PERFORMANCE OF DAIRY COOPERATIVES AND THEIR IMPACT ON MILK PRODUCTION, INCOME AND EMPLOYMENT IN KOLAR DISTRICT – AN ECONOMIC ANALYSIS

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LIST OF ABBREVIATION

AH =Animal husbandry

APH = Animal husbandry programme

AI = Artificial Insemination

AMUL = Anand Milk Union Limited

AVG = Average

BMC = Bulk milk coolers

CGR = Compound growth rate

CL = Cart load

CSO = Central Statastical organization

DC S = Dairy cooperative society

FAO = Food and agriculture organization

FYP =Five year plan

GDP = Gross domestic produce

GOK =Government of Karnataka

KDDC= Karnataka dairy development corporation

KMF = Karnataka state milk producers cooperation federation limited

KOMUL= Kolar milk union limited

LL = Lakh liters

MDS = Man days

MPCS = Milk producers cooperative society

NDDB = National dairy development board

OF = Operation flood

SL = Serial number

TPD = Tones per day

UAS = University Of Agriculture Sciences

UTH = Ultra high temperature

1. INTRODUCTION

In India no problem is as grave and alarming as that of employment. Poverty and unemployment rates followed by the glaring inequalities of income and consumption, which have been substantial. The animal production enterprises particularly dairying provide not only additional income, but also provide much larger employment opportunities to rural population. The agriculture, being only seasonal, the dairy industry provides off-season work, steady income and keeps the rural population employed through out the year.

As per the 2003 censes India had 485 million livestock population and 489 million poultry population, having the second highest number of cattle (185 million), and the highest number of buffaloes (97 million) in the world.

Livestock sector has been playing an important role in Indian economy and is an important sub sector of Indian agriculture. The contribution of livestock to GDP decreased from 5.22% in1999-00 to 4.36% in 2004-05 at current prices. According to Central Statistical Organization estimates, Gross domestic product from livestock sector at current prices was about Rs 935 billion during 1999-00, (about 22.51% of agriculture and allied GDP). This rose to Rs 1239 billion during 2004-05 with 24.72% share in agriculture and allied GDP. But the share of livestock sector in the plan allocation hovered at around seven percent of the total agricultural outlay.

This sector plays an important and vital role in providing nutritive food, rich animal protein to the general public and in supplementing family incomes and generating gainful employment in the rural sector, particularly among the landless, small, marginal farmers and women. Distribution of livestock wealth in India is more egalitarian, compared to land. Hence, from the equity and livelihood perspectives, it is considered as an important component in poverty alleviation programme.

Infact with the growing pressure of human population, dairying has to be developed in such a manner as to avoid competition between man and beast for land and its produce. Cattle rearing and milk production have been a source of livelihood to innumerable people in sub marginal level and it provides gainful employment.

The dairy industry in India is spread over the entire country in innumerable small units in a very disorganized form. In recent years, the Indian dairy industry is on the threshold of a good many changes that would totally transform the dairy scene and give the needed thrust to its rapid growth to meet the challenges ahead. Greater emphasis are to be needed on the areas of milk production, processing and marketing research. In this task of development of dairy industry, cooperatives have been recognized as an effective institution to improve the milk production potential and there by ameliorate the socio-economic life of millions of small, marginal and land less cattle owners scattered over large areas.

As on March 2006 the dairy cooperative network includes 170 milk unions, which operates in over 346 districts, covers around 117575 village level societies, is owned by around 12.4million farmer's members of which 3.2millions were women. When comes to the milk production, India's milk production increased from 21.2 million metric tones in 1968-69 to 97.1 million metric tones in 2005-06, percapita availability of milk was 241 grams per day in 2005-06, which went up from 112 grams per day in 1968-69. India's 3.9 percent annual growth of milk production between 1995-96 and 2005-06 surpassed the 2 per cent growth in population; the net increase in availability was around 2 percent per year. When comes to the marketing, in 2005-06, average daily cooperative milk marketing stood at 168.06 lakh lts, annul growth has averaged about 5.8 percent compounded over the last five years. Dairy cooperatives now market milk in all metros, major cities and more than 800 towns/cities. During the last decade, the daily milk supply to each 1000 urban consumer has increased from 17.5 to 58.8 lts.(NDDB report).

Milk cooperatives are an integral part of the milk marketing and dairy development programme in India. Popularly known as "operation flood" launched by the government of India in collaboration with the world food programme of the United Nations in July 1970. One of the worlds largest rural development programmes ever undertaken, the operation flood aims at the setting up of modern dairy industry to meet the India's rapidly increasing need for milk and its products and making it capable of viable and self sustaining growth. Operation

flood helped dairy farmers to direct their own development, placing control of the resources they create in their own hands. A national milk grid links milk producers through out India with consumers in over 700 towns and cities, reducing seasonal and regional price variations while ensuring that the producer gets fair market prices in a transparent manner on a regular basis.

The bedrock of operation flood has been village milk producer's cooperatives, which procure milk and provide inputs and services, making modern management and technology available to members. Operation flood objectives included: (a) Increase milk production ("a flood of milk") (b) Augment rural incomes (c) Reasonable process for consumers.

Operation flood

Operation flood was implemented in three phases

Phase-I (1970-98) was financed by the sale of skimmed milk powder and butter oil gifted by the European union then EEC through the world food programme. NDDB planned the programme and negotiated the details of EEC assistance during its first phase, operation flood linked 18 of India's premier milk sheds with consumers in India's four major metropolitan cities: Delhi, Mumbai, Kolkata and Chennai.

Phase II (1981-85) increased the milk sheds from 18 to 139 totally 290 urban markets expanded the outlets for milk. By the end of 1985, a self-sustaining system of 43000 village cooperatives covering 4.25 million milk producers had become a reality. Domestic milk powder production increased from 22000 tons in the pre-project year to 140000 tons by 1989, all the increase come from dairies set up under operation flood. In this way EEC gifts and World Bank loan helped to promote self-reliance. Direct marketing of milk by producers cooperatives increased by several million liters a day.

Phase III (1985-1996) enabled dairy cooperatives to expand and strengthen the infrastructure required to procure and market the increasing volumes of milk. Veterinary first-aid health care services, feed and artificial insemination services for cooperative members were extended, along with intensified member education. Operation flood Phase III consolidated India's dairy cooperative movement, adding 30000 new dairy cooperatives to the 42000 existing societies organized during Phase II. Milk sheds peaked to 173 in 1988-89 with the numbers of women members and women dairy cooperative societies increasing significantly. Phase III gave increased emphasis to research and development in animal health and animal nutrition. Innovations like vaccine for theileriosis, bypass protein feed and urea-molasses mineral blocks, all contributed to the enhanced productivity of milch animals.

From the outset, operation flood was conceived and implemented as more than a dairy programme. "Operation flood can be viewed as a twenty year experiment confirming the rural development vision" (World Bank report 1997).

THE COOPERATIVE STRUCTURE

AMUL or Anand type of cooperative is a three-tire structure namely, (i) the Village Milk Producer's Cooperative Society (ii) The District Milk Producer Cooperatives Union and (iii) The State Milk Marketing Federation.

Primary Cooperative Society consists of members with in the village jurisdiction who own cattle and supply milk to the cooperatives on a regular basis. Milk is collected twice daily; the sample of each producer is tested individually for fixing prices. The payment for milk supplied is also made daily to enable them to buy inputs like feed.

An elected management committee of nine members manages the primary cooperative society for a term of three years, of which one will be the chairman. The management committee appoints a secretary, a treasurer and other staff. The staff is trained in first aid and artificial insemination to meet the local emergency needs.

The District Milk Producers Cooperative Union represents all the primary milk producers' cooperative societies, which are members of the union and is managed by an elected management committee of 19 directors, which elects its own chairman. The union has a large professional staff lead by the managing director. The union is responsible for procurement, processing and marketing of milk and providing technical and input services like veterinary services, supply of feed, fodder, seeds and equipments besides training the staff.

In the cooperative structure, the marketing federation forms the third tier. for centralized marketing and purchase of milk. Its purpose is to maximize the returns to the primary producers in their unions through centralized marketing, purchase and quality control.

HISTORY OF DAIRY COOPERATIVES IN KARNATAKA

In 1964, when late Prime Minister Lal Bahadur Shastri spent a night at Ajarpur, during his visit to Gujarat, was impressed with working of the village milk cooperative society. He requested Mr.Verghese Kurien, the general manager of AMUL, to extend Anand type of dairy cooperatives to other parts of the country. He also wrote to the chief ministers of different states to take the initiatives to set up Anand type milk cooperative societies. This led to the establishment of National Dairy Development Board (NDDB) in 1965 and its sister organization called Indian Dairy Cooperation in 1970 to implement a well-known programme known as Operation Flood. which essentially entails the setting up of Anand type of dairy cooperatives through out the country.

In 1973, the government of Karnataka prepared a dairy development project and submitted it to the World Bank for funding. The total project cost of Rs 509.9 million was to be met by the government of Karnataka and the World Bank. The project report stipulated that the project should adopt Anand type dairy cooperative societies and NDDB should act as consultant to the project. The actual fieldwork was taken up in 1975. The project under Operation Flood-I organized the Karnataka Dairy Development Corporation (KDDC) which covered eight districts under four milk unions, namely Bangalore (Bangalore and Kolar), Mysore (Mysore, Mandya and part of Kodagu), Hassan (Hassan, Chikmagalur and part of Kodagu) and Tumkur (Tumkur and part of Mandya). Later during 1983 under Operational Flood-II all the districts were covered.

Kolar District Cooperative Milk Producers Societies Union Ltd.,(KOMUL) is Karnataka's one of the highest milk producing district organization. It is a district level apex body of milk cooperatives, which aims to provide remunerative returns to the farmers by eliminating the middlemen and also save the interest of consumer by providing quality milk and milk products at competitive price.

It consists of 1460 dairy cooperative societies as primary members and 2.2 lakh members collecting 7.25 lakh kg of milk per day with a weekly payment of 5 crores to the members having 117 bulk coolers and 93 community machine milking parlors producing less microbial load high quality milk, which is comparable to international standard. Dairy along with its chilling centers (first in south India) has obtained certification for ISO: 9001-2000 quality management system and in the process of certifying HACCP, food safety management system. Marketing 1.2-lakh lts/day in retail packs and 40,000 lts of UTH milk and One and only cooperative dairy to have ASEPTIC packing unit in Karnataka.

Once the district was named as land of gold and silk is making in roads in quality milk production. It is KOMUL first installed "Bulk milk coolers in community milking machines" at society level in the state of Karnataka to get the quality milk required for UTH milk packed at Kolar dairy under the brand name of Nandini "good-life". KOMUL has been awarded prestigious "National Productivity Award" for two consecutive years i.e, 2002-03 and 2003-04. Thus the study on milk union opens up new vistas for the overall development of peasant community by increasing income, employment and standard of living.

The present study is designed to study the performance of dairy cooperatives and their impact on milk production, income and employment. Further, it is planned to understand the various components of the cost structures, their relative contribution to the total cost of milk production and to evaluate the profitability and the resource use pattern of dairy enterprises and problems faced by the dairy cooperatives.

Keeping in view the overall objective of improving their operational efficiency in Kolar district of Karnataka the following specific objectives were designed.

THE SPECIFIC OBJECTIVES OF THE STUDY

1. To study the performance of dairy cooperatives using both physical and financial indicators.
2. To analyze the cost return structure of milk production of dairy farmers

3. To study the impact of dairy cooperatives on milk production, income and employment of farmer beneficiaries.
4. To elicit the opinions on the problems of production and marketing of milk by member producers, on the working of dairy cooperatives and suggest suitable policy measures.

HYPOTHESES

1. Dairy cooperatives are performing satisfactorily
2. The returns from dairy enterprises are considerably high
3. There is an increase in milk production, income and employment of Farmer beneficiaries
4. Members are facing more constraints in the production and marketing of milk

PRESENTATION OF THESES

The study is presented in five chapters

The first chapter covers introduction, objectives, the relevant review of literature is presented in chapter two. The third chapter of the study is devoted to the methodology used in the investigation and analytical procedures followed in arriving at the findings. This is followed by the presentation of the results in the same order in which the objectives are listed as in chapter one are presented in chapter four. The findings of the study have been discussed thoroughly in chapter five in the sixth chapter; the summary and conclusions of the study are given along with policy implications. Reference and appendices are included at the end.

2. REVIEW OF LITERATURE

Next to field crops, dairying forms an important subsidiary occupation in agriculture, which has the largest employment potential. So it is necessary to study the economics of dairy farming and the dairy development. Many studies have been conducted by different scientists and economists on economics of dairy and dairy development. A detailed review of some of the important previous studies have been made and presented as under. keeping in view, the objectives of the study.

2.1. Performance evaluation of cooperatives in general

2.2. Performance evaluation of dairy cooperatives in particular

2.3. Cost return structure

2.4. Impact of dairy cooperatives

2.1. Performance evaluation of cooperatives in general

The evaluation of the study on the performance of the cooperatives requires approaches that differ somewhat from those applied to other types of enterprises. Varieties of measures both financial and non-financial are usually preferred. Many scientists and economists have evaluated the performance of different cooperative societies and a very few studies have been made on the performance evaluation of dairy cooperatives.

Rayudu (1985), to measure the financial operations and performance of cooperative spinning mills in Andhra Pradesh studied different financial ratios such as current ratio, acid test ratio and debt equity ratio. He opined that ratio analyses had a dominant role not only for the appraisal of financial performance of cooperative but also for their ability to handle professional financial management.

Gangadhar and Raji Reddy (1986), employed debt equity ratio to study the capital structure and for studying working capital, liquidity and turn over. Ratios like current ratio, acid test ratio, inventory turnover ratio were used while studying the financial performance of super bazaar in Warangal.

Nikam (1986), made an attempt to study the financial strength of four cooperative sugar factories situated in Aurangabad district. Two important ratios viz., current ratio and acid test ratio were employed to locate financial strength of three units (short term) and two ratios viz., debt equity ratio and net fixed assets to net worth ratio were used for assessing the long term financial strength of the societies.

Shankara Murthy (1986), studied the performance of Karnataka State Cooperative Marketing Federation Limited. He employed financial ratio analysis to evaluate the financial performance of the federation. He used different ratios to study the different aspects of financial position of the federation such as solvency, liquidity, turnover, profitability, efficiency and strength. He said that the ratio analysis would provide better idea of the financial position of the federation.

Narayana Swamy and Ramachandran (1987), measured the profitability performance of a south Arcot district central cooperative bank in relating various components of profit and loss account statements to common denominator to volume of business.

Chidambaram (2000), analyzed the growth and development of Amaravati sugar mill, Tamil Nadu, with respect to 13 identified indicators such as (1) area under sugar cane production (2) membership (3) recovery (4) equity capital (5) debt capital (6) net working capital (7) cane price (8) cost of production of sugar (9) machinery utilization (10) sale price (11) income (12) expenditure and (13) profit, compound growth rate was calculated for each indicator to study the growth.

Sriramalu *et al* (2001), in assessing the performance of 58 Farmers Service Cooperative Societies (F.S.C.S) in Andhra Pradesh concluded that out of the total volume of non credit services, input supply constituted 91.36 percent, consumer goods accounted for 5.18 percent and customer services 0.04 percent. This indicated that the non-credit services

were mainly confined to supply of agricultural inputs and the marketing of agriculture produce was completely neglected by all the F.S.C.S.

2.2. Performance evaluation of dairy cooperatives in particular

Jain *et al.* (1978), studied the growth of milk producers cooperatives in Mehasana district of Gujarat. The sample villages in the milk shed area were selected and were studied for the growth of cooperative societies, membership, share capital, volume of milk handled, price paid by different agencies. The data was scored under the benchmark and repeated surveys carried out by the Indian Agricultural Statistics Research Institute during 1968-69 and 1973-74 respectively. It was observed that there was a sizable increase in the number of village level milk producer's cooperatives viz., from 230 to 380 between the two occasions, the membership of those cooperatives also increased from an average of 157 members per cooperatives on the first occasion to 240 on the second occasion and the share capital of thire cooperatives increased from an average of Rs 3448 per milk cooperative on the first occasion to Rs 18842 on the second occasion. They also noticed that there was an overall increase in the number of persons employed by the milk cooperatives to assist in their functioning and the daily milk collection of milk cooperatives increased in second occasion during all three seasons.

Kulkarni (1979) opined that the lack of sufficient milk collection of cooperatives in the rural areas, malpractices in weighment and quality testing, inconvenient timings of milk collection, spoilage during the rains, and warm seasons and inadequate extension services were some of the lacunae in milk collection from the producers.

Baviskar (1986) based on data collected during field work in two villages of Surat district. The report traced the increase in the number of cooperative milk producer societies and their impact on dairy development in the tribal area of Gujarat. It focused upon milk cooperatives managed by Jesuit missionaries in the region presenting a detailed description of their internal organization. The main reason for the success of the Jesuit seen cooperative was found to lie with the loyalty of its members and integrity of its leaders. The secretary of dairy cooperative was found to be key functionary in the success of the project.

Hirevenkana Gouda *et al*. (1988) studied the impact of dairy development on the weaker sections of Bangalore north and Doddaballapur taluk of Karnataka. The small, marginal farmers and agricultural laborers were selected from the villages having SFDA programmes. They were classified as Karnataka Dairy Development Corporation (KDDC) farmers and non-KDDC farmers who were not availing the facilities of cooperatives. They found that more than 56 percent KDDC farmers getting only 25 percent of family income from dairy enterprises more than 64 percent of KDDC farmers had repaid 75 to 100 percent of dairy loan, where as only 10 to 25 percent of non KDDC farmers had repaid 75 to 100 percent of dairy loan.

Jawan Ram (1988) made an attempt to analyze the organization and working of Jaipur district milk producers cooperative union limited, Jaipur. The study was conducted through personal interview with management and other employees of the union. It was found that the organizational structure and functions performed such as (i) milk collection (ii) supply of technical inputs (iii) farmers induction programmes and (iv) supervision etc., were analyzed. Some drawbacks were found out and appropriate suggestions were made.

Mattigatti (1990) studied the performance of milk producers cooperative societies and their impact on dairy farming in Dharwad district. The author selected a number of physical and financial indicators to evaluate the performance. The secondary data required was collected from the various annual reports of milk producers cooperative societies for the period 1986-88. He opined that both the physical and financial indicators of the societies showed significant growth in their values. The above average societies have already progressed with higher values for the indicators compared to below average societies, while below average societies well shown a grater rate of growth, hence, he concluded that over the period of time all these societies would contribute to the overall development of the societies.

Jithendra Kumar (1990) studied the performance of dairy cooperatives and their impact on milk production, income and employment in Chitoor district of Andhra Pradesh. The study revealed that the societies which were above the average level has shown better

performance with an increase in membership and milk procurement, and profits of societies showed and increasing rate except the society-II

Kale *et al* (2000) studied the financial position working and operational efficiency of 23 dairy cooperatives in Raigad district of Maharashtra. They studied the economic efficiency through income expenditure ratio, expenditure income ratio, rate of return on capital and rate of turn over. They concluded that (i) the societies had low owned capital and were dependent on borrowing from financial institutions (ii) even though the working capital of the dairy cooperatives was low, their turnover was high because dairy cooperative did not make payment to milk producers from their own funds. There fore, dairy cooperatives were able to carry on business with limited capital and (iii) majority of the societies was trading profit.

2.3. Cost return structure

Kumar and Rout (1974), in their study on economic response to feed on milk production for different types of feeds of dairy cows in Hariyana, found that feed was the most significant factor influencing milk yield. Feed cost accounted for 60-70 percent of the total cost of production.

Chhikara *et al* (1975), studied the relative efficiency of the different types of Milch animals in area of Jind milk plant of Gujarat. They fitted cobb-douglas production function to estimate marginal value productivities and milk production (input output details of Milch animals). They concluded that the use of green fodder, dry fodder, concentrates and human labour had explained about 45,93 and90 percent of variation in the milk output of cow, murrah buffalo and cross bred cow respectively. The net return over the variable cost was highest for the crossbred cow, followed by murrah buffalo and cow. The total cost of milk production in lactation was Rs 1795, Rs 3340 and Rs 2687 for the cow, murrah buffalo and crossbred cow in that order.

Parthasarathy (1975), studied the economics of milk production and trade covered on hundred dairy farmers supplying milk to the Integrated Milk Project (I.M.P), Vijayawada, Krishna district of Andhra Pradesh. The input output ratios, cost components were analyzed. They revealed that the average input out put ratio was 1.31 per animal and the average yield was 2024 lts per lactation and the total cost of maintenance was Rs 3112 and 85 percent of it was on feeds. Most of the milk trade was with private agencies and only one fourth was with I.M.P.

Madhava Swamy (1982), studied the comparative economics of production of local and graded research buffaloes in Kurnool district of Andhra Pradesh. He estimated the relative share of crop and livestock production in total gross farm income of small and marginal farmers. Costs and returns of crops besides the cost of dairying, feed, concentrates, and milk yield pertaining to animal maintained were gathered. Tabular analysis was employed to draw results. He concluded that the graded murrah buffaloes yielded higher net returns by Rs 258 than local breed. The cost of production per liter of milk of local buffalo was Rs 1.50 as against Rs 1.3 in graded murrah buffalo. It was revealed that out of the total gross farms income, 48 percent of higher net returns were contributed due to live stock production compared to crop production.

Sambasiva Rao, (1985), studied the factors affecting milk production, marginal value productivity of different resources at their respective geometric mean levels in Nagarajuna sagar project command area of Andhra Pradesh. Cobb-douglas type of production function was used to express relationship between the average milk yield per day and value of dry fodder, green fodder, concentrates per animal per day, number of lactations completed, labour hours used per animal per day, value of animal (in rupees) and age of animal. He observed that the inputs like green fodder and concentrates were the principal factors affecting milk production in all the size groups of farmers and estimated marginal value products of green fodder and concentrates were greater than factor cost implying that all the farmers were under utilizing these two inputs. He concluded that the use of green fodder and concentrates increased the milk yield and regarding labour, only marginal farmers were utilizing in an efficient manner.

Biradar(1999), employed break even analysis technique in dairy enterprise in Udyir taluk, Lathur district of Maharashtra. He observed that the bread even milk production among beneficiaries was 1291 lts at the given price of milk i.e., Rs 7.23 further, the average BEP

price per ltr of milk Rs 7.55. He concluded that either milk producers should able to procure 1291 lts for BEP level or the price should be raised from Rs 7.23 to Rs 7.55. The prices paid to milk producers were not remunerative.

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

Thakur And Singh (2004), conducted surveys in the year 2002-03 to assess the energy and cost requirement for milk production in different commercial dairy farms in four locations, viz., Maharajpur, Imaliya, Pariyat and Mohaniya, around the Panagar block of Jabalpur district, representing the Kymore plateau and Satpura hills zone of Madhya Pradesh. The locations for conducting the survey was selected at random without following any statistical method as there are enough number of commercial dairy farms to get a good comprehensive data on the different activities in milk production. It was inferred that cattle raising was not only an important occupation for supplying the nutritional diet to the people but also it has greater concern to uplift the socio-economic status of the people related to agricultural sector. Likewise raising goats, cows, buffaloes and birds as a supplementary occupation in the agricultural sector is apparently most economical for the development of socio economical status of rural people particularly in weaker sections, having small and marginal holdings or low investment capacity and tribal communities.

Dixit *et al* (2004), studied the economics of milk production in five agro climatic zones of Kerala. The primary data with respect of farm inventory, production traits of Milch bovines, feeds and fodder fed, labour utilization, production and consumption of Milk, value of various inputs and outputs, expenditure on veterinary and other miscellaneous items etc. were collected from 750 households. The data pertained to the year 2002-03. The results of the analysis indicate that bovine husbandry forms an important component of the typical homestead-farming situation in Kerala. The crossbreeding of cattle has resulted in the spectacular performance of dairy sector in the state.

Singh and Rekha Dayal (2004), studied the economics of production and marketing of milk in the state of Uttar Pradesh. Linear and log-linear functions were used to work out the estimates of factors affecting marketed surplus of milk both for the private and cooperative systems. The results of the study indicated that the feed and fodder cost was the most important item of the total maintenance cost accounting for 55 to 65 percent of the total cost in zone-I and 51 to 66 percent in zone-II. The net profit per day of a milch buffalo was very low due to the higher maintenance and low milk yield of milch buffalo on each herd size group in each zone of the state. The net profit of milk production per buffalo per day was observed to be higher in the case of small size group due to higher milk yield of milch buffaloes in this size group as compared to medium and large herd size groups in both the zones. The establishment of milk cooperative societies in the rural areas had positive impact on the marketed surplus of milk. The study further showed that the milk vendor being an important intermediary in milk marketing made huge profits by adopting various types of malpractices. Lender utilization of plant capacity was the major factor for incurring losses by cooperative milk plant in fluid milk marketing.

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

farmers and it was 1:1.31.Elasticity of production for fodder was the highest followed by human labour and concentrates for all farms.

2.4. Impact of dairy cooperatives

Jain (1980), in his study on dairy development, through cooperatives, discussed that dairy development in Rajasthan included various aspects, like evaluation of cooperative system and its pattern of establishment, methods of milk procurement, and processing; supply of technical inputs; animal breeding facilities, supply of cattle feed; training and extensions; supervision and the extent of cooperative programme.

Singh *et al* (1983) compared and analyzed monthly fluctuations in the prices of cow and buffalo milk offered and quantity of milk procured by cooperatives, private and public sector organizations, operated in three villages adopted under operation flood of Kernal. They observed that private milk plant paid the lowest price per liter of milk during July to March and the highest during April to May. Public sector paid higher price in July. Cooperatives price remained constant and higher than public sector and equal to private plants during July 1980-1981. They concluded that public and private sector organization could attract only about 17 percent of the total milk sellers and cooperatives procured milk from about 45 percent and the remaining milk sellers sold to milk vendors, tea shops etc.

Dorsten (1986), the study related to the impact of the Kaira district cooperative milk producers union on milk production in Kheda district, Gujarat. From the study, an unmistakable trend towards commercialization of the livestock by the year 2000 AD. Although India possessed an enormous cattle and buffalo population, annual milk production was very low. The average annual milk yield per cow was about 504 kg. One of the major constraints was supply and quality of feeds and fodder. By the year 2000 AD, There was expected to be a short fall of concentrates, 19.8 MT of green fodder and 16.2 MT of dry fodder. The shortage was expected despite the declining trends in the dairy cattle population. The study proposed a number of suggestions for improving the feed and fodder situations and also the wealth and breeding of dairy animals.

Bhanja *et al* (1987), examined the critical factors in organization of dairy cooperatives by selecting twenty one primary milk producers cooperative societies covering three milk production zones in Mahasana district of Gujarat. They observed that the societies were successful in the cases of members who joined a society besides economic reasons, and realization of social benefits. Milk producers who were selling through milk vendors had came to know some malpractices made by vendors.

Patil (1991) studied the performance of the KMF (Karnataka Milk Federation) and its impact on dairy development in Karnataka. He observed that milk procured (in tones) increased by 2695 percent during KDDC (Karnataka Dairy Development Cooperation) period and 190.41 percent during KMF. However, the overall percent increase was around 8018 percent. Possible reason for such high increase in milk procurement were, viz the considerable rise in registration and DCS commissioned as well as the number of milk routes made operational, which had increased the DCS commissioned and milk routes operational by 2545 and 721 percent respectively.

Thakur (1996) studied the impact of dairy development through milk cooperatives in Gujarat which covered four milk unions which were at the different stages of development. Twenty-four village milk producers' societies were selected randomly in four districts and 400 respondents, respectively. The primary data collected on survey method from respondents and secondary data from the sample milk unions and societies, progress was captured by tabular analysis. The farmers are categorized, as landless, small, medium, and large in order to examine the impact of milk cooperatives on economic conditions of the weaker sections. It was observed that the landless people earn as much as 65-70percent and small farmers earn more than 25-30 percent of the total income from dairying. The cash income obtained continuously from the sale of milk can be used for better management of Milch animals and for the purchase of improved agricultural inputs to some extent which help the farmers in increasing their total income.

Reddy (2000), studied the employment opportunities and the standard of living among the rural folk and compared between arable farming, mixed farming and dairy farming laborers in milk shed area of Vijayawada and the dry land area of Chitoor. The data was

collected by survey method from selected respondents. The secondary data were collected, and analyzed. They found that mixed farming created 32 percent of extra work as compared to arable farming. The dairy farming created 45 percent of extra work as against mixed farming and 92 percent of extra work as compared to arable farming. They also estimated that an additional employment for 129 days as compared to mixed farming and 225 days as compared to arable farming were found by maintaining dairy farm.

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

Sidhu *et al* (2004), studied the impact of dairy on income and employment in Punjab. The study revealed that the livestock economy especially dairy is considered to be an economically viable alternative for increasing income and employment in the farm sector of Punjab. It is clear that the contribution of livestock economy to the farm sector has increased over time whereas the contribution of crop sub-sector to the agricultural growth as well as NSDP has declined due to stagnation/fall in productivity of important crops, rise in fixed cost and degradation of soil and water resources. The importance of dairy especially on small and marginal farms has increased and the proportion of dairy to the total farm business income on these farms has increased. The economic sustenance of these farmers is primarily dependent on dairy enterprise as it helps in utilizing their surplus family labour, requires less land and water resources and provides cash income to meet their daily consumption needs. The dairy sector has also helped in generating employment on small, marginal and semi-medium farms despite fall in employment in crop production.

Sharma *et al* (2004), a study was carried out to estimate the contribution of dairy and crop enterprises towards income and employment in relation to different size of holdings in the semiarid region of Rajasthan. For this study data were collected from 60 farmers in the four adopted villages of Sikar tehsil of Sikar district during the agricultural year 2003-2004. The farmers were classified in to different size groups, namely, small (upto 2 ha), medium (2 to 4 ha) and large (4ha and above). From each village and each size group, 5 cultivators were randomly selected. Dairy enterprise provided maximum employment of 338 man-days and crop farming provided 219 man-days. Per worker employment from crop and dairy farming were 80 man-days and 123 man-days, respectively. Thus, dairy farming plays a key role in increasing employment and income in the semi arid tract of Rajasthan.

Sujatha *et al* (2004), studied the market structure, price spread, marketing costs and marketing efficiency for milk in the cooperative and private sectors of Andhra Pradesh. It was found that price spread was less in private sector and hence the consumer price was also less. The major constraints identified in milk marketing were high feed cost, inadequate price for milk, poor credit facilities, disease outbreak, etc. Because of delay in the payment of fee for the milk sold to the cooperative society, the farmers approached the private firms. For enhancing the marketing efficiency of milk, infrastructure facilities like chilling plant, pasteurization and dairy products processing plants have to developed.

Vinod *et al* (2004), Conducted a study with reference to 120 respondents scattered in six villages of two blocks in Rewari district of Hariyana to analyze the nature of markets and role of cooperatives in marketing of milk. It was observed that on medium and large category of farms the milk sold through cooperative society was found to be higher than the disposal through milk vendors and directly to the consumers mainly due to more marketable surplus. While on small farms the disposal was found to be almost equal, i.e., 35 percent through milk vendors and directly to the consumers, and the disposal of milk through cooperative society was less due to lower marketable surplus owing to smaller heard size.

Usha Tuteja and Narinder Singh (2004), conducted a study on employment and income generation through livestock based milk processing units in rural Hariyana. The study revealed that the production of milk in Hariyana grew at the rate of 4.07 per cent per annum during 1980-1981 to 200-2001. There fore, milk processing on commercial scale has great potential in terms of enhancing the income of the farmers by selling milk products in the expanding domestic and international markets. The milk processing units on an average generated employment of 8.40 persons in Gurgaon and 5.86 persons in Jind district. The factories generated the highest employment of about 14 persons in the former and 11 persons in the latter district. The study highlighted that marketing of local products faced severe competetion from the multinationals. Hence, promotional policies need to focus on the marketing bottlenecks and devise efficient marketing channels through public and private partnership. Special zones can be created in those areas where raw material/milk is easily available. The alternative way could be formation of cooperatives like Amul.

3. METHODOLOGY

The present investigation is an attempt to examine the performance of dairy cooperatives and their impact on milk production, income and employment. The study was conducted in Kolar district of Karnataka state during 2006-07.

In this chapter, the techniques adopted for selection of milk production areas, societies, respondents, collection of data and analytical techniques followed are discussed under the following headings.

3.1. General characteristics of the study area

3.2. Sampling design

3.3. Nature and source of data

3.4. Analytical tools and techniques employed

3.1. General characteristics of the study area

Kolar a district in Karnataka state which is popularly known as the golden land of India, for it is at the famous kolar gold fields of this district that gold mining was first undertaken during modern times.

Kolar district is belongs to its semiarid drought prone region. It lies between 77^0 21^1 to 78^0 35^1 east longitude and 120 46^1 to 130 58^1 north latitude, extending over an area of 8225 km^2. Kolar district is located in the southern region of the state and happens to be the eastern most district of the Karnataka state. The district is bound by the districts of Bangalore and Tumkur on the west and on all other sides by the districts of adjoining states of Andhra Pradesh and Tamil Nadu. On the north, it is bounded by Anantapur district; on the east by Chitoor district of Andhra Pradesh and on the south by the districts of Krishnagiri and Vellore of Tamil Nadu.

The district with an area of 8225km^2 has its length of about 135 km from north to south with almost the same distance from east to west. The rivers of the districts are small and seasonal polar, uttarpinakini and dakshinpinakini are the important rivers, which originate in the elevated regions in the district. The main sources of employment are agriculture, dairy and sericulture. Hence it is popularly known as the land of “silk, milk, and Gold” Farmers in Kolar are totally dependent upon bore well water for irrigation purpose. The district, at present comprised of 11 talukes. It has 15 towns and 3321 villages. Total population of the district according to 2001 census was 2,536,069, of which 24.67 were urban. Density (per km)-269, sex ratio -966, literacy rate -68.35%.

3.2. Sampling design

3.2.1. Selection of milk shed/union

The Kolar Milk union was selected purposively to evaluate the performance of Milk Producer’s Cooperative Societies (MPCS) and their impact on milk production, income and employment in Kolar district of Karnataka.

Kolar milk union is one among the top ranking milk-producing districts in the state. At present, there are eleven taluk head quarters of milk unions are working

Table 3.1. List of DCS functioning (Taluk wise) in Kolar district

Sl .No	Taluk	DCS Functioning
1	Kolar	217
2	Chintamani	206
3	Shidlaghatta	163
4	Chickballapur	150
5	Srinivasapur	139
6	Gowribidanur	113
7	Mulbagal	163
8	Malur	134
9	Bangarpet	131
10	Bagepalli	111
11	Gudibande	33
	Total	1560

3.2.2 Selection of sample areas

Kolar milk union was considered as a whole for the purpose of selection of two sample areas. Based on the criteria as indicated below.

a) Above the average milk production area

b) Below the average milk production area

Classification of milk unions based on milk procurement in KOMUL as on March 2007

I. Above the average milk production area

1. Kolar
2. Shidlagatta

II. Below the average milk production area

1. Chintamani
2. Chickballapur
3. Srinivasapur
4. Gowribidanur
5. Mulbagal
6. Malur
7. Bangarpet
8. Bagepalli
9. Gudibande

3.2.3 Selection of Milk Producer's Cooperatives (MPCS)

From the selected area, the list of registered milk cooperative societies was prepared taking in to consideration of the volume of business (milk procured). The societies were classified in to two groups, based on their average volume of business as above the average and below the average societies.

Four societies (MPCS) were selected randomly from each area thus totally eight MPCS were selected from both areas. The list of MPCS selected for the study is shown in table.

3.2.4 Selection of respondents

A list of dairy farmers operating as members of the selected milk producers cooperative societies was prepared with the help of secretaries of the MPCS. The total sample comprised of 120 farmers, out of which 30 dairy cooperative members and 30 non-dairy cooperative members were selected each from area-I and area-II. The details of respondents are given in sample tree.

3.3 Nature and source of data

3.3.1 Primary data

For evaluating the objectives of the study, both primary and secondary data were utilized. The primary data were collected from the respondents through pretested questionnaire. The information relating to the input out put data on milk production such as age of milch animal, number of hours spent on grazing, cost of dry fodder, green fodder, concentrates, labour, veterinary and medicine charges and maintenance charges, total annual milk yield, income from other sources, etc., was collected by personal interview method, The variables considered are indicated below.

Figure 1. DCS Functioning (Taluk wise) in Kolar district

Fig.1. DCS Functioning (Taluk wise) in Kolar district

Table 3.2.Average milk procurement/day (Taluk wise) as on Mar-2007

Sl.No	Taluk	Milk Proc	BMC Proc	Pvt proc
1	Kolar	102386	16569	11800
2	Shidlaghatta	88029	35511	14215
3	Chintamani	82193	45949	3575
4	Chickballapur	68213	12026	4065
5	Srinivasapur	56936	30961	20862
6	Gowrubidanur	50414	7697	5102
7	Mulbagal	48508	20544	9230
8	Malur	47094	10730	6410
9	Bangarpet	46248	9653	22010
10	Bagepalli	30985	12771	1022
11	Gudibande	10749	6828	590
	Total	631755	209239	98881

BMC-Bulk milk coolers
Pvt -Private

Table 3.3.Societies selected in area-I and area-II of kolar district

Sl. No	Particulars	Name of the society
1	Area-I	
	Society-I	Milk producer's cooperative society, Varadanayakanahalli
	Society-II	Milk producer's cooperative society, Yennenguru
	Society-III	Milk producer's cooperative society, Tammanayakanahalli
	Society-IV	Milk producer's cooperative society, Kutandahalli
2	Area –II	
	Society-I	Milk producer's cooperative society, Avalagurki
	Society-II	Milk producer's cooperative society, Kalavara
	Society-III	Milk producer's cooperative society, Puradagadde
	Society-IV	Milk producer's cooperative society, Kolavanahalli

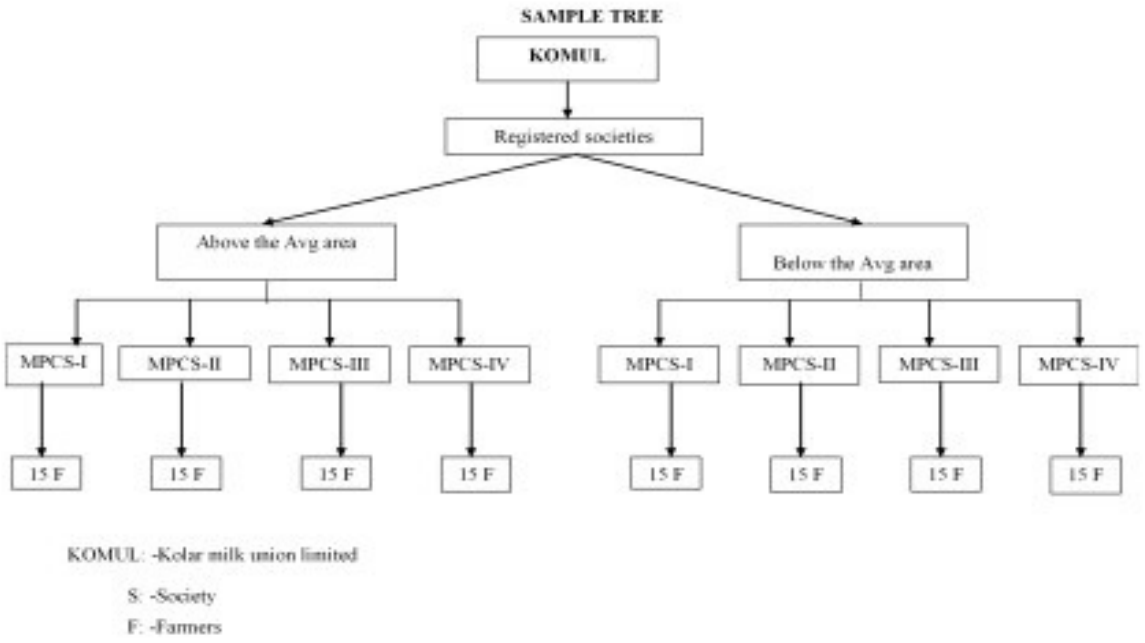

Fig.2 Sample tree

Table 3.4. Variables considered to elicit opinions from members

Sl. No.	Opinion
1	Supply of inputs
2	Vet. Services
3	Correct weighment
4	Better prices
5	Grading (fat %)
6	Transport
7	Loan to purchase Milch animals
8	Regular payments
9	Relationship with MPCS
10	Training to members
11	Protecting consumers interest
12	Market news
	Functioning of the societies
1	Regularity of board meetings
2	Timing of decisions
3	Supply of information of board
4	Executive decisions
5	Participation of directors
6	Commitment of directors to the board decisions
7	Annual plans or decisions taken by the society
8	Experienced staff
9	Maintenance of accounts
10	Technical advice
11	Financial support for extension activities

3.3.2 Secondary data

The secondary data on several aspects of the activities of the MPCS selected were collected from different sources for a period of ten years from 1995-2005 depending up on the availability of the required information.

The data relating to the financial aspects of the societies such as balance sheets, profit and loss account, receipts and payments statements and trading accounts were abstracted from the annual reports. and audit reports of societies.

3.4 Analytical tools and techniques employed

3.4.1 Tabular analysis

The technique of tabular analysis was employed to study the performance of selected milk producer's cooperative societies, income and employment created to the members and non members of dairy farmers and study the cost return structure of milk production for members and non members.

The statistical tools like average, percentages were employed to summarize and compare various items through out the study.

3.4.2 Compound growth rate analysis:

The compound growth rates were estimated for the various physical and financial Indicators of the selected milk producer's cooperative societies.

The exponential function of the following type was employed to estimate the growth rates.

$$Y=ab^t$$

Where,

Y = indicator

a = constant

b = regression coefficient (rate of change in Y unit of times)

t = years(time)

Annual average compound growth rate is in percentage

$$r = (b-1)100$$

The important physical indicators considered were membership, total no of employees and total milk procured. The important financial indicators were share capital, total sales of milk, total assets, total liabilities, owned funds, fixed assets, net profit.

3.5 Important terms and concepts used in the study

The various items of costs were grouped under fixed and variable costs to know their relative importance. The profitability from dairy was assessed by employing costs concepts as employed in farm management studies. The various costs concepts used in the study are as follows.

Dry fodder: Jowar, ragi and paddy straw were the main dry fodder fed to milch animals in the study area. The data regarding the actual quantities fed to animals over the year were collected from the respondents, and their market values were calculated.

Green fodder: The quantity and value of green fodder supplied to each animal every year was collected in the study area. Green fodder included green grass, jowar straw, burmuda grass, elephant grass etc. The market value for the different green fodders was used to calculate the cost of green fodder.

Concentrates: Concentrates are feeds, which have a comparatively high digestibility. Concentrates provide protein for the growth of animal besides influencing the fat content in milk. In the study area, mixtures of groundnut cake, rice brans, feed mix supplied by the society and which is sold in market were mainly fed to milch animals. Data regarding the

Table 3.5. Physical and financial performance indicators considered.

Sl. No	Indicators
I	Physical indicators
1	Total membership (no)
2	Total number of employees
3	Total quantity of milk procured in lts
II	Financial indicators
1	Value of share capital
2	Total sales value of milk
3	Total value of assets
4	Total value of liabilities
5	Net worth
6	Fixed assets
7	Net profit

actual quantities of each item of concentrates fed over the years were collected and value was computed at market prices.

Labour : In the study area, the respondents employed all kinds of workers men, women and children for grazing their animals and also for cleaning the animals, cattle yard, and milking. The labour cost, which prevails in the study area, was considered to calculate the cost of the labour. The total cost of labour for each heard was divided by the number of milch animals to get the labour charges per animal.

Milk yield: In order to estimate the annual milk yield for each animal, the following procedure was followed.

The average daily milk yield during the initial, peak, and the last phase of lactation period were obtained. The total annual milk yield was obtained by adding the total milk produced in each of these three phases and the average price received per liter was multiplied by total yield to get the value of milk yield per lactation.

Cost return structure: The information relating to costs incurred for milk production such as green fodder, dry fodder, concentrate, veterinary charges, maintenance charges, total milk produced, price obtained were collected to determine the costs and returns from milk production. Tabular analysis was employed for identifying cost-return structure of milk production.

Area –I and Area-II

Based on the average milk procurement of the societies the entire study area has been divided in to two areas a) Above the average milk procurement societies, which represented as AREA-I and b) Below the average milk procurement societies, which represented as AREA-II.

Member

Respondent who is having dairy and marketed his/her milk thorough milk cooperative society by becoming member of the society.

Non-member

Respondent who is having dairy and marketed his/her milk through other than milk cooperative society and also he/she is not a member of the society.

4. RESULTS

This chapter presents the results of the study according to the specific objectives indicated in chapter-I and they are covered under the following broad headings.

4.1. General characteristics of the sample respondents.

4.2. Size of sample farmers and distribution of milch animals.

4.3. Performance of selected milk producer's cooperative societies.

4.4. Analysis of cost and returns structure of milk production.

4.5. Impact of Milk producer's cooperative societies on milk production, income and employment.

4.6. Opinions of the respondents on the performance of Milk producer's cooperative societies and problems of dairy farming.

4.1. General characteristics of the sample respondents.

The general information of the respondents with respect to their age, family size, education level and land holding are presented in table 4.1. The average age of the farmers of area-I was 46.17 years and area-II was 42.77 years.

In the sample area-I it was observed that 20.00 percent, 26.67 percent, 36.67 percent and 16.67 percent of the respondents had an education level of illiterate, primary, secondary, and college respectively. Similarly in the area-II, 26.67 percent, 33.33 percent, 30.00 percent and 10.00 percent of the respondents had and education level of illiterate, primary, secondary and college respectively.

The average family size of the sample area-I was 9.37 members and it was less in area-II 7.40 members. The average size of the land holding of the respondents in area-I was 5.07 ha and area-II was 4.07ha.

4.2. Size of sample farmers and distribution of milch animals.

The sample farmers were divided in to two groups as members and non-members of the dairy cooperative society. The distribution is presented in table 4.2.

The total sample comprised of 120 farmers, out of which 30 members and 30 members were selected from area-I and area-II. Similarly 30 non-members and 30 non-members were selected from area-I and area-II.

In area-I, the selected members of the society possessed 40 buffaloes and 42 cows, accounting for 48.78 percent and 51.22 percent respectively. Where as non-members had 33 buffaloes and 32 cows accounting for 50.77 percent and 49.23 percent respectively. Totally, 147 milching animals were considered for data collection in area-I.

In area-II, the selected members of the society possessed 32 buffaloes and 39 cows, which accounted for 45.07 percent and 54.93 percent respectively. Where as, the non-members had 20 buffaloes and 19 cows.

Totally, from both the areas 257 milch animals were considered for the study, out of which the respondents possessed 125 buffaloes and 132 cows accounting for 48.64 percent and 51.36 percent, respectively. On the whole, the cows were more in number (132) than the buffaloes (125) in the study area.

4.3. Performance of selected milk producer's cooperative societies

4.3.1 Performance of milk producer's societies in area-I

a) Physical indicators.

In area-I, the membership has increased by 279.25 percent over ten years i.e., from 135 in 1995-96 to 512 in 2004-05; total number of employees of MPCS had increased from

Table 4.1. General characteristics of the sample respondents

Sl no	Particulars	Area-I	Area-II
1	Average age	46.17	42.77
2	Family size (No)		
	(i) Male	3.97 (42.35)	3.30 (44.59)
	(ii) Female	2.37 (25.27)	2.33 (31.54)
	(iii) Children	3.03 (32.38)	1.77 (23.87)
	(iv) Total	9.37 (100.00)	7.40 (100.00)
3	Education level (No)		
	(a) Illiterate	12 (20.00)	16 (26.67)
	(b) Primary	16 (26.67)	20 (33.33)
	(c) Secondary	22 (36.67)	18 (30.00)
	(d) College	10 (16.66)	6 (10.00)
	Total	60 (100.00)	60 (100.00)
4	Land holding (ha)		
	(a) Rain fed	3.15 (62.11)	2.47 (60.65)
	(b) Irrigated	1.67 (32.89)	1.28 (31.48)
	(c) Unirrigated	0.25 (5.00)	0.32 (7.87)
	Avg size of land holding	5.07 (100.00)	4.07 (100.00)

Note: Figures in the parenthesis indicate percentage to the total
No : Number
Ha : Hectare

Table 4.2. Size of the sample farmers and distribution of milch animals

Sl no	Particulars	Sample Farmers	No of Buffaloes	No of cows	Total
1	Area - I				
	(a) Members	30	40 (48.78)	42 (51.22)	82 (100.00)
	(b) Non members	30	33 (50.77)	32 (49.23)	65 (100.00)
2	Area -II				
	(a) Members	30	32 (45.07)	39 (54.93)	71 (100.00)
	(b) Non members	30	20 (51.28)	19 (48.72)	39 (100.00)
	Total	120	125 (48.64)	132 (51.36)	257 (100.00)

Note: Figures in the parentheses indicate percentage to the total

two in 1995-96 to 5 in 2004-2005. From 1995-96 to 1997-98 the total number of employees were remained same (two) the total number of employees from 1998-99 to 2000-01 remains same (three). From 2001-02 to 2002-03 total employees were four and from 2003-04 to 2004-05 employees were five. The milk procurement had increased by 130.66 percent over ten years i.e., from 1,49,636.05 liters in 1995-96 to 3,45,899.72 liters in 2005-06. (Table 4.3)

b) Financial indicators

The financial performance of the societies could be judged by examing the trend of various financial indicators such as share capital, total sales value of milk, total assets, total liabilities, net worth, fixed assets, net profits. The financial indicators are presented in table 4.4. The ten years data from 1995-95 to 2005-06 were compared in the study.

The share capital of the area-I had increased from Rs. 2,020.00 in 1995-96 to Rs. 8,970.00 in 2004-05. Total sales value of milk too showed constant increase every year. i.e., from 10,47,452.32 in 1995-96 to 34,58,997.20 in 2004-05. The total assets had increased from Rs. 48,183.10 (1995-96) to 2,69,710.00 (2005-06). Total liabilities also increased from Rs. 32,487.55 to 2,11,277.59 along with total assets and sales.

Fixed assets, as part of the total assets, also increased from Rs. 36,234.13 to Rs. 1,82,853.43 during the period from 1995-96 to 2005-06. The net worth has positive value with an increasing trend. Net profits had increased every year from Rs. 35,872.40 in 1995-96 to Rs. 2,05,667.03 in 2005-06.

C) Growth rate analysis

Physical indicators

The compound growth rates of different physical indicators are presented in table 4.5. The growth rate of membership showed highly significant with 16.57 percent and the total members of employees also noticed at high significance growth rate with 12.20 percent. The growth rate with respect to total milk procured by area-I showed highly significant at 8.05 per cent.

Table 4.3. Physical performance indicators of milk producer's cooperative societies in Area-I from 1995-96 to 2004-05

Years	Total Membership	Total no of employees	Total milk procured (lakh liter)
1995-96	135	2	1.50
1996-97	160	2	2.44
1997-98	196	2	2.13
1998-99	212	3	2.19
1999-00	224	3	2.46
2000-01	274	3	2.85
2001-02	354	4	2.84
2002-03	428	4	3.19
2003-04	478	5	3.39
2004-05	512	5	3.46
% Increase over ten years	279.25	150.00	130.66

Table 4.4. Financial performance indicators of milk producer's cooperative societies in area-I from 1995-96 to 2004-05

(In Rupees)

Years	Share capital	Total sales	Total assets	Total liabilities	Net worth	Fixed assets	Net profit
1995-96	2020.00	1047452.32	48183.10	32487.55	15695.55	36234.13	35872.40
1996-97	2170.00	1709522.48	58796.20	40154.32	18641.88	41219.25	64749.73
1997-98	3680.00	1813650.00	76985.20	55872.54	21112.66	53274.10	68898.40
1998-99	4850.00	1861177.00	95632.25	61465.55	34166.70	64831.11	71610.50
1999-00	5890.00	2210857.36	112143.21	75879.25	36263.96	68193.57	93152.69
2000-01	6330.00	2564821.32	115942.26	91802.50	24139.76	70711.04	107347.64
2001-02	6520.00	2698605.23	124143.05	90491.82	33651.23	80817.08	123662.25
2002-03	7450.00	3030520.76	159607.87	132717.21	26890.66	94043.74	150609.49
2003-04	8400.00	3385269.87	225644.74	185259.32	40385.42	136294.01	189712.26
2004-05	8970.00	3458997.20	269710.00	211277.59	58432.41	182853.43	205667.03

Table 4.5. Compound Growth Rate of selected physical and financial indicators of Area-I

Sl no	Indicators	Area-I
I Physical indicators		
1	Total members	16.57** (12.48)
2	Total number of employees	12.20** (10.39)
3	Total milk procured (liters)	8.05** (6.94)
II Financial indicators		
1	Share capital	18.05** (17.61)
2	Total sales value of milk	12.45** (18.06)
3	Total assets	19.49** (7.95)
4	Total liabilities	22.31** (8.04)
5	Net worth	11.53** (3.80)
6	Fixed assets	17.41** (6.11)
7	Net profit	19.17** (12.48)

Note : Figures in the parentheses indicate 't' value
** Significance at 1 percent level

Financial indicators

The growth of share capital was highly significant at 18.05 percent with regard to the growth of total sales value of milk, total assets, total liabilities, net worth, fixed assets and net profit were found highly significant with 12.45 percent, 19.49 percent, 22.31 percent, 11.53 percent, 17.41 percent, and 19.17 percent respectively. (Table 4.5)

4.3.2. Performance of milk producer's societies in area-II

a) Physical indicators

In societies of area-II the membership has drastically increased by 428.35 percent over ten years i.e., from 67 in 1995-96 to 354 in 2004-05 where as, the number of employees remains same (two) from 1995-96 to 1998-99. Later it was increased to three employees, till 2003-04 it remains same. In 2004-05 the total no of employees increased from three to four. The total milk procured increased by 65.54 percent over ten years i.e., from 1,48,348.48 liters in 1995-96 to 2,45,487.76 liters in 2004-05. (Table 4.6)

b) Financial indicators

The financial indicators are presented in table 4.7. Ten years comparison from 1995-96 to 2004-2005 was made using different financial indicators as mentioned above. The share capital had increased (3.07 times) from Rs 1,880.00 to Rs 5,780.00 during ten years period. The value of sales showed increasing trend from Rs 10,38,439.33 in 1995-96 to Rs 24,54,877.63 in 2004-05 (2.36 times). The total assets and total liabilities had increased along with the business. Net worth showed positive trend with marginal increase. Fixed assets increased from Rs 20,651.30 in 1995-96 to Rs 1,14,586.73 in 2004-05. Net profit also increased by 2.44 times form Rs 58,264.14 to Rs 1,42,446.50 over the period of ten years.

c) Growth rate analysis

Physical indicators

The compound growth rates of different physical indicators are presented in table 4.8. The growth rate of membership was highly significant at 20.17 percent, with respect to the total numbers of employees and total milk procurement the growth rate noticed at significance with 7.75 percent and 4.21 percent respectively.

Financial indicators

The growth with respect to share capital was high in area-I and with respect to total sales value of milk, total assets, total liabilities, net worth, fixed assets the growth rate noticed at highly significant at one percent but with regard to net profit the growth rate was significant at 5 percent. (Table 4.8).

4.4. Analysis of cost and returns structure of milk production

4.4.1. Cost and returns structure in milk production in area-I

Details on cost, returns and input utilization pattern in milk production are presented in the table 4.9. It is apparent from the table that total cost incurred in rearing of a milch animal was Rs.16, 655.90.

Among the different items of variables costs, use of dry fodder (19.00 percent) and concentrates (26.43 percent) contributes high percentage of the total cost. Next to the dry fodder and concentrates labour charges contributes high percentage of the total cost. Though more percentage of human labour consists in the total cost, hired (2.10 percent), family labour (26.41 percent). It shows positive attitude towards dairy enterprise since it provides employment to the agrarian world.

For the gross returns 97.57 percent contributes from milk production amounted to Rs. 30,116.76 and 3.32 percent comes from dung production amounted to Rs.748.23. Net returns were Rs. 14,209.09 and returns per rupee is Rs.1.85.

4.4.2. Cost and returns structure in milk production in area-II

Details on cost, returns and input utilization pattern in milk production are presented in the table 4.10. In area-II, per animal rearing cost worked out to be Rs 14,943.44. Major

Table 4.6. Physical performance indicators of milk producer's cooperative societies in Area-II from 1995-96 to 2004-05

Years	Total Membership	Total no of employees	Total milk Procured (lakh liter)
1995-96	67	2	1.48
1996-97	97	2	1.89
1997-98	117	2	1.78
1998-99	136	2	2.06
1999-00	170	3	1.85
2000-01	232	3	2.04
2001-02	270	3	2.06
2002-03	293	3	2.10
2003-04	321	3	2.31
2004-05	354	4	2.45
% Increase over ten years	428.35	100.00	65.54

Table 4.7. Financial performance indicators of milk producer's cooperative societies in area-II from 1995-96 to 2004-05

(In Rupees)

Years	Share capital	Total sales	Total assets	Total liabilities	Net worth	Fixed assets	Net profit
1995-96	1880.00	1038439.33	32451.52	23652.96	8798.56	20651.30	58264.14
1996-97	1985.00	1328586.56	45365.69	34258.23	11107.46	26584.25	75859.00
1997-98	2058.00	1521006.36	64591.20	55896.25	8694.95	31482.25	75084.81
1998-99	2190.00	1759272.32	78935.28	68968.65	9966.63	33652.02	81747.80
1999-00	2654.00	1669662.12	95684.32	76235.49	19448.83	48263.58	77293.65
2000-01	3240.00	1840327.60	105473.25	78568.25	26905.00	59648.29	80600.00
2001-02	3720.00	1957613.11	152605.32	113896.23	38709.09	68298.18	52619.84
2002-03	4540.00	1998224.33	158463.74	127495.63	30968.11	75621.02	75076.20
2003-04	5280.00	2197257.46	167582.90	132554.28	35028.62	89354.98	120806.64
2004-05	5780.00	2454877.63	186524.35	146524.28	40000.07	114586.73	142446.50

Table 4.8. Compound Growth Rate of selected physical and financial indicators of Area-II

Sl no	Indicators	Area-II
I Physical indicators		
1	Total members	20.17** (23.84)
2	Total members of employees	7.75** (5.17)
3	Total milk procured (liters)	4.21** (4.71)
1	Share capital	14.75** (10.24)
2	Total sales value of milk	8.23** (10.91)
3	Total assets	21.00** (16.54)
4	Total liabilities	21.07** (14.93)
5	Net worth	21.71** (6.59)
6	Fixed assets	20.39** (12.35)
7	Net profit	6.26* (2.04)

Note : Figures in the parentheses indicate 't' value
** Significance at 1 percent level
* Significance at 5 percent level

constitutes of costs were human labour (34.24 percent) and dry fodder (26.19 percent). In the area-II also constitutes of costs was dominated by the human Labour.

Milk production constitutes for gross returns was major (97.39 percent) amounted of Rs. 24,385.13 followed by dung production (2.61 percent) amounted of Rs 654.23. Net returns per animal amounted to Rs. 10,095.92 and corresponding returns per rupee of investment is rs.1.68.

4.5. Impact of milk production on income and employment.

The net income from member and non-member respondents of the study area was calculated (table 4.11 and 4.12).

Area-I

In the area-I members earn Rs 39,945.00 as total income and employment generation was 315.07 days out of which 36.96 percent contributed by men labour and 63.04 percent contributed by women labour. And non-members earn Rs 25,425.00 as total income and employment generation was 250 days out of which 35.60 percent men and 64.40 percent women labour employment.

The employment generated by the cooperative members was highest followed by non-cooperative members, which were 315.07 days and 250.00 days respectively.

Area-II

In the area-II also Dairy members earned more income i.e., Rs 23,862.42 where as Rs 18,841.60 were earned by non-dairy cooperative members.

Here also, employment generated by the cooperative members was more (279.96 days), when compare to non-cooperative members (213.62 days).

4.6. Opinions of the respondents on the performance of Milk producer's cooperative societies and on the Problems of dairy farming

a) Opinion of members regarding problems faced in milk production

The opinion survey conducted regarding the problems faced by respondents in milk production are presented in table 4.13 and table 4.14. Opinions of members were collected on five different aspects and measured in three contingent scales as highly severe, severe and less severe.

Area-I

Members of area –I responded accordingly on different aspects. Regarding the availability of fodder 23.33 percent of members were facing highly severe problem, 46.67 percent of members expressed as severe and 30.00 percent members opined a less severe. The problem of feed availability is less when compared to fodder. Highly severe, severe and less severe scored as 6.67 percent, 16.67 percent and 76.67 percent respectively. The availability of good transportation facility stands first in the dairy sector, only 3.3 percent respondents expressed as highly severe, 6.67 percent of members expressed as severe and remaining 90.00 percent members expressed as less sever. Lack of demand for the milk is of less severe which contributes 3.3 percent farmers expressed as highly severe, 43.33 percent farmers opinioned as severe and 53.33 percent farmers opined as a less severe. When comes to the veterinary services the respondents opined as follows, 10.00 percent of highly severe, 36.67percent of severe and 53.33 percent of less severe.

Area –II

Members of area-II were not free from fodder problem since 30.30 percent and 56.67 percent of the members expressed as highly severe and severe. Only 13.33 percent of the members were expressed as less severe. They were facing few problems in the availability of feed, 16.67 percent of the members conveyed as highly severe, 26.67 percent of the members conveyed as severe and 56.67 percent of the members opined as less severe. In the area-II also the problem of transportation facility is meager, an only 10.00 percent and

Table 4.9. Per animal input utilization cost and return structure in milk production in Area-I

Sl. No .	Particulars	Units	Physical	Value (Rs)	% Per annum
1	Input/year				
a	Dry fodder	Ton	1.90	3164.11	19.00
b	Green fodder	Ton	4.92	1625.00	9.76
c	Concentrate	Qtl	11.39	4401.50	26.43
d	Human Labour				
i	Hired	Mds			
	Men		3.51	210.57	1.26
	Women		3.51	140.38	0.84
ii	Family	Mds			
	Men		45.26	2715.60	16.30
	Women		42.12	1684.62	10.11
e	Miscellaneous	Rs		130.55	0.78
f	Interest on Variable cost @ 8.5 %	Rs		1976.27	11.87
	Total variable cost	Rs		16048.50	96.36
g	Depreciation	Rs		607.30	3.64
	Total cost	Rs		16655.90	100.00
2	Returns/year				
a	Milk production/day	Lts	10.53		
b	Lactation period	Days	270.33		
c	Milk production	Lts	2846.57	30116.76	97.57
d	Dung production	CL	3.47	748.23	2.43
3	Gross returns	Rs		30864.99	100.00
4	Net returns	Rs		14209.09	
5	B: C ratio	Rs		1.85	
6	Cost/ltr	Rs		10.58	

Table 4.10. Per animal input utilization and cost and return structure in milk production in Area-II

Sl. No.	Particulars	Units	Physical	Value (Rs)	% Per annum
1	Input/year				
a	Dry fodder	Ton	2.35	3913.29	26.19
b	Green fodder	Ton	3.26	1075.80	7.20
c	Concentrate	Qtl	5.26	1998.80	11.38
d	Human Labour				
i	Hired	Mds			
	Men		2.94	176.60	1.18
	Women		1.26	50.40	0.39
ii	Family	Mds			
	Men		47.09	2825.80	18.91
	Women		56.00	2240.00	14.99
e	Miscellaneous	Rs		123.89	0.83
f	Interest on Variable cost @ 8.5 %	Rs		1951.30	13.06
	Total variable cost	Rs		14355.89	96.07
g	Depreciation	Rs		587.56	3.93
	Total cost	Rs		14943.44	100.00
2	Returns/year				
a	Milk production/day	Lts	8.67		
b	Lactation period	Days	265.84		
c	Milk production/year	Lts	2304.83	24385.13	97.39
d	Dung production/year	CL	2.65	654.23	2.61
3	Gross returns	Rs		25039.36	100.00
4	Net returns	Rs		10,095.92	
5	B: C ratio	Rs		1.68	
6	Cost/ltr	Rs		10.58	

Table 4.11. Annual income and employment generated per household from members and non-members In Area-I

Particulars	Source of income	Total income (Rs.)	Employment (In days)		
			Men	Women	Total
Dairy cooperative members	Dairy	39945.00	116.45 (36.96)	198.62 (63.04)	315.07 (100.00)
Non dairy cooperative members	Dairy	25425.00	89.00 (35.60)	161.00 (64.40)	250.00 (100.00)

Table 4.12. Annual income and employment generated per household from members and non-dairy members in area-II

Particulars	Source of income	Total income (Rs.)	Employment (In days)		
			Men	Women	Total
Dairy cooperative members	Dairy	23862.42	106.18 (37.93)	173.78 (62.07)	279.96 (100.00)
Non dairy cooperative members	Dairy	18841.60	67.39 (31.55)	146.23 (68.45)	213.62 (100.00)

Table 4.13. Problems in milk production of area-I

Sl. No.	Particulars	Highly severe	Severe	Less severe
1	Fodder	7 (23.33)	14 (46.67)	9 (30.00)
2	Feed	2 (6.67)	5 (16.67)	23 (76.66)
3	Transport	1 (3.33)	2 (6.67)	27 (90.00)
4	Lack of demand	1 (3.34)	13 (43.33)	16 (53.33)
5	Vet. Services	3 (10.00)	11 (36.67)	16 (53.33)

Note: Figures in the parenthesis indicate percentage to the total

Table 4.14 Problems in milk production of area-II

Sl. No	Particulars	Highly severe	Severe	Less severe
1	Fodder	9 (30.00)	17 (56.67)	4 (13.33)
2	Feed	5 (16.66)	8 (26.67)	17 (56.67)
3	Transport	3 (10.00)	9 (30.00)	18 (60.00)
4	Lack of demand	2 (6.67)	19 (63.33)	9 (30.00)
5	Vet. Services	11 (36.67)	17 (56.66)	2 (6.67)

Note: Figures in the parenthesis indicate percentage to the total

30.00 percent member expressed as highly severe and severe and remaining 60.00 percent members expressed as less severe. 6.67 percent, 63.33 percent and 30.00 percent responded members expressed as highly severe, severe and less severe respectively for the lack of demand. Regarding the veterinary services 36.67 percent members conveyed as highly severe 56.67 percent members conveyed as sever and only 6.67 percent expressed as less severe.

b) Opinions of members about extending of services by milk producers cooperative societies

The opinion survey; conducted regarding extending of services by Mpc's are presented in table 4.15. and table 4.16. Opinion of members were collected on ten different aspects and measured in three contingent scales as highly satisfactory, satisfactory and not satisfactory.

Area –I

The survey indicated that 46.67 percent of members expressed as highly satisfaction for the supply of inputs, remaining 53.33 percent expressed as satisfaction and no member expressed as not satisfaction. Regarding correct weighment 70.00 percent respondents were expressed as highly satisfactory, 30.00 percent expressed as satisfactory and no member expressed as not satisfactory. Majority (60.00 percent) of the sample respondents were not satisfied with better prices, 36.67 percent said as satisfied and remaining 3.33 percent said as highly satisfied, majority of them (70.00 percent) were satisfied with grading. Loan for purchase of animals was not at all satisfactory because this activity were not performed by the society, the farmers opinioned 43.33 percent of the respondents expresses as not satisfactory, 33.33 percent farmers as satisfactory and 23.33 percent farmers as highly satisfactory. In extending of regular payments and relationship with Mpc's the majority of the respondents were satisfied which accounts 73.33 percent and 70.00 percent respectively. With regard to the training the majority of the farmers were of not satisfied (76.67 percent), no farmer/respondent expressed as highly satisfactory (0.00 percent), only 23.33 percent of the members opined as satisfied. With regard to the Market news 56.67 percent members expressed as not satisfied, 43.38 percent members opinioned as satisfied and no single farmer expressed as highly satisfied (0.00 percent).

Area –II

Regarding the supply of inputs, 10.00 percent of members expressed their highly satisfaction, 66.67 percent and 23.33 percent, expressed as satisfactory and not satisfactory respectively. 13.33 percent respondents were expressed as highly satisfactory in correct weighment and remaining 63.33 percent and 23.33 percent members expressed as satisfactory and not satisfactory respectively. Majority (63.66 percent) of the sample respondent were not satisfied with correct weighment, 36.67 percent were satisfied. And no respondent expressed as highly satisfied with better prices. Majority of the respondents (63.33 percent) were satisfied with grading. In the area-II also loan to purchase of animals was not at all satisfied (60.00 percent), only 6.67 percent sample respondents expressed as highly satisfied. In regular payments and relationship with Mpc's the respondents were satisfied which accounts 63.33 percent and 70.00 percent respectively. Training to members were, 90.00 percent of the members expressed as not satisfied, only 10.00 percent members expressed as satisfactory and no member (0.00 percent) has expressed as highly satisfactory. Protection consumer's interest and market news no farmer has expressed as highly satisfied, 43.33 percent and 26.67 percent farmers were expressed s satisfactory respectively. The majority of the farmers expressed as not satisfactory.

c) Opinions of members regarding the functioning of milk producers cooperative societies

In table 4.17 and table 4.18 the opinion survey were gathered regarding functioning on Mpc's. Opinion collected on ten different aspects and measured in three contingent scales as highly satisfactory, satisfactory and not satisfactory.

Area –I

In regularity of board meetings of members expressed as satisfactory (56.67 percent), highly satisfactory (30.00 percent), and only 13.33 percent members expressed as

Table 4.15. Opinions of members regarding extending of services by milk Producer's cooperative societies of Area-I

Sl. No.	Services	Highly Satisfactory	Satisfactory	Not Satisfactory
1	Supply of input	14 (46.67)	16 (53.33)	0 (0.00)
2	Correct weighment	21 (70.00)	9 (30.00)	0 (0.00)
3	Better prices	1 (3.33)	11 (36.67)	18 (60.00)
4	Grading (fat %)	6 (20.00)	21 (70.00)	3 (10.00)
5	Loan to purchase milch animals	7 (23.34)	10 (33.33)	13 (43.33)
6	Regular payments	6 (20.00)	22 (73.33)	2 (6.67)
7	Relationship with MPC's	6 (20.00)	21 (70.00)	3 (10.00)
8	Training to members	0 (0.00)	7 (23.33)	23 (76.67)
9	Protecting consumers interest	2 (6.67)	17 (56.67)	11 (36.66)
10	Market news	0 (0.00)	13 (43.33)	17 (56.67)

Note: Figures in the parentheses indicate percentage to the total

Table 4.16. Opinions of members regarding extending of services by milk producer's cooperative societies of Area-II

Sl. No.	Services	Highly Satisfactory	Satisfactory	Not Satisfactory
1	Supply of input	3 (10.00)	20 (66.67)	7 (23.33)
2	Correct weighment	4 (13.33)	19 (63.33)	7 (23.34)
3	Better prices	0 (0.00)	11 (36.67)	19 (63.33)
4	Grading (fat %)	3 (10.00)	19 (63.33)	8 (26.67)
5	Loan to purchase Milch animals	2 (6.67)	10 (33.33)	18 (60.00)
6	Regular payments	4 (13.33)	19 (63.33)	7 (23.34)
7	Relationship with MPC's	5 (16.67)	21 (70.00)	4 (13.33)
8	Training to members	0 (0.00)	3 (10.00)	27 (90.00)
9	Protecting consumers interest	0 (0.00)	13 (43.33)	17 (56.67)
10	Market news	0 (0.00)	8 (26.67)	22 (73.33)

Note: Figures in the parenthesis indicate percentage to the total

Table 4.17. Functioning of the milk producers cooperative societies of Area-I (opinions)

Sl. No.	Services	Highly Satisfactory	Satisfactory	Not Satisfactory
1	Regularity of board meeting	9 (30.00)	17 (56.67)	4 (13.33)
2	Timing of decisions	2 (6.66)	22 (73.33)	6 (20.00)
3	Supply of information of board	5 (16.67)	10 (33.33)	15 (50.00)
4	Executing decisions	4 (13.33)	14 (46.67)	12 (40)
5	Participation of directors	6 (20.00)	19 (63.33)	5 (16.67)
6	Commitment of directors to the board decisions	9 (30.00)	13 (43.33)	8 (26.67)
7	Annual plans or decisions taken by the societies	6 (20.00)	20 (66.67)	4 (13.33)
8	Experienced staff	10 (33.33)	15 (50.00)	5 (16.67)
9	Maintenance of accounts	8 (26.67)	20 (66.67)	2 (6.67)
10	Technical advice	1 (3.33)	12 (40.00)	17 (56.67)

Note: Figures in the parenthesis indicate percentage to the total

not satisfactory. There were 73.33 percent of the respondents expressed as satisfied with the timing of decisions. But 50.00 percent of the same members were of not satisfied with the supply of information of board. The executing of the decisions were have 46.67 percent satisfied, 40.00 percent not satisfied and only 13.33 percent highly satisfied. 63.33 percent and 43.33 percent of the respondents expressed satisfactory for the participation of directors and commitment of directors to the board decisions. The annual plans taken by the societies had less highly satisfied (20.000 percent) and not satisfied (13.33 percent) group of respondents when compare to the satisfied (66.67 percent) respondents. Both experienced staff and maintenance of accounts were of in positive attitude accounts 50.00 percent and 66.67 percent respectively. It is of poor reply by the respondents with the technical advice; only 3.33 percent highly satisfactory, 40.00 percent satisfactory and 56.67 percent were not satisfactory.

Area –II

Majority of members for the regularity of board members expressed as satisfactory (70.00 percent), not satisfactory (30.67 percent) and only 3.33 percent of highly satisfactory. There were 70.00 percent of respondents expressed satisfied with the timing of decision, 30.00 percent expressed as not satisfied and no member said as highly satisfied (0.00 percent). Majority of the members (76.67 percent) expressed as not satisfactory for the supply of information of board. The executing of the decision were of 53.33 percent satisfied, 36.67 percent not satisfied and only 10.00 percent highly satisfied. 53.33 percent and 43.33 percent of the respondents expressed satisfactory for the participation of directors and commitment of directors to the board decisions. The annual plans taken by the societies had minimum highly satisfied (10.00 percent) and satisfied (43.33 percent) group of respondents when compare to the not satisfied (46.67 percent). Both experienced staff and maintenance of accounts were of in positive attitude. It is of poor reply by the respondents with the technical advice; only 6.67 percent were expressed as highly satisfactory, 23.33 percent satisfactory and 70.00 percent were not satisfactory.

Table 4.18. Functioning of the milk producer's cooperative societies of Area-II (opinions)

Sl. No.	Services	Highly Satisfactory	Satisfactory	Not Satisfactory
1	Regularity of board meeting	1 (3.33)	21 (70.00)	11 (36.67)
2	Timing of decisions	0 (0.00)	21 (70.00)	9 (30.00)
3	Supply of information of board	2 (6.67)	5 (16.67)	23 (76.67)
4	Executing decisions	3 (10.00)	16 (53.33)	11 (36.67)
5	Participation of directors	1 (3.33)	16 (53.33)	13 (43.33)
6	Commitment of directors to The board decisions	4 (13.33)	13 (43.33)	13 (43.33)
7	Annual plans or decisions taken by the societies	3 (10.00)	13 (43.33)	14 (46.67)
8	Experienced staff	8 (26.67)	10 (33.33)	12 (40.00)
9	Maintenance of accounts	14 (46.67)	14 (46.67)	2 (6.67)
10	Technical advice	2 (6.67)	7 (23.33)	21 (70.00)

Note: Figures in the parenthesis indicate percentage to the total

5. DISCUSSION

The results of the investigation presented in the previous chapter are discussed in this chapter. The main focus here is to throw light on some of the causes responsible for major trends observed. Consistent with the objectives of the study, the results are discussed under the following heads.

5.1 General characteristics of the respondents.

5.2 Size of the sample farmers and distribution of milch animals

5.3 Performance of selected milk producer's cooperative societies

5.4 Analysis of cost returns structure of milk production

5.5 Impact of milk production on income and employment

5.6 Opinions of members of the study area.

5.1 General characteristics of the respondents.

The results on the general information of the respondents with respect to their age, family size, education level, and land holding are discussed. The average age of the farmers was relatively high in the area-I than that of in area-II.

The average size of the family was also relatively higher in the area-I than that of in area-II. The average size of the family in area-I was 9.37 members and in area-II it was 7.40 members. The education level of the respondent families differed among the areas. How ever, most of the respondents were of primary and secondary level of education. Only 20 percent in area-I and 26.67 percent in area-II were illiterate.

The average size of the holdings in area-I was 5.07 ha while, it was 4.07 ha in area-II.

5.2 Size of the sample farmers and distribution of milch animals.

Table 4.2 revealed that 120 farmers were selected in Kolar milk union and the entire area was divided in to two different areas as area-I and area-II. Out of 120 farmers, 60 farmers were members of milk producer's cooperative society and 60 farmers were non-members of milk producer's cooperative society.

In area-I, the members of societies possessed 48.78 percent of buffaloes and 51.22 percent of cows, where as non-members of the area had 50.77 percent of buffaloes and 49.23 percent of cows, which were low when compared to members. In area-II, the members had 45.07 percent of buffaloes and 54.93 percent of cows, where as, the non-members possessed 51.28 percent of buffaloes and 48.72 percent of cows. It was also observed that the members of the both the area had more milching animals followed by non-members and most importantly from both the areas had more cows than buffaloes. It was clear that farmers would maintain more of cows than buffaloes in both the areas because cows give more milk yield which results in higher returns to the farming community.

5.3 Performance of selected milk producer's cooperative societies

a) Physical indicators

The membership in area-I increased year after year (table 4.3). The membership increased by 279.25 percent over ten years i.e., from 1995-96 to 2004-05. More and more people became members with increased dairy farming and for easy marketing of milk through societies.

In area-II, very less members were in the year 1995-56 but later at a constant rate the total membership increased (table 4.6). The membership had increased by 428.35 percent over ten years i.e., from 1995-96 to 2004-005. When we compare area-II with area-I the total membership has been tremendously increased in area-II. In area-I along with the increase in the number of members and volume of procurement of milk the number of employees also increased from two in 1995-06 to five in 2004-05. But it has not happened in area-II as like as

in area-II, in area-II, the number of employees i.e, " two" remained the same from 1995-96 to 1998-99 and again from the year 1998-99 to 2003-04 the total number of employees remained the same i.e, three. Later in the year 2004-05 it increased to four. With respect to the milk procurement the area-I stands first over the years when compare to the area-II. In area-I, the procurement of milk increased by 130.66 percent over ten years i.e., from 1995-96 to 2004-05, which showed an increase in procurement every year except in the year 2001-02. Where as in area-II, over the years we clearly noticed from the data (table 4.6) that the procurement did fluctuate in the year 1997-98 and 1999-00. except these two years the procurement rate showed an increasing state. Even though the area-II was potential in milk production and having high rate of membership increase over the years the milk procurement was fluctuated because other than through societies the farmers opted to market their milk in different channels like private milk marketing agencies i.e., researcher experienced in the interaction that due to the private agency named as "Gokula milk" was established during that period but after some time farmers rejected that because the payments from the agency were of poor performance. There fore finally farmers decided again to go back to cooperative societies.

b) Financial indicators

Table 4.4 revealed that, the share capital of area-I increased 4.44 times over the Period of time from 1995-96 to 2004-05 and this actually reflected on the societies increase in membership and the total sales increased by 3.30 times with increased production and procurement of milk by the society on account of the services like input supply, veterinary services, better prices etc. total assets and total liabilities increased along with the business of the society. Net worth showed an increasing trend and it increased by 3.72 times from 15,695.55 in 1995-96 to Rs 58432.41. Fixed assets of area-I also increased over the years with the purchase of equipments required, construction of pucca building, and fixed deposits. Net profits increased marginally every year from Rs 58,264.14 in 1995-96 to Rs 2,05,667.03 in 2004-05 and accounted for an increase of 3.52 times.

Area-II did not show much increase in share capital compared to area-I because the members were less. The total sales had increased along with the total assets and liabilities. Over the years fixed assets showed an increasing rate because over the years the developmental works took place and also the value of fixed assets increased. As the total sales increased every year along with the share capital and total assets, there fore the net profit increased marginally from Rs 35,872.40 in 1995-96 to Rs 1,42,446.50 in 2004-05 and accounted for an increase of 3.01 times. The present findings are supported by the reports of Jithendra Kumar (1990) who reported that the societies which were above the average level showed better performance than the below average level societies.

The societies in area-I and area-II were equally good in their functioning. The physical and financial indicators showed increasing trend over time, except the number of employees working in the societies. The societies which were above the average level (area-I) had shown better performance. They showed better because in area-I the members were well aware regarding the good dairy practices and improved method of dairy rearing through training to the members (table 4.15) and also they were following the procedures which was given by the technical persons through technical advise (table 4.17). In addition to the above the transportation facilities were better for the area-I than compared to the area-II.

c) Growth analysis

Physical indicators

In area-I the compound growth rates of physical indicators like (table 4.5 and 4.8) the total membership and total milk procured were highly significant at 16.57 percent and 8.05 percent. the growth of employers were also found highly significant at 12.20 percent.

In the area-II also we found highly significant growth rate in all the indicators like total members (20.17 percent), total employees (7.75 percent) and milk procured (4.21 percent)

All the indicators in area-I and area-II were found highly significant growth rates because every year all the indicators were increasing along with the increased business.

Financial indicators

The compound growth rate of the share capital for area-I showed 18.05 and for area-II, it was 14.75 percent both were highly significant. The share capital increased along with the membership. The total sales value of milk showed a growth rate of 12.45 percent and 8.23 percent for area-I and area-II, respectively.

The growth of total assets, total liabilities, net worth and fixed assets were highly significant in both the area-I and area-II. In net worth of area-I the growth rates were low (11.53 percent) when compared to area-II (21.71 percent). The net profits showed a highly significant growth for area-I at 19.17 percent where as, area-II showed a significant growth at 6.26 percent (significant at 5 percent level).

Physical and financial indicators of all the societies in the study area shows significant hence accept the hypotheses.

5.4 Cost return structure of milk production

Table 4.9 and table 4.10 revealed that, concentrates and dry Fooder followed by Labour charges constitutes more in milk production. In area-I the total value expenditure of concentrates was 26.43 percent followed by dry fodder (19.00 percent). In area-I use of concentrates (26.43 percent) were more than in area-II (11.38 percent) because the supply of inputs were of poor in the area-I when compare to area-II (table 4.15 and 4.16).

In case of human Labour both the areas were consuming more, the present findings are supported by the reports of Reddy et al (2000) who reported that dairy farming created 45 percent of extra work as against mixed farming and 92 percent of extra work as compared to arable farming. The involvement of Human Labour were more in area-II 35.47 percent compared to the area-I i.e, 28.51 percent (hired 0.84 percent, family 10.11 percent) because in the area-I few large farmers were using chaff cutters for cutting the green fodder and also few large farmers were using Milching machines for milking. The miscellaneous was 0.78 percent in area-I and 0.88 percent in area-II.

The total cost were noticed high in the area-I i.e., Rs 16,655.90 and in area-II it was less with Rs 14,943.44 because it is obvious that in the area-I the milk production (10.53 ltr/day) as well as net returns (Rs14, 209.09/ animal/ year) were more when compared to area-II. This clearly indicated that in both area-I and area-II the dairy enterprise gives better returns i.e., returns/rupee of Rs 1.85 and Rs 1.68 respectively.

When comes to the second hypotheses the returns from dairy enterprise are considerably high in area-I but in the area-II net returns are less when compare to area-I hence accept the hypotheses for area-I.

5.5 Impact Of milk production on income and employment

Area-I

Table 4.11 revealed that, the income earned by member respondents was high (Rs 39,945.00) when compared to non-member respondents (Rs 25,425.00). The employment generation annually from member respondents was 315.07 man-days out of which 36.96 percent were men and 63.04 percent were women. In both total income and employment generation member respondents stands first followed by non-members.

Area-II

Table 4.12 also revealed that, the income as well as employment generated from members showed high compared to non-members.

The above figures from both area-I and area-II revealed that the members of cooperative societies were got high income as well as high employment than non members hence accept the hypotheses for area-I but not for area-II, because members who had business with the cooperative societies got better facilities, demand, easy marketing facilities, cattle feed supply, artificial insemination activities, technical assistance programmes, training and extension activities etc. in the mean time from both the areas dairy enterprise gave high employment days hence accept the hypothesis for both the area-I and area-II. The present

findings are supported by the reports of Sharma (2004) who reported that dairy enterprise provided maximum employment of 338 man-days and crop farming provided 219 man-days.

5.6 Members Opinion

a) Problems in milk production

Table 4.13 and 4.14 revealed that the range of severity and highly severity of fodder in area-II was more compared with the area-I. 76.67 percent of the respondents said as less severe for feed in area-I but 56.67 percent of the respondents expressed as less severe in area-II. Still the transportation facility remains poor in the area-II as a result 10.00 percent and 30.00 percent of the respondents expressed as highly severe and severe where as in area-I only 3.33 percent and 6.67 percent were expressed as highly severe and severe. The veterinary services in area-I were much better than area-II, In area-II majority of the respondents expressed as severe with 56.67 percent where as in area-I only 36.67 percent were expressed as severe.

The above figures reveled that the need exist to give importance to enhance the facilities of veterinary services by establishing more veterinary hospitals and transportation by providing good roads and vehicles in area-II. Where as in both area-I and area-II respondents expressed their dissatisfaction over demand for milk.

b) Opinions of members regarding extending of services by milk producers cooperative societies

In area-I table 4.15 reveled that, the majority of members expressed that they were highly satisfied with the supply of inputs because all the inputs that required by the members supplied by the societies. Majority (60.00 percent) of the members were satisfied with the grading and correct weighment. About the better prices majority of the respondents expressed as not satisfied because the present prices given by the government was not satisfied by the members. Loan to purchase Milch animals were completely deleted from the societies activities there fore 43.33 percent of the respondents expressed as not satisfied. Majority of the members were found good relation with the Mpc's (70.00 percent) because here the understanding between the members and Mpc's personals were good. When comes to the market news, majority of the farmers (56.67 percent) expressed as a not satisfactory and no single member expressed as highly satisfactory because all most all the Mpc's in the study area failed to convey the day to day on going market news to the members. The similar cases were also existed in training to members. Here also no single respondent expressed as highly satisfactory, 23.33 percent said as satisfactory and remaining 76.67 percent were said as satisfactory because in the study area-I the societies were not giving proper training programmes to the members.

In area-II table 4.16 reveled that only 10.00 percent were highly satisfied, 66.67 percent were satisfied and remaining 23.33 percent were not satisfied with the supply of inputs. In the area-II also majority of the members (63.33 percent) were expressed as satisfied for correct weighment. And when comes to the better prices more number of respondents expressed dissatisfaction and expressed not satisfied (63.33 percent), since loan activities were not carried out by the societies more members expressed as not satisfied for loan to purchase Milch animals. Majority of members expressed not satisfaction over the services of protecting consumer interest, market news and training to members. Relationship with Mpc's was good in the area-II, which was indicated by 70.00 percent expressed as satisfied.

When we compare the services extended by the societies in area-I with the services extended by the societies in area-II majority of the services, which gave satisfaction to area-I, remains same in area-II but the percentage changes in area-II. In the area-I the supply of input no farmer had a opinion of not satisfaction but in area-Ii we noticed 23.33 percent of the farmers expressed as not satisfied the main reason behind this was lot of contradictories existed between members and MPCS. The MPCS personals complaining against members of not paying input charges correctly so they have disconnected in extending of inputs to those members, and also few societies in the area-II were not issuing inputs. The members of those societies were purchase from towns. In the area-II 23.33 percent of the respondents expressed as not satisfied with correct weighment because many of the societies were not having weighing machines where as in the area-I no single member expressed as not

satisfied. When comes to better prices both area-I and area-II respondents were not happy i.e., 60 percent in area-I and 63.33 percent in area-II were expressed as not satisfied. Between area-I and area-II we did not find much difference in grading, loan to purchase milch animals, relationship with Mpc's, training to members and market news (table 4.15 and 4.16) but we found difference in regular payments. In the area-I 6.67 percent of the respondents opined as not satisfied with regular payments and in area-II 23.33 percent respondents opined as not satisfied. More number of respondents in area-II expressed as not satisfied this happened because the management of the societies was not as good compared in area-II so we find the variations in paying of money to the members.

c) Opinions of members regarding the functioning of milk producer's cooperative societies

The members of both the area-I and area-II expressed their satisfaction over the development of dairy in their respective areas (table 4.17 and 4.18). Except technical advice and supply of information to the board all others like regularity of board meeting, timing of decisions, executing decisions, participation of directors, annual plans or decisions taken by the societies, experienced staff and maintenance of accounts The farmers expressed satisfaction in both the areas; In area-I, 50.00 percent of the respondents expressed as not satisfied with supply of information where as in area-II 76.67 percent were not satisfied because in both the areas the officials failed to give up to date market information to their members. In the same way 56.67 percent and 70.00 percent were not satisfied in technical advice in area-I and area-II respectively because the officials failed to provide proper technical advice as and when required by the members to increase the milk production.

From the above all opinion survey discussions it clearly indicates that in the area-I members are not facing more constraints in the production and marketing of milk hence reject the hypotheses but in the area–II members are facing more constraints in the production and marketing of milk hence accept the hypotheses.

6. SUMMARY AND POLICY IMPLICATIONS

As per the 2003 censes the country had 485 million livestock population and 489 million poultry population, having the second highest number of cattle (185 million), and the highest number of buffaloes (97 million). Livestock sector has been playing an important role in Indian economy and an important sub sector of Indian agriculture. The contribution of livestock to GDP decreased from 5.22% in1999-00 to 4.36% in 2004-05 at current prices. According to Central statistical organization estimates, gross domestic product from livestock sector at current prices was about Rs 935 billion during 1999-00, (about 22.51 of agriculture and allied GDP). This rose to Rs 1239 billion during 2004-05 with 24.72% share in agriculture and allied GDP. But the share of live stock sector in the plan allocation hovered at around seven percent of the agricultural outlay. Development of animal husbandry is envisaged in our national plans as an integral part of sound system of diversified agriculture. The dairy industry plays a multipurpose role in India. Agriculture, being only seasonal, the dairy industry provides off-season work. Steady income and keeps the farmers employed all the year round.

Milk cooperatives are an integral part of the milk marketing and dairy development programme in India. Popularly known as “operation flood” launched by the government of India in collaboration with the world food programme of the United Nations in July 1970. One of the worlds largest rural development programmes ever undertaken, the operation flood aims at the setting up of modern dairy industry to meet the India’s rapidly increasing need for milk and its products and making it capable as viable and self sustaining growth. Operation flood has helped dairy farmers to direct their own development, placing control of the resources they created in their own hands.

In Karnataka, the organized dairy sector had its beginning in 1964, when late Prime Minister Lal Bahadur shastri spent a night at Ajarpur, during his visit to Gujarat, was impressed with working of the village milk cooperative society. He requested Mr.Verghese kurien, the general manager of AMUL, to extend anand type of dairy cooperatives to other parts of the country. He also wrote to the chief ministers of different states to take the initiatives to set up Anand type milk cooperative societies. In 1973, the government of Karnataka prepared a dairy development project and submitted it to the World Bank for funding. The total project cost of Rs 509.9 million was to be met by the government of Karnataka and the World Bank. The project report stipulated that the project should adopt anand type dairy cooperative societies and that NDDB should act as consultant to the project. The actual fieldwork was started up in 1975.

Kolar district cooperative milk producer’s societies union ltd (KOMUL) is the Karnataka’s one of the highest milk producing district organization. It consist of 1460 dairy cooperative societies as primary members and 2.2 lakh members collecting 7.25 lakh kg of milk per day with a weekly payment of 5 crore to the members. The kolar district was chosen to study the working of milk producer’s cooperative societies and to analyze their impact on milk production, income and employment.

6.1 Objectives

The Specific Objectives Of The Study

1. To study the performance of dairy cooperatives using both physical and financial indicators.
2. To analyze the cost return structure of milk production of dairy farmers
3. To study the impact of dairy cooperatives on milk production, income and employment of farmer beneficiaries.
4. To elicit the opinions on the problems of production and marketing of milk by member producers, on the working of dairy cooperatives and suggest suitable policy measures.

6.2 Sampling design

The kolar milk shed/union was selected purposively, based on the highest milk production to evaluate the performance of milk producer’s cooperative societies (MPCS) and

their impact on milk production, income and employment in kolar district of Karnataka. All the taluke wise milk unions operating under the union were arranged in the descending order based on their volume of milk procured. Two Taluk milk unions/units namely Shidlaghatta and Chickballapur were selected as above the average milk procurement area consider as area-I and below the average milk procurement area consider as area-II. In the selected areas, the primary milk cooperative societies namely MPCS Varadanayakanahalli MPC'S Yennenguru, MPCS Tammanayakanahalli, MPCS Kutandahalli, MPC'S Avalagurki, MPCS Kalavara, MPCS Puradagadde, MPCS Kolavanahalli. Were selected based on the cluster who are nearer to Taluk area for convenience.

Keeping in view the above criteria four MPCS were selected from each area totally, eight societies were selected. From the selected MPCS based on the list of dairy farmers operating as members of the selected milk producers cooperative societies was prepared with the help of secretaries of MPCS and fifteen respondents were chosen randomly thus, the total sample size was 120.

6.3. Nature and source of data

Primary data was collected from the members of the societies and from the non members regarding input output data on milk production such as yield of milk, age of cow, quantity of green fodder, dry Fooder, concentrates, maintenance charges, veterinary expenses etc. this information was collected through personal interviews on the basis of pre-tested schedules.

The secondary data on several aspects of the activities of the Mpc's selected were collected from different sources for a period of ten years from1995 to 2005. The data relating to the financial aspects of the societies such as balance sheets, profit and loss account, receipts and payments statements and trading accounts were abstracted from the annual reports and audit reports of societies.

6.4 Tools And Techniques Employed For Analysis

In order to achieve the objectives of the study, data collected from primary and secondary sources were subjected to statistical analysis. Various methods were adopted to suit the specific purpose. The technique of tabular analysis was employed for identifying the cost and return structure of milk production, income and employment. The compound growth rate analysis was employed to study the performance of physical and financial indicators of the societies.

6.5 Findings of the study

1) The milk production in the study area was mainly contributed by cows. Members of societies possessed more number of cows than buffaloes on the whole, in milk union area 51.36 percent cows and 48.64 percent of buffalos were observed in the study area.

2) The physical performance of the societies in the study area revealed that the overall physical indicators had an increasing trend except the number of employees working in the societies.

3) The profits of societies showed increasing trends in both the areas. The share capital, total sales value of milk also increased along with the increase in the members. The societies of area-I dominated in all aspects.

4) The compound growth rates in respect of the physical indicators, membership and milk procured were highly significant for area-I and area-II. The compound growth rates of financial indicators in both the areas were better in almost all aspects and showed highly significant except the net profit of area-II, which showed significant. The financial indicators showed the high percent of growth in area-I.

5) In area-I Per animal-rearing cost per annum amounted to Rs. 16,655.90 on an average animal in the study area realized a milk yield of ten liters/day. In case of area-II, per animal rearing cost amounted to Rs 14,943.44 and Milk production per day was eight liters. Net returns were more in area-I (Rs 14209.09/annum) than in area-II (10,095.92/annum).

6) In both the areas the study revealed that the income generated from non-members is less when compare to the members of the cooperative societies.

7) Important finding to be mentioned here is employment generation out of member respondents was more in both the areas when compare with the employment creation out of non member respondents i.e, on an average 282.53 employment days from area-I as against 246.79 employment days from area-II

8) As per the opinion of members of societies, it was observed that the performance of area-I was better than area-II. The members in the area-I were highly satisfied regarding the correct weighment (70.00 percent) and transport problem is less severe (90.00 percent). The transportation was easily accessible for both the areas but when compared to area-I, for area-II the accessibility of transportation was less.

Transportation was not as good as in area-II because of kachha and poor maintenance of roads. Loan for purchase of milch animals and linking of credit with marketing were important aspects, which were not included in the activities of societies. Training to members and accessibility to market news to the members were very poor in the study area.

6.6 Policy Implications

On the basis of findings of the study, and author's own observations during investigation of the problem, the following policy implications and appropriate strategies are recommended for improving the performance of dairy cooperatives.

1) The share of the concentrates in total maintenance cost of Milch animals accounted more i.e., 26.43 percent in area-I, and 11.38 percent in area-II. Hence the distribution of concentrates and mineral mixtures through the societies should be made much more effective by giving more subsidized prices.

2) Since 23.33 percent of area-I and 30.33 percent of area-II respondents expressed as highly severe with fodder hence supplying of fodder along with the establishment of fodder banks through the cooperative network can be considered.

3) Since 16.67 percent of area-I and 40.00 percent of area-II expressed as not satisfactory over experienced staff hence vocational trainings should be imparted with a broad objective to promote their professional skills and caliber.

4) Since 6.67 percent in area-I and 23.33 percent in area-II were not satisfied with the regular payments hence the unions should take care to avoid the delayed payments to the societies to safeguard the interest of the producer members. For this purpose, the unions should be provided with adequate working capital to make a regular payment to Mpc's based on the quantum of milk delivered by them.

5) Since 30.00 percent of the respondents in the study area-II expressed as severe problem in proper transportation hence The dairy should arrange proper transport facilities (milk routes) to all the societies including those situated in the interior villages to mitigate the hardships of the milk producer's vis-à-vis to boost up the milk procurement activity.

6) As 43.33 percent of area-I and 60.00 percent of area-II respondents expressed as not satisfactory over loans to purchase milch animals hence the milk producer's cooperative societies should serve as a link between the members and financial institutions for the purpose of advancing loan for purchase of milch animals and for recovery of loans. In other words, there should be perfect adherence to the concept of linking of credit with marketing so as to overcome the problem of over dues of financial institutions.

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PERFORMANCE OF DAIRY COOPERATIVES AND THEIR IMPACT ON MILK PRODUCTION, INCOME AND EMPLOYMENT IN KOLAR DISTRICT – AN ECONOMIC ANALYSIS

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ABSTRACT

The study was undertaken with specific objectives of evaluating the working of dairy cooperatives, to assess cost-return structure and their impact on milk production, income and employment in Kolar district of Karnataka.

The Kolar milk union was purposively selected for the study. Entire district was divided in to two areas (a) Above the average milk procurement area and (b) Below the average milk procurement area. Eight societies were selected at the rate of four each from the each selected area. Primary data were collected from the members and non members of the societies from 120 respondents for the year 2005-06. Secondary data were collected from the societies for the period of ten years from 1995-2005. Tabular analysis, percentages and compound growth rate analysis were worked out to meet the specific objectives.

The members of the societies possess 125 buffaloes and 132 cows accounting for 48.64 percent and 51.36 percent respectively. On the whole, the cows were more in number (132) than the buffaloes (125) in the study area. The physical performance of the societies in the study area revealed that the overall physical indicators had an increasing trend except the number of employees working in the societies. The profits of both the areas also showed increasing trend. In area-I per animal rearing cost per annum amounted to Rs.16,655.90. On an average an animal in the study area realized a milk yield of ten liters/day. In case of area-II per animal rearing cost amounted to Rs. 14,943.44 and milk production per day was eight litre. Net returns were more (Rs. 14,209.09/annum) than in area-II (Rs.10, 095.92/annum).

Important finding is the employment generation out of respondents was more in both the areas when compared with the employment creation out of non member respondent's *i.e.,* on an average 282.53 employment days from area-I as against 246.79 employment days from area-II. As per the opinion of members of societies, it was observed that the performance of area-I was better than area-II. The members in the area-I were highly satisfied regarding the correct weighment (70.00 percent) and transport problem is less severe (90.00 percent). When compared to area-I, for area-II the accessibility of transportation was less.

Transportation was not good in area-II because of kachha and poor maintenance of roads. Hence the dairy should arrange proper transport facilities (milk routes) to all the societies including those situated in the interior villages to mitigate the hardship of the milk producer's vis-à-vis to boost up the milk procurement activity.