invested.

Situation prevailing in the country before this innovative experience was very disappointing. Milk production in India is scattered. Unlike developed countries where milk is produced in big farms of about 100 or more cattle per farm, the average farmer in India has just one or two cattle or buffalo. Not only that most of such cattle owners are small or marginal farmers or land less labourers. They belong to economically weak and socially backward classes and are mostly illiterate. Before the start of this project they had no access to organised market and were exploited by the middlemen who bought milk from them at a very low rate and sold to urban consumers at a very high rate. This system not only exploited both the farmers and the consumers but also affected the quality of milk and milks products, which deteriorated before reaching the consumers, partly due to unhygienic and unprocessed transportation and partly due to adulteration.

Thus despite various programmes aimed at increasing productivity of cattle and buffaloes, the farmers had no incentive to increase milk production. They produced milk only for own consumption and sold the surplus to local middlemen. The overall impact was that milk production in the country was stagnant or at best increasing at a sailing rate. Total milk production in the country though, increased from
17 million tonnes per annum in 1951 to 21.2 million tonnes in 1968-69, the per capita availability had actually declined from 132 grams per day to 117 grams per day during the period 1951-52 to 1968-69.

Implementation of this innovative experience has brought about quantitative and qualitative changes in the dairy scenario in the country. India is now slated to be number one milk producer in the world by the end of the year 1998-99. The per capita availability has already reached around 203 grams per day. The quality of milk and milk products supplied to the urban consumers is now of international standards and is comparable with the products available anywhere in the world. Milk and milk products are available in plenty. A concerted effort has been made by the co-operatives to emerge as international competitors to the established brands. The Indian branded products are finding a place in the export market, not only in small consumer packs but also in bulk packs. Indian dairy industry is maturing into a competitive dairy industry ready to meet the challenges posed by liberalisation and the World Trade Organization.

The animal products sector in India is growing at a fast rate. While the share of the agricultural sector as a whole in India’s national income has been declining over the years, the livestock sub-sector seems to have grown faster than crop production and almost as fast as non-agricultural sectors. The main source of dynamism is the growth in milk production. The annual production level of milk has reached 63.5
million tonnes. Overall, the share of livestock in total agricultural income
has been raising steadily

1.2 STATEMENT OF THE PROBLEM

India has a population predominantly vegetation in its habits. So, milk and milk products have a special place and our people are fully aware of the food value of them, which have a significant place in our economy. The Indian daily sector is the second largest in the world next to USA, with an annual production of around 70 million metric tonnes and milk accounts for more than 17 percent of agricultural production. Dairy is also our second largest food expenditure following cereals and it accounts for 13 per cent of the total food expenditure and is takes away 7 to 8 per cent of the total per capita income.

India could easily emerge as number one country in the world in the field of dairy if it has a modest target of getting one litre of milk per milch animal every clay and process as well as value added it. So efforts should be made to enhance the quality of milch animals. It is well known fact that India occupies the first place in livestock population in the world. Now India is on the verge of being the world’s number one milk producer with nearly 75 million metric tonnes of milk per annum. It. is estimated that our dairy business is to be around Rs.80, 000 crores and it contributes approximately 9 per cent of the total GDP.

No doubt Indian dairying has several in-built competitive advantages. At present the world production is rather stable and
increasing at the rate of 1 to 2 per cent annually and is now estimated at around 460 to 470 million tonnes wherein India’s share is around 15 per cent. The share of milk production, which is traded intentionally, is also quite stable and comparatively smaller, which about 5 per cent and now stands at 25 million tonnes.

It is heartening to note that the farm gate milk prices in our country are the lowest in the world. For example, the price of one litre of milk is Rs.7.26 in India as against Rs.33.53 in Japan and Rs. 19.60 per litre in Canada, It shows that India is producing milk more economically even than the developed countries. Similarly India has substantial opportunities in production of milk derivatives more economically than the advanced countries.

The future of International dairy market appears to be bright and India will likely become one of the major players by the form of century. However India has the following problems.

> Low productivity per animal, widely scattered milk production centres, seasonal and regional imbalance of milk production etc.

> Indian milk sector has remained a highly protected one for long.

> The Government of India, in the wake of liberalisation, relaxed the rules and liberalised milk product sector.

In order to solve above problems, cooperatives entered into dairy industry also. If cooperatives could be considered for ushering in the
green revolution in the country, the cooperative approach to dairy development has been responsible for ushering in the white revolution also. The collection of milk is the most ticklish and critical task of the dairy industry and this has been successfully taken care of by dairy cooperatives. The dairy development through cooperatives has not only brought a glut of milk in India but has generated subsidiary sources of income to the small and marginal farmers and landless workers who contribute around 75 per cent of the membership of dairy cooperatives.

Indian dairy sector has experienced substantial growth in recent years and this growth is being geared by the success of the Operation Flood Programme, which spread into three phases in 1971, 1981 and 1985 and it owed largely to the role of cooperative dairies in the collection of milk in particular and dairy development in general. Our dairy cooperative movement, which began about 50 years ago with a daily milk collection of 230 kg, has now multiplied into more than 250 “AMUL” embracing more than 80 lakhs producer membership.

From a mere 22 million tonnes annually In the beginning, the milk production has risen to about 70 million tonnes now, a sustained growth rate of 5 to 6 per cent annually. The national milk grid set up by NDDB through a network of 70,000 milk cooperatives, procures and markets 1,37,000 litres a day. The price incentive and market stimuli provided by the Operation Flood Programme through a network of farmer organisation and milk handling, processing and marketing
infrastructure have helped India to achieve not only mere self-sufficiency in milk production but also ranked it as the second largest producer of milk in the world.

The present milk production is about 75 million metric tonnes and around 170 Unions market 10.5 million litres per day. The average procurement per day during the peak period is 14.65 million litres per day during lean period 12.26 million litres per day. Moreover, the per capita availability of milk has increased from 132 grams per day to over 204 grams per day. Thus the dimension of milk industry is ever increasing.

Dairy Development in India is recognised as an effective instrument for ameliorating the economic condition of rural families, especially the small and marginal farmers and landless agricultural labourers (Shiyani and Singh, 1995). The Operation Flood programme being implemented in the country since July 1970 is an integrated programme of milk production, processing and marketing through dairy cooperatives. The milk producers cooperative societies established on the “Anand Pattern” are expected to provide an assured market for milk, veterinary services, technical guidance, cattle feed, etc at the farmers' door which, in turn, helps the members to increase their income level.

The cost and returns structure on dairy enterprise is an important aspect for fixing the price of milk rationally. Evidence has shown that studies were conducted for examining the cost and returns from dairy
enterprise in various parts of the country (Rant et al\textsuperscript{7}, 1977; Patel\textsuperscript{8}, 1980, Singh and Saini\textsuperscript{9}, 1988; Sharma\textsuperscript{10}, 1991; Vasani et al\textsuperscript{11}, 1992; Rajendran and Prabaharan, 1993, etc). However, a comparative study on economic status of dairy cooperatives for the office bearers of dairy cooperatives and also for the milk producers (beneficiaries and non-beneficiaries of dairy cooperative), This study was, therefore, designed to provide valuable information in this direction.

The present study attempts to analyse the development of dairy cooperatives, their success stories and general acceptability and the distinguishing features of dairy cooperative beneficiaries and non-beneficiaries in the Dindigul District of Tamil Nadu. The following questions are major problems of this study:

1. What is the role of cooperatives in dairy development and its experience in this district\textsuperscript{7}

2. What could be the comparative economic status of the beneficiaries and non-beneficiaries of dairy cooperatives?

3. What are the roles of dairy cooperative societies for the benefits of cooperative members\textsuperscript{9}
1.3 OBJECTIVES OF THE STUDY

The specific objectives of the study are:

1. To study the growth and performance of dairy cooperatives in Dindigul district;

2. To analyse the role of dairy cooperatives for the benefits of cooperative members;

3. To find out the level of annual employment and income by the cooperative beneficiaries during the study period;

4. To analyse the expenditure and income pattern of the dairy farming in study area;

5. To study the knowledge level of beneficiaries about dairy cooperative system and dairy cattle rearing technology.

6. To review the problem faced by the dairy cooperative beneficiaries; and

7. To suggest the concrete measures for the development of dairy cooperatives and beneficiaries.

1.4 HYPOTHESES

1. The estimated milk production function for the beneficiaries is significantly different from that of non-beneficiaries.

2. Knowledge about cattle rearing technology is higher from beneficiaries than non-beneficiaries.
3. Income derived from dairy is higher for the cooperative beneficiaries than non-beneficiaries.

4. There is significant relation between employment and income of the dairy cooperative beneficiaries.

1.5 CONCEPTS

*Animal Husbandry*

Animal husbandry is the branch of veterinary science, which deals with livestock management, production and breeding.

*Artificial Insemination*

Artificial Insemination is a method of depositing of semen in the female reproductive tract of animals by artificial means. The frozen semen is preserved in the liquid nitrogen containers, kept in the societies. The secretary or the tester of the society is trained for carry out the artificial insemination of animals.

*Balanced ration*

A term applied to diet, ration, or feed having all known required nutrients in proper amount and proportion based upon recommendation of recognized authorities in the field of animal nutrition.

*Beneficiaries*

Beneficiaries are member of the Dairy cooperative society.
**Bonus**

Members supply milk to the society. 50% of the net profit of the society is distributed to the members as patronage bonus. This is paid according to the value of the milk supplied by the members annually.

**Breed**

A group of animals having common origin and processing certain-distinguishing characters not common to other animals of the same species.

**Breeding**

Breeding is the science and art of bringing improvement in animals through the selection and proper mating system.

**Cattle Feed**

Cattle feed contains all nutrients, minerals and energy required for cattle. This is fed to the animals to increase the milk production. This union produces cattle feed to the members of dairy cooperatives.

**Concentrate**

It is a feed low in bible (about 20 per cent) and high (over 60 per cent) in Total Digestible Nutrients (TDN).
**Cooperative Milk Producers Society**

The primary cooperative milk producers society at village level which producers milk from the members and promotes production through the distribution of technical inputs.

**Cross breed**

It refers to off springs produced from cross breeding.

**Dairying**

Dairying is the business of operating a dairy, including distributing and selling milk and its products.

**Dairy Cooperative**

Dairy cooperative is a three tier structure namely, primary cooperative milk producers society at village level. Union of village level primary milk producers cooperative societies at district level, Federation of district union at state level.

**Dairy Cooperative Federation**

The federation of district union at state level which plans the production and marketing of the members and also develops a milk grid system within the region in the flush and lean seasons.

**Dairy Cooperative Union**

The union of village level primary milk producer's cooperative societies at district level which manages the task of processing of milk
and manufacturing of dairy products by installation of dairy plants and also produces technical inputs and services for the members.

**Economics of Dairying**

Economics of Dairying is an analysis of cost and returns of milk production.

**Economic Status of Beneficiaries**

- Analysis of cost, and return of milk production through dairy cooperative.
- Income and employment of dairy cooperative beneficiaries through dairy cooperation.
- Income expenditure and profit level of beneficiaries through dairy cooperatives.

**Fodder**

The stalks and leaves of dry crop plants or those of fresh plants given as feed to livestock.

**Fodder Crops**

Fodders are mainly obtained from straws of cereals grown for grain, and from plant residues of pulses and other legumes. Some cereals and legumes are also grown for fodder purposes.
Indian Dairy Corporation

National Dairy Development Board was implementing agency for the operation flood scheme. Indian Dairy Corporation was in charge of financing the schemes. In 1987 IDC was merged with NDDB. Now all the activities are carried out by NDDB only.

Market Milk

Fluid Milk sold to the consumers.

NDDB

National Dairy Development Board, Anand, Gujarat is the implementing agency of the scheme operation flood of Government of India.

Non-Beneficiaries

People, who are not member of the cooperative society, have milch animals involved in milk production and sales.

Solids-not-Fat (SNF)

SNF is the percentage of total solids in daily products minus the '3t percentage. Solids-not-fat present in milk means the total solids minus batter fat.

1.6 METHODOLOGY

The study used both primary and secondary data. The secondary data were collected from various sources such as records of Dindigul.
District Collectorate, District Cooperative office, Dindigul District Cooperative Milk Producer’s Union, Office of the Deputy Registrar of Dairying, Office of the Joint Director of Animal Husbandry, Cooperative Banks and other related organisation the secondary data collected for the period of ten years (1990-91 to 1999-2000) for the present study. Primary data were collected from the beneficiaries and non-beneficiaries of dairy cooperatives through interview schedule during the period of 2000-2002.

The Dindigul District is purposively selected for the study. Out of 14 blocks in Dindigul District, three blocks were selected based upon the criteria of milk production. The sample blocks are Sanarpatti, Vedasadur and Batlagundu. Sanarpatti block has high level milk production Vedasandur block has medium level milk production and Batlagundu block has low level milk production. A sample of fifty beneficiaries and non-beneficiaries from each block was randomly selected. The total size of the sample is 300 consisting of 150 beneficiaries and 150 non-beneficiaries from three blocks.

The respondents’ response to each of the question in the interview schedule was first tabulated into a master table. The tabulated qualitative data were quantified to draw meaningful inferences. The data in the master table were then fed into the computer using SPSS v.10.0 for Windows. Appropriate tables were prepared keeping in view the specific objectives of the study for
analysing the data with the application of statistical tools like Simple average, percentage analysis, correlation, regression, production function, and Garrette Ranking techniques were used to analyse the data.

1.7 TOOLS OF ANALYSIS

To examine the purpose of joining as a dairy cooperative member and to analyse the problem faced by the beneficiaries and non-beneficiaries Garrett Ranking technique is adopted. The respondents are asked to rank the factors as specified in the interview schedule.

The factors (purpose) adopted in the study are: i. Borrowing Loan, ii. Cattle Feed, iii. regular payment of milk, iv. Price of the milk, v. veterinary health service, vi. artificial insemination, vii. marketing of milk.

The factors (problems) are: i. price of milk, ii. payment of milk, iii. purchasing of feed and fodder, iv. marketing of milk, v. veterinary health care, vi. grazing, vii. breeding, viii. purchase of milch animal and ix. Borrowing loan. The sample respondents particularly non-beneficiaries were asked to rank these problems.

The ranking given by the respondent is converted into per cent position using the following formula:

\[
\text{Per cent position} = \frac{100 \times (R - 0.5)}{N}
\]
Where,

\[ R = \text{Rank given for the factors by an individual} \]

\[ N = \text{Number of individuals ranked} \]

The per cent position of each rank thus obtained is converted into score by referring to the table given by Garrett\(^6\). The scores of all respondents for each factor was then added together and divided by the number of respondents experiencing that particular factor. The mean scores of each thus arrived at, were arranged in descending order and corresponding ranks allotted.

1.8 SCOPE OF THE STUDY

This study will be helpful to know about the socio-economic conditions of the beneficiaries, especially in the areas of income, employment, and profit through dairy cooperatives. This study analyzes the production and marketing of milk through dairy cooperatives. This study specially focused on benefit of cooperative among its cooperative beneficiaries, beneficiary’s knowledge about dairy cooperatives, problems of beneficiaries and suggestion of dairy cooperatives for good performance and dairy cooperative beneficiaries for better economic status.

1.9 LIMITATION OF THE STUDY

The study is confined to Dindigul district of Tamil Nadu with sample of 300 respondents (150 from dairy cooperative beneficiaries
and 150 respondents from non-beneficiaries of dairy cooperatives only). The researcher covered only three blocks of Dindigul district. The study aims at economic aspects of the dairy cooperative beneficiaries only. India where large number of cooperative milk producers union, are running, it is not so easy to study in depth of all the dairy cooperatives at a time. So only one, Dindigul district cooperative milk producer union and its services have been selected for a detailed investigation.

I.10. CHAPTERISATION

The thesis is organised into six chapters. The first chapter provides a brief introduction, statement of the problems, the objectives, the hypothesis, the methodology, the scope and limitations of the study. The second chapter reviews past studies related to dairy cooperatives. The third chapter presents the profile of the study area. The dairy development and cooperatives in India and Tamilnadu are analysed in the fourth chapter. The fifth chapter presents the data analysis of the economic status of the dairy cooperative beneficiaries. The summary of the findings and suggestions are given in the sixth chapter.
References


