CHAPTER – I

INTRODUCTION
Introduction

Dairying is an important allied activity and generates remunerative employment and provides income to the people living in rural areas. It forms one of the components of the backbone of Indian economy. There are also many secondary and tertiary business activities related to livestock which play a crucial role in rural economy and livelihood. Cattle provide draught power and milk for human consumption. Milk production is predominantly the domain of smallholder in a mixed farming system. Landless and marginal farmers rear milch animals to utilize their surplus labour. The best aspect of the milk is that milk is a complete food. In addition to it milk is the best source of preventing and curing of many diseases. Dairying is making a significant contribution to the national economy and socio-economic development of rural people. In rural India more than 15 percent of families are landless and about 80 percent of the landholders belong to the category of small and marginal farmers.

The function of milch cattle has primarily been the production of calves for draught power and secondarily the production of milk. Thus these two functions have basically been complementary. There is a potential contradiction and conflict between these different demands on milch cattle.

The Govt. of India started livestock census in the country in 1919-20 and since then it has been conducting census once in every 5 years. The livestock census conducted quinquennially is the main source of data required at every administrative and geographic level for proper planning and formulation of programmes meant for bringing further improvement in this sector and for effective implementation and monitoring their impact. The 8th Quinquennial Livestock Census 1956, which is the 1st series after formation of
A.P. state, was conducted separately for Andhra and Telangana regions. Andhra Pradesh was the in charge of conducting the census up to the 16th Livestock Census 1999. The department of Animal husbandry is in charge of conducting the Livestock Census from the 17th Quinquennial Livestock Census 2003. It is the 10th in series after formation of Andhra Pradesh state. The present census is the 18th Quinquennial Livestock Census 2007 and is the 11th in series after formation of A.P.

In India the first Livestock Census held in 1919 estimated the population to be 129 million. Further it increased to 292.80 million in 1951 and to 485 million in 2003 in India. That means the population increased between 1919 and 1951 was 163.8 million and between 1951 and 2003 the increase was 192.2 million.

India possesses large number of livestock. Comparatively India possesses 1/5 and 1/2 of cattle and buffalo population of the world respectively. India emerged as the largest milk producer in the world with a record production of 17 million tones in 1950-51. It was further raised to 80.6 million tons in 2000-01 to 100 million tones in 2006-07. The per capita availability of milk in the country increased from 124gms in 1950 to 220gms in 2001 and to 245gms in 2006-07. It is still below the world average of 285 gms per day and at the minimum nutritional requirement of 250 gms per day as recommended by the “Indian Council of Medical Research”.

Livestock and dairying contribute 27% of the gross domestic product from agriculture and allied activities. The livestock sector is the main source of family income in the arid and semiarid regions of the country. Further India is expected to export 0.3 million tones of dairy products of the total milk and milk products. The share of milk in total value of output from livestock sector was 55.4 percent in 1951-52 and this increased
to 68.9 percent in 2002-03. The contribution of livestock sub sector to the country’s GDP is indeed substantial as it contributes 8-10 percent of the agriculture output at current prices (1998).

Andhra Pradesh Livestock Development Agency (APLDA), an autonomous body, was established as state implementing agency vide G.O.MS NO.85, dated: 02-08-1999. APLDA was registered under the Andhra Pradesh (Telangana area) public society’s registration Act.1350 Fusil on 13th October, 1990. A total of 22 District Livestock Development Associations (DLDAs) are affiliated to APLDA. That means one at each district to carry out the cattle and buffalo breeding activities in the districts. Till 1960 dairy development was a minor subject in A.P. and was attached to the Animal Husbandry Department (AHD). The main activity was to promote Milk Producers Cooperative Societies. In 1960-61 a Pilot milk supply scheme was implemented by the AHD. The “Integrated Milk Project” -1964 aimed at organizing milk procurement around the cities of Hyderabad and Vijayawada.

In 1970 the “Dairy Development Department”, expanded its activities to other cities like Visakhapatnam and Rajahmundry. In 1974 Andhra Pradesh Dairy Development Corporation was established which extended a financial assistance of Rs.130 million annually. The Govt. of India advised the state Govt. to create an enterprise in the public sector and accordingly in 1981 “Andhra Pradesh Dairy Development Cooperative Federation” was created. This was in keeping with the national policy of developing the dairy industry on the “Anand pattern”. This shift was also necessary to use the assistance under Operation Flood Programmes. APDDCF milk procurement
operations have covered 11 districts and its procurement increased from 486 lakh Ltrs in 2004-05 to 1181 lakh Ltrs in 2009-10.

In India in 1999 Andhra Pradesh stood in 6th position with the livestock population of 36009 and it got 3rd position with the livestock population of 48195 in 2003, and it got 2nd position with the livestock population of 60190 in 2007 and in milk production A.P. stood in 2nd position between 1998 and 2009. The milk production in A.P. increased from 484 MTs in 1998-1999 to 9570 MTs in 2008-09. The per capita availability of milk was 194 gms per day in 2000-01 and this increased to 299 gms per day in 2009-10. Due to this A.P. stood in 8th place in India. The Contribution of livestock sector to GSDP increased from Rs.11694 crore in 2002-03 to Rs. 23835 in 2008-09. The contribution of milk sector to GSDP was Rs.6577 crore in 2002-03 and it increased to Rs.12200 crore in 2008-09.

In Andhra Pradesh, Anantapur district stood at 2nd place with the livestock population of 2154210 in 1993. After that the livestock population increased to 3724108 in 2003-04 to 5511265 in 2007. While the cattle population in 2003 was 695384 and it increased to 817729 in 2007, similarly buffalo population increased from 410604 in 2003 to 533162 in 2007. In A.P., Anantapur district stood at 4th and 12th place in cattle and buffalo population respectively. Andhra Pradesh Dairy Development Co-operative Federation Anantapur dairy was established in 1971 with 25,000 ltrs capacity per day. In 1979 a milk chilling center was started at Hindupur. In 2002-03 there were 9 bulk cooling units, 351 milk collection centers, 42 cooperatives, 21 milk routes covering 302 villages in Anantapur district. In 2009-10 there were 2 milk chilling centers, 40 bulk cooling units, 922 milk collection centers, 34 cooperatives, and 78 milk routes covering 1043
villages in Anantapur district. The milk procurement per month increased from 1019 Ltr in 2002-03 to 2343 Ltr in 2009-10. In milk production Anantapur district stood in 14th place in A.P. with 203 MTs, cow milk production 4th place with 85 MTs, and buffalo milk production 13th place with 117 MTs in 2000-01. In 2009-10 with the total milk production of 38 MTs Anantapur district stood in 12th place and in cow milk production 6th place with 135 MTs, and in buffalo milk production 14th place with 249 MTs. The contribution of livestock sector to GSDP was Rs.35750 lakh (8%) in 1999-2000 further it increased to Rs.735651 lakh (5%) in 2007-08.

Dairying before independence was in very primitive and old form. Private person “Govali” used to collect milk from the rural farmers twice in a day and sold it door to door in cities and towns by bicycle in raw conditions. This business was generally practiced around the city at a walkable distance so that fresh milk would reach within two to three hours of milking.

Government of India established “Indian Agricultural Research Institute” at Delhi. The cooperative sector was involved in dairy farming activity along with the private and public sector. The cooperative credit society’s act was passed in 1912 and first co-operative dairy society was established at Allahabad (UP) in 1913. Till 1938 there were 19 union societies with 264 primary societies of 11,600 producer members. There was only one co-operative dairy in Calcutta that pastured small quantity of milk for local distribution around in 1925. The government introduced in the city of Bombay a subsidized milk distribution scheme from 17 August 1944. The registered customers had to fetch milk in their own vessels from the milk center in the morning and afternoons.
This was the starting point of public milk distribution under a milk commissioner from 1\textsuperscript{st} April 1945.

Around the year 1900, a Swedish dairy expert A.C.Stafford established a dairy plant in Gujarat under the name of “British Express Dairy”. The dairy was located in Kaira district. Dairy co-operatives have been in existence in the country since 1913 and most of them are collecting and selling raw milk to the local consumers. But the first large scale and systematic break-through in dairy co-operatives in India was made in 1948 by the Kaira district co-operative milk producers union, Anand.

During the first five year plan, the milk schemes at Bombay, Calcutta and Delhi were on the way. Projects for collecting milk from villages, processing and distribution were started in other states like Andhra Pradesh, Madhya Pradesh, Orissa, Uttar Pradesh and Bihar. In 1945 Dr. H.D.Kay of the Dairy Research Institute, Shinfield(England) visited India to advise the Government of India on dairy research on his recommendation the National Dairy Research Institute (NDRI) was set up at Karnal (then in Punjab, now in Haryana).

India ranks first in the milk production but Indian dairy is a classic example of production by masses rather than mass production. The nation’s milk supply comes from millions of small producers, dispersed throughout the rural areas. These farmers maintain, on an average, a herd of only two-three milch animals, comprising cows and/or buffaloes. With an overall achievement of 112.0 million tones of milk in 2009-10 from cattle, buffaloes and goats and a per capita milk availability of 263 gms per day, an anticipated 116 million tones of milk production in 2011, the Indian dairy scenario is constantly looking ahead & promises to take greater strides in making dairying more remunerative.
to the farmer. However, with the ever increasing population, it is estimated that the total milk production should be around 200 million tonnes by the year 2030 to meet the demand.

In India total livestock population was 292.9 million and out of these 198.7 million population was bovines, out of these 155.3 million was cattle and 43.4 million was buffaloes in 1951. By 2007 the total livestock population was 529.7 million, total bovine population was 304.4 million. Out of these 105.3 million were buffaloes and 199.1 million were cattle. Total livestock population growth was 0.92% in 1951-56 and 2.23 in 2003-07. The growth in total bovine population ranged from 0.49% to 1.83%, buffalo population 0.68 to 1.84 and cattle population 0.43% to 1.83 during the same period. According to the 2007 livestock census, there were 166 million indigenous cattle, 33 million crossbreed cattle and 105 million buffaloes in India. In this the proportion of adult milch females was 19, 43 and 46 percent respectively. The decade wise trend in livestock population (1999-2007) show a distinct shift in composition of dairy animal stock in favour of buffaloes and crossbreed cattle as their number increased by 5.91 and 6.05 million respectively, while that of indigenous cattle declined by 1.8 million.

India is the top milk producing nation in the world contributing about 15% to the global milk pool. The decade wise rate of growth i.e. 3.6 percent in milk production of India is subsequently higher than the world average of 1.5 percent. Despite of holding the number one position in milk productivity in the world for over a decade, the milk productivity in the country remains low In India, the average milk productivity of crossbred cows, indigenous cows and buffaloes is only 44, 1.97 and 4.3kg/day respectively. Further there are wide inter state and inter –district variations in the milk yield, for
instance, Punjab has the highest productivity of crossbred cows and buffaloes, and Haryana is the top-ranking state in terms of milk productivity of indigenous animals. Milk production in India increased from 55.7 million in 1991-92 to 80.6 million in 2000-01 to 112.5 million in 2009-10. Per capita availability of milk increased from 178 gms/day in 1991-92 to 220 gms/day in 2000-01 to 263 gms/day in 2009-10. In India, about 46% of the produced milk is retained for home consumption, while 54% is disposed of to various agencies. About 80% of milk produced in the country is handled by the unorganized sector and the remaining 20% is shared equally by co-operative and private sectors. Milk processing capacity grew at a compound annual growth rate of 4 percent.

Feed is the major input in livestock production in value terms, it accounts for about 80-90% of the variable cost of milk production. The feed and fodder in India mostly consists of crop by-residues that depend on the region cropping pattern. Two essential sources of nutrients to realize the genetic potential of animals Viz. green fodder and concentrates. Availability of nutritious feed and fodder are essential for the healthy growth of animals. The union government has established regional stations located at Hissar (Haryana), Kalyani (West Bengal), Gandinagar (Gujarat), Alamadi (TamilNadu), Hyderabad (Andhra Pradesh), Suratgarh (Rajasthan) and Shehema (Jammu & Kashmir), for training to improved fodder production technology and also production of new high yielding varieties of seeds for fodder.

State-wise Uttar Pradesh possesses the largest cattle population, Andhra Pradesh is in 6th place. UP possesses maximum buffaloes followed by AP. The density of cattle population for India works out to be 116 for 100 hectares of gross cropped area. State
wise Maharashtra has the highest density of 283. Number of cattle per 100 persons comes out to be 40 cattle. State wise there are 90 cattle per 100 persons in Himachal Pradesh, which is the highest. The bovine population as percentage of human population is the highest in Madhya Pradesh (85.8). AP in 8th place with 47.9% it works out to 46.4% for all India. The density of buffalo population works out to be 34 per 100 hectares of gross cropped area and there are 12 buffaloes per 100 persons. Buffalo density is highest in AP (57); the density of buffalo population per 100 persons is highest in Punjab (22), 19 in AP with 3rd place.

During the first five year plan, allotment of Rs. 78 million was made for dairy development. In second five year plan dairy development began to take shape on an organized basis. The expenditure during this plan amounted to Rs. 120 million. Number of states created separate dairy development departments to give exclusive attention to development of dairying. Training to personal in quality control issues was also undertaken. Seven additional fluid milk handling plants were set up as pilot milk projects. It was during this period that a gift of rail and road milk tankers from New Zealand was received under Bombay milk scheme for transportation of milk between Anand and Bombay. This was for the first time that bulk transport of milk was started in India. The National Dairy Development Board was set up in September 1965 with headquarters at Anand in Gujarat state.

National Dairy Research Institute

Dispensaries and livestock aid centers and the Venture Capital Fund for dairy and poultry sector are to promote new entrepreneurs in these two areas and the National Credit Fund for Women. There are also a large number of micro credit institutions that
have emerged, but there is no umbrella scheme to promote micro finance in the livestock sector.

**Processing and Value Addition**

India has a unique pattern of production, processing and marketing/consumption of milk which is not comparable with any large milk producing country. About 35% of milk produced in India is processed. The organized sector (large scale dairy plants) processes about 13 million tones annually, while the unorganized sector (halwais and vendors) processes about 22 million tones per annum (CII, 2009). In the organized sector there are over 1000 dairy plants in the cooperative, public and private sectors registered with the Government of India and the State Governments.

**Domestic Consumption**

On an average, the foods of animal origin in Indian diet account for about 10-11% of the total consumption expenditure (NSSO, 2010). Milk is the most preferred item claiming 70% of the expenditure on livestock based foods. The per capita consumption of liquid milk has been around 55 liters during 1993/94 to 2003/04, but the demand for value added dairy products has increased at about 7.6% per annum registering a higher growth in urban than in rural areas.

**Milk and Milk Product Order 1992**

In 1991 the union government had delicensed the dairy sector and in 1992, the milk and milk products order, 1992 was promulgated under MMPO-1992. Registrations to 678 dairies with total milk handling capacity of 729.78 lakh liters milk per day were granted till end of March 31, 2001. In January 2002 the union government planned to scrap the concept of designated milk sheds in MMPO-1992 in order to decontrol and
deregulate the industry and also probably to allow the dairy farmers to supply milk to those dairies which can offer better prices to them.

**Trade**

India has negligible share in the world dairy exports (0.2%), partly due to low exportable surplus of value added dairy products and partly because the world dairy markets continue to be highly protected. Asian countries are the major markets of Indian dairy products accounting for nearly 82% share in total dairy exports from the country. Among the non-Asian countries, USA is one of the top 10 destinations of Indian exports during 2002/03 and 2007-08. USA is importing milk powders, fermented milk products, whey based items and few cheese products from India. Whey and products consisting of natural milk constituents produced by Indian dairy industry have also been able to make inroads in Korea, Japan, Germany and Canada. The share of Livestock exports in the agriculture exports increased from 3.22% in 1982 to 3.59% in 1985, which declined to 3.10% in 1994 but since then there has been uninterrupted increase in its share. It reached 7.44% in 2006. The share of livestock imports has consistently declined over times from 13.5% in 1982 to 0.71% in 2006, it is negligible in total imports and livestock GDP. The livestock exports have registered a commendable raise during 1982-2006. The average annual livestock exports have increased remarkably from US $ 82 million in 1982 to US $ 674 million in 2006. The livestock imports have decreased from US $ 140 million in 1982 to US $ 25 million in 2006.
Review of Literature

K.M Shashipuri (1974)\(^1\), in his article “Role of Farm Women in Animal Husbandry Programme”, indicated that women play a key role in performing various tasks related to cattle management, feeding, milking and making and selling milk products. In the area of decision making also they make basic decisions with respect to the number of cattle to keep and selling milk and milk products. It is only with respect to treating sick cattle and buying and selling of the same, where men came into picture.

R.K.P.Singh and A.K.Choudhary (1999)\(^2\), in their article “Dairy Development through Co-operatives”, stated that the prosperity of the milk economy through an increase in bovine population, no matter what the yield rate is, would actually invite many contradictions at the local level. These contradictions could weaken production conditions of milk in the long run.

Khem Chand, Kulwant Singh and Raj Vir Singh (2002)\(^3\), in their article “Economic Analysis of Commercial Dairy Herds in Arid Region of Rajasthan”, studied the optimum herd size and suggested the scope for further increase in the number of milch animals in the dairy herds. Though these dairy herds have helped in increasing the supply of milk, they have created many problems too. The herd owners many times set their animals free, which generally resulted in traffic jam and road accidents.

R.John Christy and M.Thirunavukkarasu (2002)\(^4\), in their paper “Socio Economic Dimensions Of Female Participation In Livestock Rearing : A case study in Tamil Nadu”, analyzed the association between the socio-economic characteristics of farm women and the
extent of their participation in livestock farming and stated that most of the animal husbandry activities were performed by women.

D.Narayana (2002), in his article “Dairying in Malabar: A Venture Of Landowning Based On Women’s Work”, stated that there was a sustainable improvement in the quality of life of dairy farmers by undertaking special interventions and found that less educated and holding lower size of land were not able to participate in dairying.

D.S. Prasad (2002), in his article “Seasonal Variations In Buffalo Milk Production in Rangareddy District Of A.P”, found that inter-seasonal fluctuations in milk production can be minimized by adjusting the calving dates of buffaloes and observed that the milk yield was highest in the winter season and lowest in summer season.

R.S. Sidhu and A.S. Bhullar (2004), in their article “Changing Structure of the Farm Economy in Punjab: Impact of Livestock on Income and Employment”, explained the growing importance of the livestock economy in the agricultural sector of the state and estimated its impact on the income and employment generation in the rural areas. It also explained the factors responsible for growth of dairy in the state.

Brajesh Jha (2004), in his article “Implications of Trade Liberalization for the Livestock Sector”, observed that with trade liberalization of domestic price of exportable commodities like milk decreased and also found that the implications of imports have in general been stronger for the Coastal states as compared to the land locked states of the country.

Vijay Paul Sharma (2004), in his paper namely “Livestock Economy of India: Current Status, Emerging Issues and Long-term Prospects”, explained growth and compositional changes in livestock population and found that the composition of bovine
breeding stock has improved in terms of increased share in milk animals in breeding stock as well as in total adult females.

J.S Mathur (2004)\textsuperscript{10}, in his paper “Livestock Wealth of Uttar Pradesh: An Analytical Study”, analyzed that our livestock wealth is suffering with the drawback of low productivity in spite of various measures done by the government. The main reasons for this deficiency are poor exploitation of genetic potential of indigenous animals, low absorption of available technology, inadequate resource of feed and fodder, insufficient health cover, inadequate marketing and credit support for improvement of vast livestock resources through proper scientific methods.

A.K. Chauhan, Satya Palarma and Ram Singh (2005)\textsuperscript{11}, in their article “A Pattern of Domestic Milk Marketing and Export Potential of Milk and Milk Products in India”, stated that milk production was scale intensive and labour intensive due to low labour cost of production of milk in India. The increase in milk production and low cost advantage attracted the multinationals and other private entrepreneurs and also the flow of milk to the urban areas.

Arun Kumar, K.S.Suhag and R.K.Khatkar(2005)\textsuperscript{12}, in their paper “To Assess the Break Even Level of Milk Production and Optimum size of Herds in Haryana”, concluded that the break even output was achieved earlier on small size group than on other size groups in both the zones. The highest price received per liter of milk was of the major reasons for lower break even level on small dairy herds.

B.S.Baviskar (2006)\textsuperscript{13}, in his article “Milkman of India”, focuses on Kurien’s carrier as a dairyman. The recounting of this life story is also a way of narrating the story of dairy
development in India. The carriers of Kurien and the co-operative dairy sector in India are inspiring.

S.B.Mahajana shetti, K.B. Ramappa and H.Basavaraj (2006)\textsuperscript{14}, in their article “Milk and Milk Products: A Study of Consumption Pattern and Consumer Preferences in Hubli – Darwad Twin Cities of Karnataka”, stated that the unbranded sources were less preferred to the branded sources. Expenditure on milk and its products increased with increase in income level. Price was the most important one in the decisions relating to its purchase followed by its colour, fat content and the brand.

Sikha Banerjee (2006)\textsuperscript{15}, in his paper “Dairy Industry in Post – WTO Era”, observed that there is a wide variation in the share of milk delivered to dairies in various countries. It is, therefore, imperative to evaluate the Indian dairy situation in the global dairy scenario by visualizing threats, opportunities and challenges in the post – WTO Era.

Pranajit Bhowmik, Smita Sirohi and J.P. Dhaka (2006)\textsuperscript{16}, in their article “Gains from Crossbreeding of Dairy Cattle in the North East: Micro Evidence from Tripura”, stated that the adoption of new dairy technology, i.e., indigenous cow led to higher per day milk yield. Consequently, this shift in dairy technology brought about a sizeable gain in milk. The adoption of crossbred milch cattle brought about an immediate upward shift in the threshold level of milk yield.

D.Bardhan and S.K.Tewari (2007)\textsuperscript{17}, in their article “Risk Attitude and Risk management Strategies: An Analysis of Dairy Farmers in Tarai area of Uttaranchal state”, observed that the adverse effect on family health was perceived as a major source of risk by the farmers, indicating the crucial role that family labour plays in dairy farming in India, lack of institutional support in dairying was also perceived to be a major source of risk.
Md. Rais Uddin Mian, Jannatul Fatema and Md. Hobibur Rahman (2007)\textsuperscript{18}, in their article “Impact of Dairy Farming on Livelihood of Participating Women Under Grameen Bank In A Selected Area Of Rangapur District Of Bangladesh”, explained that Grameen Bank was helping the rural poor women to lift themselves above the poverty line, and also observed the households have successfully gained access to credit and have ensured productive utilization of loans. Grameen Bank’s credit programme could well reach the target groups and women participation in decision making of family affairs was taken into account by their male counterpart after their joining the Grameen Bank group.

T.R.Rjarajan, V.Sarvanakumar and Rajvirsingh (2007)\textsuperscript{19}, in their paper “Implications of Trade Liberalization on Indian Dairy Sector: An Empirical Analysis”, stated that the share of Indian production in global production had been gradually increasing over the years in all dairy products except condensed milk. The majority of Indian dairy products increased.


Anjali Aggrwal and Mahendra Singh (2007)\textsuperscript{21} “in their article “Economics of Using Mist And Fan System During Summer And In-House Shelter During Winter For Alleviating Environmental Stress In Dairy Animals”, found that mist and fan use was to be quite economical as water use and its wastage was less in mister system as compared to water showers, the progressive farmers can use these without any adverse effect on health of animals and incidence of mastitis.
Sanjeev Kapoor (2007)\textsuperscript{22}, in his paper “Managing Risks in Rural Livelihood Lessons from Women Dairy Project”, illustrates how the intervention in dairy project has influenced the livelihoods of large number of rural women in a sustainable manner by minimizing the various risks associated with dairying. Also analyzed the impact of the dairy enterprise on the income of the rural households on the one hand, and the process of women empowerment through dairying.

G. Kathiravan and Thirunavukkarasu (2007)\textsuperscript{23}, in their article “Perceptions on the Quality and perceived Constraints in the Accessibility of Livestock Services in Tamilnadu (South India)”, exhibit the major constraints in availing the public livestock services by the farmers such as long distance to the public veterinary centers, longer waiting time to attend the case by the service provider and inadequacy of drugs/semen and delay in availing appointment of service provider are the main problems of the private livestock services to the farmers through regulatory frame work.

P.R. Waghmare and D. N. Hedgire (2007)\textsuperscript{24}, in their article “Economic Analysis of Integrated Dairy Development Programme in Parbhani District”, stated that there was a positive and significant impact of integrated dairy development programme on milk yield.

D. Bardhan, Y. P. S. Dabas and A. Kumar (2007)\textsuperscript{25}, in their article “Role Performance and Scope of Indian Livestock sector in the new World order”, stated that livestock was a source of employment, energy, plant nutrient, income for rural poor, nutrition and foreign exchange. Livestock also have some socio-economic or non-market benefits, which are crucial to the survival and competitiveness of small holder cattle production systems. Government and Industries must prepare plans for the continuing growth of the livestock sector with long-run policies and investments.
N. Rnagasamy and J.P.Dhaka (2007)\textsuperscript{26}, in their article “Milk Procurement cost for Co-operative and Private Dairy Plants in Tamilnadu-A comparison”, stated that per liter procurement cost of milk was higher in co-operative dairy plant than the private dairy plant and the same increased between flush, transitory and lean seasons. Co-operative dairy plant should make regular payments or advance payments to milk producer members and can avoid members selling milk to private dairy plants or milk vendors. Imparting training about clean milk production to dairy farmers at milk producer’s co-operative society level will improve the quality of milk procured.

A.P.Verma (2007)\textsuperscript{27}, in his article “Economics of Production, Marketing and Constraints of Buffalo Milk in Indore district of Madya Pradesh”, stated that the farmers of large size groups had incurred higher expenditure on the maintenance of a buffalo as they had maintained buffalo of relatively better breed and had made higher investment on fodder and concentrates for maintaining them. Unremunerative price of milk and milk products was the major constraint followed by delayed payment of milk, inadequate price of milk etc. Government should encourage and help milk producers in organizing co-operatives since they are poor and illiterate. The animal husbandry department should enhance their extension activities.

T.B.Deokate, P.N.Shedage and K.L.Jadhav (2007)\textsuperscript{28}, in their article “Marketing of Milk in Amravati District of Maharashtra”, identified the channels involved in marketing of milk. Buffalo milk producers were not interested in selling milk to co-operative societies as they pay lower price to buffalo milk although the fat percentage in the buffalo milk was found to be more.
N. Rangasamy and J. P. Dhaka (2007)\textsuperscript{29}, in their article “Economics of Value added Dairy Products Manufacturing by Co-operative Dairy plant in Tamilnadu”, concluded that more value added dairy products like butter and ghee were more profitable than less value added liquid milk varieties, viz., standardized milk, toned milk and full cream milk. The dairy products like flavored milk and milk peda earned negative margins due to the lowest quantity, dairy plant should utilize full plant capacity and replace old milk plant machines to reduce the operational costs and improve operational efficiency of the dairy plant.

Sushila Kaul (2007)\textsuperscript{30}, in his article “Analytical study of Marketing of Milk through Co-operatives in India”, examined the progress and performance of dairy co-operatives. Regional variations in the progress of the movement and the causal factors that are responsible for differential progress of dairy co-operatives in various states have also been investigated. The findings of the study indicate that the co-operatives have done well in the western and northern parts of the country.

S. S. Kalamkar (2007)\textsuperscript{31}, in his article “Export Marketing of Dairy Products: Problems and Perspectives”, stated that there is a need to improve the productivity of Indian livestock so as to make the products internationally competitive both on price and quality fronts for countering imports. There are many comparative advantages for India in dairy products trade such as higher quantum of production and lower cost of production than many other countries. There is a need to reduce the cost of handling of milk and processing by reducing intermediary agencies.

S. S. Raju (2007)\textsuperscript{32}, in his paper “Trade in Indian Livestock Products and its Competitiveness”, analyzed the export earnings from various livestock products in order to assess the impact of liberalization on trade in livestock products and their competitiveness. In
order to take advantage of the expanding global market, Indian livestock products have to improve efficiency, safety and quality which are essential in the international market.

A.K. Gauraha (2007)\textsuperscript{33}, in his article “Economics of Milk Marketing in Chhattisgarh”, indicated that crossbreed cow production was higher as compared to buffalo. The feed and fodder accounted for a major portion of the total cost followed by human labour. Educated farmers maintaining superior milch breed animals and supplying standardized cattle feed improved the productivity of animals.

Bhag Chandra Jain and M.A. Khan (2007)\textsuperscript{34}, in their article “Structure and Working of Cattle Markets and Fairs in Chhattisgarh”, found that low productivity was mainly because of large proportion of indigenous low productive breeds. Many governments as well as private sector agencies worked a lot for the breed improvement, but the success rates of such Programmes were very low because a big chunk of the sale price is shared by the middlemen in the prevailing system of cattle marketing.

A.K. Singh and Seema Joshi (2007)\textsuperscript{35}, in their paper “Milk and Milk Product Marketing in western Uttar Pradesh”, observed that the small, medium and large farmers selling the milk to various agencies ranged between about 67\% to 90\% of total milk production in various months. The sale of milk was recorded in the months of September to January. In summer seasons the sale was also less due to low milk production though the demand for milk and its products remained high. The percentage share in consumer’s rupee was higher if the producers were selling to the co-operative society and the consumers also had to pay lower prices if they purchased from the co-operative society. Thus this channel is more efficient to the farmers so that they could sell their milk through co-operatives.
C.L.Thakur and S.M.Yadav (2007)\textsuperscript{36}, in their article “Marketing of Milk and Milk Products of Jabalpur Sahkari Dugdh Sangh Mayday Jabalpur in Katri district of Madhya Pradesh”, found that cattle raising was not only an important occupation for supplementing the nutritional diet to the people but also it had greater concern to uplift the socio-economic status of the people related to agriculture sector.

S.S.Burark and R.L.Jogi (2007)\textsuperscript{37}, in their article “Market Infrastructure for Livestock Marketing in Rajasthan”, attempted to study the existing organization and structure of animal fairs and animal exchange markets, and suggested that there should be necessary amenities in the existing periodic animal exchange markets, infrastructural facilities in the animal marketing yards.

J.Sadeesh, A.Pouchepparadjou and P.Lakshmanan (2007)\textsuperscript{38}, in their article “An Economic Analysis of Marketing Efficiency of Milk in Puducherry Region in Union Territory of Pudduchery”, discussed the marketing efficiency of milk in the various channels of marketing and constraints faced by farmers in the production of milk and its marketing. The major constraints faced by the farmers were the non-availability of storage facilities, green fodder, improved breed of milch animals, and information about various development programmes etc.

B.B.Beohar, P.K.Mishra and S.B.Nahatkar (2007)\textsuperscript{39}, in their paper “Livestock Marketing Problems in Madhya Pradesh”, identified the problems like lack of funds and insurance facilities, high marketing charges, involvement of intermediaries, non-cooperative role of local bodies and high animal prices.

R.B.Singh and Sunil Kumar Verma (2007)\textsuperscript{40}, in their article “A Study on Structure of Livestock Markets in Bundelkhand region of Uttar Pradesh”, stated that the livestock
markets of Uttar Pradesh were largely controlled by the private sector and there was no organized machinery to control the trade for efficient and orderly marketing. It indicates that farmer sellers were having little knowledge about market arrivals. Brokers caused a lot of inconvenience both to the sellers as well as the buyers. There is need to regulate the livestock markets similar to food grains markets for smooth and effective marketing of animals.

Jitendra Singh, Hargovind Bhargava and Rajkishor (2007), in their paper “Marketing System of Private Milk Collection and Distribution Agencies in Lucknow city of Uttar Pradesh”, examined the system of collection, transportation, packing, weighing, grading and quality control of milk followed by various collection and distribution agencies. The study pleaded to improve the collection, containers, transportation, and distribution agencies. The existing marketing system of milk by private agencies is not found satisfactory due to prevailing of various irregularities in the system.

K.N.S. Banafar (2007), in his paper “Production and Marketing of Milk in Raipur district of Chhattisgarh: An Economic Analysis”, analyzed four marketing channels prevailing in the study area. Channel-1 Producer-consumer, channel-2-Producer-milk vendor-consumer, channel-3 producer-retailers-consumer and channel-4 producer-cooperative-retailer-consumer. The study suggests that milk producers must be encouraged by providing remunerative price through milk co-operative by providing bonus. Milk should be processed at village level in the form of ghee, pannier, curd etc. which provide higher benefits compared to direct selling of milk.

D.C.Pant, P.S.Rao and Hari sing (2007), in their article “Price spread and Efficiency of milk Marketing in Udaipur district of Rajasthan”, estimated the price spread in milk marketing and the marketing efficiency of different marketing channels. The price
spread both in absolute and percentage terms was maximum in channel IV where two middle men were involved in marketing process of milk. Channel I was found most efficient.

Parminder kour, Arjinder kour and menakshi Gupta (2007)\(^4\), in their article “India’s dairy sector-current scenario of production and trade”, attempted to examine the growth performance of milk and milk products in India, performance of dairy sector trade in India and world performance in the production and trade of milk and milk products.

Vijay K.Choudhary (2007)\(^45\), in his article “Economics of Marketing and Constraints of Milk Production in Progressive Dairy Farms”, suggested to sell the produce directly to the consumers through a private dairy milk counter in city areas because of the advance payments received from the consumers. Thus the dairy entrepreneurs need to regularize the supply according to the demand needs of milk. It is therefore, concluded that progressive dairy units are economically viable in the study area, because of increasing demand for good quality of milk.

Anjani kumar, Steven J.Staal, N.P.Singh and Dhiraj K.Singh (2007)\(^46\), in their article “Livestock Sector Trade of India: Surging Momentum in the new Liberalized Regime”, stated that domestic policy initiatives and increased production and productivity are the important factors in increasing the export of livestock products. To reduce the negative externalities of international trade in livestock products, incentives and support services should be structured to allow subsistence farmers and landless livestock keepers to participate in the livestock trade.

D.Bradhan (2007)\(^47\), in his article “India’s Trade Performance in Livestock and Livestock Products”, explained the trends, dimensions, performance and determinants of
India’s trade in livestock and livestock products and also examines the constraints impeding the export prospects.

Archana Shukla (2007)\textsuperscript{48}, in his article “Trade Scenario of Cattle Fairs and Future Prospects of Livestock Markets in Uttar Pradesh”, attempted to estimate the supplementary and complementary nexus between crop sector and livestock sector that adds to the importance of rearing of various species of animals in the state. The study suggested measures like the supply of technological inputs for breed improvement, feeding schedule and other management aspects more attractive in the state so that the marketing system would be more viable.

Khem Chand, B.L.Jangid and P.P.Rohilla (2007)\textsuperscript{49}, in their article “Milk Procurement and Marketing in Pali district of Semi-Arid Rajasthan”, studied the organizational set up, procurement and sale of milk and milk products. Due to better milk price and ensured returns from dairy enterprise, farmers of this region replaced low productive cattle by higher milk producing buffaloes.

Sangeeta Verma, Veena Goel and M.S.Toor (2007)\textsuperscript{50}, in their article “Consumption Pattern and Consumer Satisfaction: A Study of Milk and Milk Products in Urban Punjab”, examined the consumption pattern of milk and milk products among different income groups. The designing of a uniform policy and treating the entire population as homogenous group can be misleading for the marketers. So the introduction of various items with differential price structures can be helpful in meeting the demands of the consumer based upon their capacity and individual needs.

A.N.Shukla and Hussain (2007)\textsuperscript{51}, in their paper “Live Animals Marketing Pattern in western Uttar Pradesh”, studied the structure of cattle fairs, marketing agencies, arrivals and
disposal of animals. The study pleaded for provision of necessary amenities in the cattle fair and publicity of cattle and the government should build pucca sheds in the mela ground to overcome the inconvenience caused to the cultivators and dealers.

Meenakshi Gupta and Parminder kaur (2008)\(^{52}\), in their article “Role of Women in the Economy of Vulnerable House Holds with special reference to Dairying – A Case study of Milk Products in Bichpuri Block of Agra District (Uttar Pradesh)”, examined the extent of involvement of women in various dairy management practices. Thus found that the women labour accounted for more than two- third of the total dairy farm work and contributed about 70 \% of the total income from dairying. Male dominance was the most vital constraint faced by women. The other important constraints faced by women in decision – making were low level of education followed by lack of knowledge and skill, traditional outlook and social constraints.

Kaushlendra Vikram Mishra and Shirin Mahalati (2008)\(^{53}\), in their article “Income Generation Potential of Rural Dairy Enterprise: A Study in Azamgarh District, Uttar Pradesh”, stated that domesticating dairy animals could not only generate substantial income for poor people in the selected region of the study but also have potential to create more income as compared to agriculture. It is suggested that the government and general public should provide more and more initiatives to accelerate dairy farming in rural areas.

Sushma S.Patil (2008)\(^{54}\), in his article “Co-operative Dairying Movement and Operation Flood in Maharashtra: An overview”, argued that the operation flood increased employment, income and consumption of milk of rural people in Maharashtra state. Thus the operation flood has very deep and strong positive impact on Indian dairying in particular and on Indian agricultural sector in general. Animal husbandry and dairying have to be viewed as
effective instruments of social change for supplementing the income and providing employment to weaker sections of people in rural areas.

Dr. Santosh Singh Bais and Dr. Ramesh B. Agadi (2008)\textsuperscript{55}, in their article “Human Resources Development in Indian Dairy Industry”, stated that milk processing organizations in India need to concentrate on HRD practices and human resource was closely related to the quantity of milk. This concluded that human resource development branches play a pivotal role in management and development of human resource and hence it is obvious to implement the scientific human resource development practices for human resource development of milk industry.

Smita Sirohi and Pranajit Bhowmik (2009)\textsuperscript{56}, in their article “Dairy input Procurement and output Disposal system in South Tripura: Implications for Dairy Development”, found that the prices of most important dairy inputs viz., concentrates are quite high in the study area leading to low level of input use and the utilization pattern of milk on the sample households indicated high level of market participation and very little retention of milk for consumption. That the dairy development efforts in the region should focus on breed upgradation and improve the availability of inputs.

R.P. Singh, R.V. Singh and Sanjay Kumar (2009)\textsuperscript{57}, in their work “Milk Production Function in Bovines for Different Agro Climatic Zones of Bihar And Jharkhand”, found that there existed the positive and significant response of green and dry fodder and concentrates to the milk yield.

Gautam Kakaty and Moromi Gogai (2009)\textsuperscript{58}, in their article “Employment and Income Opportunity in Dairy Enterprise of Assam”, stated that composition of milch animals with adequate number of crossbred animals could boost up milk production,
sustainable development of dairy farming in the state through optimum utilization of natural resources and also studied the comparative performance of crossbreed cows and indigenous cows. This paper made some suggestions for improvement of milk production. The productivity of milch cattle would be improved by adopting appropriate policies.

Smita Sirohi, Anjani Kumar and Steven J.Staal (2009)\textsuperscript{59}, in their article “Formal Milk Processing Sector in Assam: Lessons to be learnt from Institutional Failure”, analyzed that the processing was an important component in milk chain linking the producers to the consumers.

Agro Economic Research Center(2009)\textsuperscript{60}, in its article “Evaluation of Integrated Dairy Development Project (IDDP) in No-operation Flood, Hilly and Backward areas- A Study in Meghalaya”, stated that the major expenditure involved in dairy farming was more on fodder and concentrates followed by human labour engaged in dairy farms. The commercial production of milk can be achieved only if the dairy farmers get a price which will cover the cost of production of milk in a cost effective manner. The adoption of proper system of milk marketing at remunerative prices is one of the key factors to increase the production potential of milk.

Harismranjeet Kaur and Meenakshi Gupta (2009)\textsuperscript{61}, in their paper “Development of Dairy Industry in India Vis- a – Vis Punjab”, stated that the biggest obstacle that the dairy co-operatives face today was political and bureaucratic interference. Improving quality of products poses a big challenge to the dairy co-operatives, poor productivity of milch animal’s constraints rapid development of the dairy industry. And also found that systematic planning
and integrated policies and Programmes for animal breeding, genetic upgradation and feed and fodder management were required.

Anjani Kumar (2010)\textsuperscript{62}, in his paper “Milk Marketing Chains in Bihar: Implications for Dairy Farmers and Traders”, addressed the issues associated with the alternative milk market chains and their implications on dairy farmers and traders. The private traders appeared to be the biggest buyer of milk closely followed by the milk co-operatives.

D.Babu and N.K. Verma (2010)\textsuperscript{63}, in their article “Value Chains of Milk and Milk Products in Organized Sector of TamilNadu”, stated that the success of dairy industry revolve around a triangle, Viz. procurement, processing and marketing of dairy products. The study observed that the procurement cost of co-operative dairy societies was higher than that of the private milk collection centers.

Jignesh shah and Darshana Dave (2010)\textsuperscript{64}, in their paper “Regional Trends and Pattern in Milk Production and Drivers for future growth in Gujarat State”, observed that a phenomenal growth in milk production of cross-breed cows has been witnessed in recent years, especially in the southern and northern regions of the state. Historically, among the various factors contributing to growth in milk production, incremental dairy animal population has been the important factor. However, it is the yield of lactating animals a single most significance factor that needs to be focused for augmenting and sustaining growth in milk across any type of dairy animal.

Debnarayan Sarker and Bikash Kumar Ghosh (2010)\textsuperscript{65}, in their article “Constraints of Milk Production: A Study on Co-operative and Non–cooperative Dairy farms in West Bengal”, found that non-cooperative farms face major constraints compared to co-operative farms in expanding milk production. The study has revealed that financial
problem is the most significant constraint faced by the co-operative farms and suggested that for expanding milk production, the co-operative dairy farms must overcome most of these difficulties.

Jignesh Shah and Darshana Dave (2010)\textsuperscript{66}, in their article “A Shift from Crop-Mixed Traditional Dairying to Market oriented organized Dairy Farming- Plausible Factors Responsible for Structural Transformation in Indian Dairy Sector”, stated that in India the demand for livestock in general and demand for milk and milk products in particular is on the rise due to rise in income, changes in the life style and food habits, socio-cultural changes and increased urbanization. The milk demand would grow at a higher rate than that of the growth in milk production.

S.M. Feraze and A.K. Chauhan (2010)\textsuperscript{67}, in their article “Performance of Dairy Self Help Groups in India: Principal Component Analysis Approach”, found that the repayment performances of the SHGs was quite impressive for both internal as well as external loans. It is suggested that banks can follow the group lending mechanism to channelize the priority sector loans.

**Importance of the present study**

Livestock sector plays a significant role in the rural economy. The development of live sector has been receiving significant priority in India. This sector provides nutritive food materials, draught power to agriculture and transportation, dung to enrich soil fertility and ultimately to increase agriculture production. In fact, next to agriculture, dairying has been proved to be a major source of income and employment for rural people. In Andhra Pradesh livestock population rose from 360 lakh in 1999 to 601 lakh 2007 and the milk production from 5,151 MTs in 1999 to 10,430 MTs in 2010. According to 2007 livestock
census 92, 54,776 households possessed livestock. The contribution of livestock sector to GSDP increased from Rs. 12,762 crore in 2002-03 to Rs. 23,835 crore in 2008-09. In Anantapur district the livestock population was 55,11,265 in 2007 and the milk production increased from 203 MTs in 2000-01 to 384 MTs in 2009-10. According to 2007 livestock census about 5,00,887 households were possessing livestock. In spite of this progress there were some problems like losses, low milk yield, low price of milk, high cost of fodder and concentrates, low insurance coverage and non availability of sufficient green fodder in dairy sector. As a result the producers and consumers are facing number of problems. The studies already completed on dairy farming have also not covered all these aspects. Hence the present study makes a modest attempt to know the performance of dairy farming in a drought prone district and suggest some suitable measures for further improvement in the performance of dairy farming.

**Objectives of the study**

1. To know the progress of dairy farming in Andhra Pradesh in general and in Anantapur district in particular,

2. To assess the costs and benefits of dairy farming,

3. To outline the dairy development programmes,

4. To understand the problems of dairy farming and

5. To make suggestions for further development of dairy farming.

**Data Base and Methodology**

The study requires both primary and secondary data. The secondary data has been collected from various sources relating to livestock, milk production, dairy development
schemes, dairy farming have been collected from animal husbandry departments at Hyderabad and Anantapur, reports of CESS, NIRD, Journals and other related sources.

**Sampling Design**

In order to collect primary data random sampling method is followed. According to Animal Husbandry Department there are 5 divisions in the district, from each division one mandal is selected randomly. Again from each mandal 2 villages (one from rural, another is mandal headquarter) are selected. Altogether 100 farmers having dairy are selected covering all categories from the selected villages. The primary data was collected with the help of pre tested schedules.

**Statistical tools**

Growth rates, percentages, averages etc are calculated by SPSS package with the help of computers in order to make the analysis effective.

**Limitations of the study**

The present study is confined to Anantapur district. The secondary data collected for Anantapur district covers 10 years period from 2000-01 to 2009-10. While the data collected from dairy farmers and dairy farms related to 2009-10. The quality and reliability of data depends on the information given by the dairy farmers, officials concerned. However the element of bias and subjectivity was consciously kept under check to make the study as objective as possible. The conclusions arrived at and inferences drawn are applicable to sample dairy farmers of Anantapur district. The study has not covered all dairy farmers of this sector.
Chapter plan

The present study has been divided into six chapters.

- The first chapter introduces the subject of the study and also presents objectives, Methodology and review of literature.
- The second chapter discusses the development of Dairy in Andhra Pradesh.
- The third chapter presents the progress of Dairy farming and Dairy in Anantapur district.
- The fourth chapter discusses the Dairy development programmes.
- The fifth chapter analysis the status of dairy farming and the problems of sample farmers.
- The sixth chapter presents the summary and conclusion.
References


