INTRODUCTION AND RESEARCH DESIGN

1.0 INTRODUCTION

The allied activities had occupied pivotal role in the production prospects of livestock and poultry, fish products and forestry products. The three sub-sectors namely animal husbandry, fisheries and forestry are providing subsidiary occupation and income to the rural masses besides contributing income to the national economy. Animal husbandry activities are all important both as principal activity and as subsidiary activity along with agriculture. Dairy fits well with farm enterprise and also creates gainful employment opportunities, which reduce rural unemployment. It contributes about six to eight per cent of the national income. This would lead to fuller utilisation of soil fertility, fuller employment for farmers throughout the year and an increase in rural incomes.

Poverty anywhere is a threat to prosperity everywhere. India is a nation, which has remained poverty-stricken, even after independence. It is because of the deficiency mainly in the productivity of agricultural operations, on the one hand and the explosion of population on the other. Removal of poverty has always been the principal aim of planning. Anti-poverty programmes like IRDP, NREP, RLEGP and TRYSEM rely on direct interventions and make a forward attack at resource endowment, employment and skill development. IRDP aims to provide the poorest with productive assets and resources at a subsidy to help lift them above poverty line. The NREP provides employment opportunities to the rural poor and RLEGP concentrates on employment of the rural
landless, and provides part of the wages as food grains. TRYSEM programme aims at providing training for skill development so that rural youth can be gainfully self-employed.

Conceptually these programmes are comprehensive in scope and seek to secure, through a process of block level planning, fuller exploitation of the growth potential to make an optimum impact on the local poverty situation. However, the success of these programmes has been limited. The planning commission itself admits that “the constraints for which these programmes have suffered have not been financial but operational inadequacies and lack of a clear-cut plan of development of the area to which coordinated effort of all concerned agencies should be directed”

In the recent past there has been deceleration in the growth of employment in India in spite of the accelerated economic growth. Overall the manufacturing employment elasticity declined in India from 0.38 during 1983-84 to 1993-94 to 0.33 during 1993-94 to 1999-2000. The decline was quite fast in agriculture as it declined from 0.70 during 1983-84 to 1993-94 to 0.01 during 1993-94 to 1999-2000\(^1\). It is also noted that the decline in employment elasticity in the agriculture is found to be due primarily to the sharply declining and even negative elasticities in a few regions like Punjab, Haryana and Uttar Pradesh where the green revolution has resulted in significant yield and output growth. The growth in the initial years was mainly by

expansion of gross cropped area through an increase in cropping intensity, facilitated by irrigation and availability of short duration high yielding varieties. After that source were exhausted, output growth become more input and technology-intensive and less labour intensive².

The urban poor in India are largely the overflow of rural poor into urban areas. These migrants from rural areas to urban cities could have crossed the poverty line, had industrial development in the country been sufficiently rapid to absorb them adequately in the modern manufacturing industries. Rural poverty in India is closely related to agricultural development as agriculture is source of livelihood of large immensity of the population. Rural poverty largely emanates from the semi-feudal relation in the agriculture. The land reform measures which were undertaken after independence did not make substantial changes in the agrarian relations. Hence almost all agricultural labour households and a large proportion of small and marginal farmers and landless non-agricultural rural labour households are poor.

An agrarian system characterised by concentration of agricultural holdings and unequal access to finance and inputs such as fertilizer the new input intensive technology not only widens income disparities but also results in an increased proportion of the people in extreme poverty. The landholding pattern in India is highly skewed and seems to be heading towards even greater inequality. According to latest

sample survey, 80 per cent of total land holdings fell under the category of size less than 2 hectares. This has led to the birth of a large number of marginal farmers. Most of these holdings are not only small but they are also fragmented into a number of tiny plots so that cultivation on them can be carried out only by labour techniques. This results in low productivity. This is leading to a vicious circle of poverty, which should be broken.

Farming is not being carried on all through the year. In many parts of India, agricultural activities are carried on only for six months so that the land owning farmers and the landless farm labourers remain unemployed for a period of six months in a year.

The problems of small farmers, marginal farmers and agricultural workers can be tackled only when prolonged strategy of providing alternative avenues of employment is adopted. From a long-term point of view possibly the best policy is create ample employment opportunities in the allied field of agriculture. Because of the pressure on land and increasing population it is becoming more and more difficult to absorb additional labour on farms and unless other sectors of the economy create ample employment opportunities it will not be possible to solve the problems of small farmers, marginal farmers and agricultural workers. Consequently the best strategy is to promote allied agricultural activity like livestock farming. This will reduce the dependence of agricultural workers on land and increase their incomes.
There is a common perception that farmers in India are averse to modifications in their production, financial and marketing practices due to their risk aversion behavior. Hence, there is a need for field level studies to assess the validity of such perception in the country to be able to make effective interventions through development policies, programmes and farm advisory services. Livestock are almost an integral and inseparable component of farming system in the state of Tamil Nadu. Livestock farming is not only an indispensable component of agriculture, but also most suitable production system that has enormous possibilities to improve the social economic status of the large percentage of the rural population. Livestock development programmes are labour intensive, have favourable cost-benefit ratios and in some cases small gestation period. Most of the programmes on livestock farming are particularly suitable for weaker sections of the rural community and have redistributive effect on rural income in favour of them. Livestock farming has been one of the sectors in India where female workforce participation is high. Therefore, the study about various aspects of livestock farming is essential.

1.1.0 Importance of Dairy Farming

The dairy sector occupies an important place in the agricultural economy of India as milk is the second largest agricultural commodity in contributing to GNP, next only to rice. India is the world’s largest milk producer, accounting for more than 13 per cent of world’s total milk production. If it is the world largest consumers of dairy products that
consumers almost 100 per cent of its own milk production. Dairy products are a major source of cheap and nutritious food to millions of people in India and the only acceptable source of animal protein for large vegetarian segment of Indian population, particularly among landless, small and marginal farmers and women.

Milk is a wholesome food and it is consumed by people of all age groups ranging from children to adults in order to acquire growth or to get energy. Since time immemorial, milk has been universally recognised as a nutritive food par excellence. Proteins constitute 3.2 and 4.3 per cent in cow’s milk and buffalo’s milk respectively. Besides proteins, milk contains many other protective elements such as vitamins, minerals and amino acids.

Milk has contributed immeasurably to health, nutrition and pleasure of mankind and thus it forms a vital part of the human diet in most societies throughout the world.

Dairy products are tailored to suit the changing social and dietary habits of many people in different parts of the world. They have encouraged the dairy industries of many countries to take a new look at the range of dairy products.

1.1.1 New Product Development from Milk

Innovation has led to new product development ultimately leading to product differentiation though the basic material remains the same. There are different ways to create dairy products by adopting technological processes such as fat fractionation, Electro-dialysis and membrane separation, to mention only a few. The concept of milk as
an industrial liquid paves the way for a large number of dairy products that widen the base of the markets for dairy products.

Dairying has given ‘variety’ to the food industry. ‘Research and Development’ (R&D) has done valuable work in the sphere of milk products.

Milk occupies a prime position in the dietary habits of the people of the world. Hence, the demand for milk is ever increasing. This compels the state to increase the quantum as well as the quality of milk, which is a very serious proposition. This calls for a very careful planning and distribution of milk and dairy products. On account of these, study of various aspects of dairy sector is very much needed to appreciate and offer solutions to different problems of our economy.

1.2 STATEMENT OF THE PROBLEM

Indian rural economy has been developed by large farmers, small farmers, marginal farmers and landless labourers. They are also involved in the production of milk. A scheme, called ‘Operation Flood’ was launched for the first time during 1970. It promoted the production of milk both in the organized and the unorganized dairy markets. It also related to the rapid increase in the creation of modern infra-structure for milk-processing.

Dairying has become the most important subsidiary occupation and employment. For the development of the dairy industry in the country, improvement in the marketing of milk is critically important. One of the ways to achieve this is to increase the
competition in the market and the role of milk producers in marketing. In many States, this has been done by establishing and encouraging formation of Milk Producers’ Cooperatives. These institutional bodies operate in the rural areas to collect and handle milk supply from the producers and distribute the same to the city dwellers and consumers. These developments boost milk production. Its effective marketing and distribution assume a significant importance.

For the process of economic development to become viable, it is necessary that the marketed surplus increases with increasing production volumes. And to achieve this goal, it is necessary to ascertain the determinants of marketed surplus of milk that would help policy makers in formulating policies for increasing the marketed surplus through establishment of efficient marketing systems. There is dearth of empirical evidence on the determinants of marketed surplus of milk. The increasing production of milk should lead to expansion of marketed surplus of milk. It calls for ascertaining the determinants associated with the increasing marketed surplus. This sort of study will help the planners while they frame the policy there to.

1.3 SCOPE OF THE STUDY

The study mainly relates to the emerging trends in the marketing of milk in Madurai District and it is analysed from the point of view of milk producers, milk agents and consumers of milk. The scope of the study deals with the trends in milk production, cost and returns, determinants of milk yield, break-even analysis and the resource-use efficiency. It also includes the marketing cost, margin, price-spread and marketing efficiency under the different channels of milk production. The scope of the study is not
only limited to the production and marketing of milk but also the buying behaviour of consumers and their opinions on all major issues relating to milk in Madurai District.

1.4 OBJECTIVES OF THE STUDY

1. To examine the growth and structure of milk production in India, Tamil Nadu and Madurai District.

2. To analyse the cost and returns structure of milk production in the study area.

3. To investigate break-even output for milch animals during lactation period and inter-calving period.

4. To analyse the determinants of milk yield and resource-use efficiency.

5. To evaluate the marketing cost, margin, price-spread of milk and their efficiency through different channels.

6. To explore the factors affecting the marketed surplus of milk.

7. To offer Findings, Suggestions and Suitable Conclusion.

1.5 HYPOTHESES OF THE STUDY

1. Constant returns scale prevailed in dairying in Madurai district for both cow and buffalo.

2. There is no structural difference between cow and buffalo in terms of milk production in the study area.

3. The marginal value productivity has been unity for all inputs in the cases of both cow and buffalo.
4. There is no difference among the channel-I channel-II and channel-III in terms of marketing efficiency in the study area.

1.6 METHODOLOGY

Designing a suitable methodology and selection of analytical tools are important for a meaningful analysis of any research problem. In this section an attempt is made to prepare a methodology of the present study. It includes sample design, collection of data and tools of analysis.

1.6.1 Selection of the Study Area

Madurai district has been selected for the study as one of the major milk producing districts in Tamil Nadu. Madurai District Milk Producers’ Union Ltd was established in the year 1967. Dairy farming and agriculture have been inseparable parts of the rural people in Tamil Nadu since the climatic conditions are more suitable for dairy farming in the district. The average milk sales per day of Madurai District Milk Producers’ Union Limited have been 76000 liters\(^3\).

1.6.2 Sample Design

In Madurai district, there are 13 blocks namely Alanganallur, Chellampatti, Kallikudi, Madurai East, Madurai West, Melur, Sedapatti, Kottampatti,

\(^3\) www.madurai.tn.nic/profile.html.
Thiruparamkundram, Thirumangalam, T.Kallupatti, Usilampatti and Vadipatti. The 13 blocks were ranked according to the total number of cow and buffalo population. The selection procedure of blocks and sample is given in the following Table 1.

Table 1.1
Block wise distribution of Cows and Buffaloes in Madurai District

<table>
<thead>
<tr>
<th>Name of the Block</th>
<th>Number of Cows</th>
<th>Number of Buffaloes</th>
<th>Total</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alanganallur</td>
<td>2012</td>
<td>640</td>
<td>2652</td>
<td>XI</td>
</tr>
<tr>
<td>Chellampatti</td>
<td>5605</td>
<td>87</td>
<td>5692</td>
<td>X</td>
</tr>
<tr>
<td>Kallikudi</td>
<td>1059</td>
<td>312</td>
<td>1371</td>
<td>XII</td>
</tr>
<tr>
<td>Kottampatti</td>
<td>11488</td>
<td>906</td>
<td>12394</td>
<td>V</td>
</tr>
<tr>
<td>Madurai East</td>
<td>28789</td>
<td>2783</td>
<td>31572</td>
<td>I</td>
</tr>
<tr>
<td>Madurai West</td>
<td>15408</td>
<td>1929</td>
<td>17337</td>
<td>IV</td>
</tr>
<tr>
<td>Melur</td>
<td>8270</td>
<td>635</td>
<td>8905</td>
<td>VIII</td>
</tr>
<tr>
<td>Sedapatti</td>
<td>14861</td>
<td>2878</td>
<td>17739</td>
<td>III</td>
</tr>
<tr>
<td>Thiruparamkundram</td>
<td>15970</td>
<td>1929</td>
<td>17899</td>
<td>II</td>
</tr>
<tr>
<td>Thirumangalam</td>
<td>1048</td>
<td>211</td>
<td>1259</td>
<td>XIII</td>
</tr>
<tr>
<td>T.Kallupatti</td>
<td>10131</td>
<td>592</td>
<td>10723</td>
<td>VI</td>
</tr>
<tr>
<td>Usilampatti</td>
<td>10596</td>
<td>53</td>
<td>10649</td>
<td>VII</td>
</tr>
<tr>
<td>Vadipatti</td>
<td>8592</td>
<td>261</td>
<td>8853</td>
<td>IX</td>
</tr>
</tbody>
</table>

Source: 18th Quinquennial Livestock, Office of the Assistant Director of Animal Husbandry, Madurai.

Among the 13 blocks, Madurai East with the largest number of cows and buffalos in Madurai district has been selected for the study. There are 39 panchayat villages in Madurai East. The 39 villages are arranged in a descending order in terms of the total
number of cows and buffalos and the first twenty villages have been selected for the data collection. Due to non-availability of number of milk producers in the selected block as sample it is based on the total population of cows and buffalos in the respective block. That is, the cow and buffalo population has been taken as a proxy for the number of milk producers. The cow and buffalo population in Madurai East has been nearly thirty thousand. Therefore, the proportionate simple random sampling has been used to select a sample of 300 forming one per cent of the total population from the selected block.

The researcher designed interview schedules exclusively meant for milk producers, milk agents and consumers. The final structure of the interview was decided after subjecting the interview schedules to pre-test and pilot study.

The structural schedules were administered through personal interview method extending to 300 milk producers, 200 milk agents and 300 milk consumers. The list of milk agents has been identified through pilot survey, and the sample of milk agents has been selected by proportionate simple random sampling adopted in the respective villages.

1.6.3 Collection of Data
The study is based on both primary and secondary data. The primary data were collected from the milk producers, milk agents and the consumers of milk in Madurai District. Thus the primary data comprise demographic variables, number of animals, herd size, details of milk yield, cost components of milk production, procurement price, marketed surplus of milk, channels of marketing of milk and the other relevant issues thereto.

The secondary data were collected from books, journals, newspapers and reports. The secondary data were also collected from Madurai District Co-operative Milk Producers’ Union, Co-operative Societies, Corporate Bodies and Office of the Animal Husbandry in Chennai, Office of the Assistant Director of Animal Husbandry in Madurai, District Collectorate and Statistical Information Centre in Madurai.

1.6.4 Period of the Study

The field survey was conducted during the months of December 2010 to March 2011.

1.6.5 Tools of Analysis

The data collected were subjected to functional and costs analysis. The determinants of milk yield were studied by using the Cobb-Douglas Production Function, the structural differences of milk yield between cows and buffaloes by using the Chow’s Test, Break-even Analysis and Resource-Use Efficiency of Inputs by testing
the Marginal Value Productivity against unity. To examine growth of milk production, semi log model has been used to measure compound growth rate.

In the case of marketing of milk, marketing cost, margin, price-spread and the efficiency of marketing for various channels of milk distribution were arrived at by using the Shephard’s method and Acharya’s and Aggarwal’s method. The Multiple Linear Regression Models were used to interpret the marketed surplus of milk and determinants of milk production. Semi-log model has been used to measure compound growth rate of crucial variables. The study has applied Percentile Method and Garrett’s Ranking Techniques, which has been used in order to study the orders of preferences of the sampling units.

**1.6.6 TESTING OF HYPOTHESES**

Four hypotheses are tested in the present study. The first hypothesis is that constant returns scale prevailed in dairying in Madurai district. The second hypothesis is that there is no structural difference between cow and buffalo in terms of milk production in the study area. The third hypothesis is that the marginal value productivity has been unity for all inputs in the cases of both cow and buffalo. The fourth hypothesis is that there is no difference among the channel-I channel-II and channel-III in terms of marketing efficiency in the study area. The first hypothesis has been tested by’t’ test. The second hypothesis has been tested by Chow’s test. The third hypothesis test has not been done separately. It is taken care of in the estimation and
inference of the production function itself. The fourth hypothesis has been tested by Acharya’s and Aggarwal’s Methods.

1.6.7 Concepts used in the study

1.6.7.1 Milk

Milk is “the normal secretion of the mammary glands of mammals”. Milk consists of fat, lactose, protein, ash, vitamins etc. milk is perishable but it is the most hygienic food in the world. For the present study work, the milk of cows and buffaloes is taken for consideration which has been profitably marketed by various sectors like co-operative, milk vendor and corporate bodies.

1.6.7.2 Brand

Naturally brand denotes a name term, sign, symbol or design or a combination of them intended to identify the goods or services of one seller or group of Sellers and to differentiate them from those of competitors. In the present study the bands related to milk are taken for consideration, they are Aavin, Akshya, Amirtha, Arokya, K.C, Cavins, Matha, Raaj, Sakthi, Sarvodaya, Seva, SNP, Vijay and others.

1.6.7.3 Product

The milk of cow and buffaloes when it is packed, it becomes product. In general, the product is defined as a set of tangible and intangible attributes, including packaging, colour, price, the Prestige of the manufacturer and the retailer, the services
of the manufacturer and the retailer. It tends and attracts the buyer to quench their want-satisfaction.

1.7 LIMITATIONS OF THE STUDY

No records were maintained by the sample respondents in the study area. Hence, cost, returns and output have been obtained orally from respondents and hence accuracy was limited by their recall basis. This is only a sample survey in a selected area for specific time-period. Hence, the generalizations of findings must be done with care under certain conditions.

1.8 CHAPTER SCHEME

The present study “PRODUCTION AND MARKETING OF MILK IN MADURAI DISTRICT, TAMILNADU” has been divided into seven chapters.

In the first chapter introduces “Introduction and Research Design” consisted importance of Dairy Farming, New Product Development from milk, Statement of the Problem, Scope of the Study, Objectives, Hypotheses, Methodology of the Study, Collection of data, A Period of the Study, Tools of Analysis, Concepts used in the Study, Limitations of the Study and Finally the Chapter Scheme.
The second chapter deals with “Review of Literature”.

The third chapter gives a “Profile of the Study Area” and characteristics of the sample respondents.

The fourth chapter deals with the “Growth and Structure of Dairying in India”.

The fifth chapter deals with “Cost and Returns Structure and Break Even Analysis”.

The sixth Chapter focuses on the “Marketing of Milk”.

The seventh chapter presents a “Summary of Findings, Suggestions and Conclusion”.

CHAPTER II

REVIEW OF LITERATURE