CHAPTER VIII

SUMMARY AND CONCLUSIONS

8.1 Major findings of the study

India’s percentage share in total world milk production has kept an upward trend, competing with that of the USA for top position. The combined share of top ten countries in milk production covers around 70 per cent throughout the reference period. In the year 1998 India’s milk production was on a par with that of the USA, which was ranked first by producing 71.4 mt of milk in that year. India overtook the United States in milk production in the year 1999 by producing 74.6 mt of milk, as compared to the 73.84 mt production of milk in the USA. With the volume of milk production of 83 mt in the year 2004, India became number one milk producer in the world.

The dairy cooperatives account for the major share of processed liquid milk marketed in India. Milk is processed and marketed by Milk Producers’ Cooperative Unions, which federate into State Cooperative Milk Marketing Federations.

The value added at the procurement and processing stages can be realized by the cooperatives only. Through control over cooperatives today handle just 3 per cent of India’s total milk, with their average procurement of 247.18 lakh kg per day (LKPD) in 2008-09. It is
almost half of the 488 LKPD target under the NDDB’s ‘Perspective 2010’ plan.

Uttar Pradesh, Punjab, Haryana, Rajasthan, Gujarat, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu are the milk surplus states in India. The manufacturing of milk products is obviously high in these milk surplus States. Exports of dairy products have been growing at the rate of 25 per cent per annum in terms of quantity and 28 per cent in terms of value since 2001. Significant investment opportunities exist for the manufacturing of value-added milk products like milk powder, packaged milk, butter, ghee, cheese and ready-to-drink milk products. India has emerged as the largest milk producing country in the world with present level of annual milk production estimated as 112 million tonnes.

The Prakasam district is predominantly rural with more than 84 per cent of the population inhabiting the rural areas. The population of the district increased from 27.59 lakhs in 1991 to 30.55 lakhs in 2001. However, its decade growth of 10.72 per cent is less than that of the State 14.12 per cent. There are no variations in the rates of growth of rural and urban population of the district during 1991-2001, unlike at the state level. The female population of the district is 15.05 lakhs, which accounts for 49.26 per cent of the district’s population and 4.2 per cent of the state female population by 2001. The district witnessed only an addition of 12.81 thousand of population in the urban centres during 1991-2001, leading to 2.82
percentage change of urban population as against 15.11 per cent change in A.P. State. As per the 2001 census the density of population per sq. km is 178 as against the state density of 242. This reflects basically the rural character of the district without any growth in urbanization.

As per the 2001 statistics the district stood on a better footing with high percentage of literates on par with Andhra Pradesh. The notable feature is the remarkable increase in literacy levels among females in rural and urban areas. The sizable improvements in the levels of literacy in the district indicate effective efforts of the government to improve educational development of the district.

This is one of the districts in the State where the extent of the irrigated area to the cultivated area is only 38 per cent. Further this is one of the two districts in the coastal Andhra Region where the canal irrigation is almost negligible. The area under non-food crops has been gradually increased from 28.4 per cent to 40 per cent during 1970-71 to 2009-10. Jowar, Bajra and other millets are the principle food crops in the district. Paddy occupies about 20 per cent of the cropped area. Among the non-food crops, tobacco claims the pride of the place in the district as it ranks first in the state. The area under tobacco accounts for more than 12 per cent of the cropped area. The important non-food crops grown in the district are tobacco, red gram, sesamum, black gram, green gram and groundnut etc.
The yield of rice, Jowar, Bajra, Maize and other food crops has increased considerably along with pulses (except black gram). It is noticed that yield of Sugarcane has reduced while cotton rose substantially. The nature of Industrialization in the district is Agro based as manufacturing of food products outnumbered all other industries. But, these industries provide very little employment to the labourers. Next to the food processing industry, tobacco industries are more in number. The prominent features of tobacco industry are that 80 per cent of the workers are women, which emphasizes the potentiality of the tobacco industry in generating the gainful employment. The other important industries, which provide employment, are rice mills, oil mills, saw mills, handlooms, cotton ginning, Slate industries and Food product industries etc.

About 50 per cent of the sample milk producers in the two mandals belong to the age group of 41 – 65 followed by an average of 34 per cent belong to 26 – 40 years. The percentage of youngsters accounts for one third of the respondents in both the mandals. About 55 per cent of the sample respondents engaged in dairying activity are males and the remaining are females. This phenomena is common among the four villages in the study area. About 78 per cent of the respondents belong to Hindu religion in the four sample villages. The share of Christian milk producers constitute about 18 per cent followed by 4 per cent Muslim respondents.
One fourth of the respondents belong to OC category in the study area who are rearing the cross breed cattle. About 50 per cent of the respondents belong to BC category, while the remaining are SC and ST category respondents. The Scheduled Caste respondents constitute about 16 per cent followed by 8 per cent of ST category.

About 70 per cent of the sample respondents households have the family size of two members. It is observed that about one fourth of sample respondents possess the family size of three numbers. However, it is also noticed that only 6 per cent of sample respondents who are rearing the cross breed buffaloes are having the family size of four and above. More than half of the sample respondents are illiterates in the study area. The data also reveals that the percentage of literates are relatively more in case of sample respondents of Kolalapudi and Konanki villages of Martur Mandal when compared to Ravipadu and Kandulapuram villages of Cumbum Mandal. Significant (88 per cent) per cent of the sample respondents among literates have studied upto primary and secondary level of education. Among these literates, the sample respondents belonging to Martur Mandal are relatively more compared to the respondents belonging to Cumbum Mandal.

All the sample respondents are dwelling in their own houses except 6 persons. Out of these 6 members 5 are dwelling in rented accommodation, and the other one is staying in occupied accommodation. About 13 per cent are living in sheds and the
persons with tiled houses and thatched sheds are 7 per cent and 5 per cent respectively. It is also noticed that significant per cent of rural people have obtained their houses under Rural Housing Programme.

More than 65 per cent of the sample respondents are engaged in agricultural activities since significant per cent of the sample milk producers are small farmers and agricultural labourers. The remaining are found working in non-agricultural activities. As part of rural diversification programme, the employment in the non-farm activities are being increased in the study area too. About 25 per cent of the sample respondents are concentrated in various non-farm activities and the share of employment in manufacturing activity in the study area is insignificant due to non-availability of manufacturing industry in and around the sample villages. About 25 per cent of the sample respondents are landless persons. Among the land owners it is observed that about 50 per cent of the sample respondents own only 0.50 acres of wet land. More than one-fourth of the sample respondents possess the wet land to the tune of 1.0 to 3.0 acres in all the four sample villages in two mandals under study.

About 40 per cent of the sample respondents have taken land for lease. Among those respondents about 30 per cent of them have taken land for lease only less than 1 acre extent. On an average, only 10 per cent of the sample respondents have taken 1 to 2 acres of land for lease. But, it is significantly higher in Ravipadu and Kandulapuram villages of Cumbum mandal. The respondents with
leased in land are quiet insignificant among the four sample villages. About 5 per cent of the sample respondents have lent their land for lease. Among these, 3 per cent have lent less than half acre land and the remaining two per cent lent 1 to 3 acres land. Based on the above statistics it may be inferred that significant per cent of the sample respondents are either landless agricultural labour or small farmers. The landless labourers are taking the leased in lands of small extents. This facilitated them to procure green fodder for milch cattle.

Nearly 55 per cent of the sample respondents possess assets with an approximate value of less than 5 lakhs. This share is almost common among all the four sample villages. More than 30 per cent of the sample respondents possess assets worth Rs.5 – Rs.10 lakhs while the assets with Rs.10 – 15 lakhs category is applicable to 8 per cent of the respondents. Only 5 per cent of the respondents are changing assets with an approximate value of 15 lakhs and above.

Regarding the number of hours in main occupation, about 80 per cent of the respondents are working for 200 – 300 hours per month. Only about 18 per cent are working above 300 hours per month in the study area. It is almost similar among the four sample villages. In case of subsidy activity namely, dairy, more than 80 per cent of the sample respondents are working for 80 – 100 hours per month and the remaining 20 per cent are having working hours of 40 – 80 hours per month.
Significant part of the working time is left for the main activity in which the sample respondents work followed by dairying and other household activities. This is more or less similar among all the four sample villages in the study area. About 40 per cent respondents are earning an amount of Rs.3000 – 6000 per month. Another 36 per cent of respondents are obtaining an amount of Rs.6000 – 9000 per month. The meagre income of below Rs.3000 are earned by 16 per cent of respondents. It is only less than 10 per cent of sample respondents getting monthly income of above Rs.9000 in the study area. The above pattern is almost same in all the four sample villages.

With regard to the level of income, about 37 per cent of the sample respondents report that the dairy activity income consists the share of 37 per cent in their total income. Similarly 34 per cent of respondents reported that the share of dairy income in the total family income is between 20 to 40 per cent. About 60 per cent have taken loan on an average Rs.17,260 from SHGs. But this debt varies from one village to another village in between Rs.16,270 and Rs.19,230. As far as the other institutional debt is concerned, only 24 sample respondents availed Commercial Bank loans, 12 sample households received financial assistance from RRBs and only 9 households borrowed loans from PACs.

SHGs are playing a key role not only in providing timely debt at cheaper rate but also to promote savings of the rural masses in addition to social empowerment. This tendency emphasizes the fact
that main source of finance for rural labour is SHGs. More than 70 per cent of the sample respondents have selected the non-institutional sources to preserve their savings. It is noticed during the field visits that significant per cent of the sample respondents have selected the private micro finance agencies such as Spandana, Share, Chandamama and other local finance agencies to invest their surpluses. Similarly majority of the respondents have also chosen chit fund managers to lend their surpluses. Large number of respondents in the four sample villages are members in the locally organized chits. These chits are maintained by a few leaders in their locality/villages who is relatively financially sound.

60 per cent of the sample respondents are saving above Rs.40,000 per annum. This per cent is almost same among all the four villages. About 20 per cent of the sample are having savings of Rs.20,000 to Rs.40,000 per annum, but the respondents having saving level of below Rs.20,000 are very few (7 per cent only). However, it is also noticed during the field visits that more than 80 per cent of the sample households women are the member of SHGs in their villages. Being members of DWCRA groups the women have inculcated the habit of saving some amount regularly.

As far as the experience in dairying is concerned, about 60 per cent of Martur mandal respondents have above six years of experience in this allied activity, while the remaining sample have experience of less than six years. In case of Cumbum mandal more than 75 per
cent of sample respondents have less than six years of experience and the rest of them have above 6 years experience. In the sense that relatively developed part of the district is identified with long association with the dairying activity when compared to the relatively less developed region of the district. About 38 per cent of the respondents own two buffaloes in the study area. But it is only 15 and 10 per cent of the respondents own one and four buffaloes respectively. With regard to the owning of buffaloes at village level, it reveals that about 50 per cent of respondents in Kolalpudi and Konanki villages of Martur mandal own 3 buffaloes, whereas in case of Cumbum mandal 60 per cent of the respondents of Ravipadu and Kandulapuram own 2 buffaloes.

More than 62 per cent of the respondents families are sparing two persons to pursue the dairying related works in the house. Only one person is attending to the dairying work in 30 per cent of the respondent households in the study area. 96 per cent of the respondents are alone attending to various works of dairying activity without hiring the labour. Dairying being a household activity, it is observed that the adults as well as both the male and female children are also attending to the works. It is noticed that child labour is relatively more in the study area. However, the incidence of child labour is observed more in Cumbum mandal when compared to the Martur mandal. This is because of lower levels of literacy of parents and higher rates of school dropouts.
About 88 per cent of the sample respondents have chosen cooperative societies to market their products. However, it is only about 4 of the respondents are selling the milk to neighbours, relatives and others respectively. Regarding the selling price of milk per litre, it is found that 90 per cent of the respondents are securing Rs.25 and above per litre. The higher rate per litre is being obtained for higher quantity of milk being sold by the individual respondent.

The regression results for the total sample and also for sub-samples reveal that on an average 60 to 80 percent of the variations in the value of Milk Yield Per Day Per animal could be explained by fodder used per animal per day, Green fodder used per animal per day, Concentrate used per animal per day, and the age of the animal. Of these explanatory variables Fodder used per animal, green fodder used per animal per day are highly significant with positive impact and in terms of magnitude of impact on dependent variable, the concentrate used per animal per day is the highest. However the explanatory variable, Number of labour hours required per day did not show any significant impact on the dependent variable.

The study finds that in first lactation, Lactation length, Peak yield, Calving interval, Calf birth weight and Service period are positively correlated on Milk yield. Peak yield and Calf birth weight and Service period are negatively correlated and all other variable relationships are positively correlated. The calculated R square value
is 90.5 per cent. Hence it is concluded that the reproduction parameters are highly influenced on production parameter i.e., Lactation length, Peak yield, Calving interval, Calf birth weight and Service period are highly influenced on Milk yield.

In second lactation, Service period is negatively correlated on Milk yield. Lactation length, Peak yield, Calving interval, Calf birth weight are positively correlated on Milk yield. Lactation length and Service period, Peak yield and Service period, Calving interval on Calf birth weight and Calf birth weight and Service period are negatively correlated and all other variable relationships are positively correlated. The calculated r square value is 91.6 per cent. Hence it is concluded that the Reproduction parameters are highly influenced on production parameter i.e., Lactation Milk, Peak yield, Calving interval, Calf birth weight and Service period are highly influenced on Milk yield in second lactation.

In third lactation, Calving interval and Service period are negatively correlated on Milk yield. Lactation length, Peak yield, Calving interval, Calf birth weight are positively correlated on Milk yield. Lactation length and Calf birth weight, Lactation length and Service period, Peak yield and Calving interval, Peak yield and Service period and Calf birth weight and Service period are negatively correlated and all other variable relationships are positively correlated. The calculated r square value is 88.5 per cent. Hence it is concluded that the reproduction parameters are highly influenced on production
parameter i.e., Lactation length, Peak yield, Calving interval, Calf birth weight and Service period are highly influenced on Milk yield in third lactation.

In fourth lactation, Lactation length, Peak yield, Calving interval, Calf birth weight and Service period are positively correlated on Milk yield. Peak yield and Service period, Calving interval and Calf birth weight and Service period are negatively correlated and all other variable relationships are positively correlated. It is concluded that the Reproduction parameters are highly influenced on production parameter i.e., Lactation length, Peak yield, Calving interval, Calf birth weight and Service period are highly influenced on Milk yield in fourth lactation.

To sum up, the study found that the production of Milk yield is highly influenced in first lactation when compared to the second, third and fourth lactation.

8.2 Suggestions

8.2.1 Feed and Fodder

There is scarcity of fodder throughout the country and also in the study area because of recurring drought. The low availability of feed and fodder has become major constraint to the growth of dairy industry. Government shall take initiative to encourage research on high yield fodder seeds and supply them to the rural areas. Wastelands are to be developed as fodder grounds through the
participation of village panchayaths. Along with this, quality feed concentrates are also to be supplied to the dairy farmers.

8.2.2 Milk Yield

An examination of feeding pattern of buffaloes has indicated that deficiency of protein in feed used by the farmers is an important factor responsible for the lower milk yield. So, it is suggested that all the farmers should include protein rich feeds in the ration of their animals. The addition of micronutrients like mineral mixture and vitamin supplements in small quantities improve dairy milk and lactation length of buffaloes.

8.2.3 Health Care

Economic loss resulting from diseases like Foot and Mouth disease, etc. is enormous. Government has to initiate well-planned programmes to control these diseases, however difficult, expensive and time consuming these are going to be. It requires concerted efforts and determination among all the players involved.

The disease forecasting, control and eradication measures will have to be taken up earnestly to provide an efficient animal health care. Immunization programmes must be effectively implemented. Veterinary facilities should be extended to the dairy farmers. For this purpose, animal health clinics are suggested at suitable locations to serve cluster of villages. Educated and enthusiastic youth of the local
area may be trained to attend the emergency health problems of the animals.

8.2.4 Management

Better management of dairy animals is one of the important factors for higher milk productivity. The housing condition of the milch animals is to be improved. Training on management aspects with particular reference to heat period, conception, calving, lactation and dry period is to be imparted to the farmers. It enables them to develop the skills of management.

8.2.5 Capital Formation

As per capital formation, public sector lending in dairy sector is low and inadequate. Attempts have to make to create favourable economic environment for increasing capital formation in both co-operative and private dairies. Landless labourers, marginal and small farmers may be given preference in extending financial assistance not only to purchase milch animals but also to maintain them.

8.2.6 Productivity of animals

In order to increase the competitiveness of dairy industry, efforts should be made to reduce the cost of production. The productivity of animals can be increased by improving the breeding facilities and better health care management.
8.2.7 Marketing Infrastructure

It is imperative that we should develop proper production, processing and marketing infrastructure, which is capable of meeting international quality requirements. A comprehensive strategy for producing quality and safe dairy products should be formulated.

8.2.8 Focus on buffalo milk based speciality

Dairy industry in India is also unique with regard to availability of large proportion of buffalo milk. Thus, India can focus on buffalo milk based speciality products.

8.2.9 Beverages

It is noticed during the field visits in both the mandals that farmers are growing some prominent fruit crops like mango, sapota, Batavia and papaya. These products have immense potential for growth. Varieties of milk shakes are also increasing wherein milk and fruit pulp are mixed in different proportions to produce different beverages. Some of the milk and fruit based beverages which are likely to have demand are the combination of milk with mango, sapota and papaya. The demand for such beverages is more during the summer season. Hence, it is suggested to encourage and promote the enthusiastic farmers to extend the acreage to grow the above fruit crops in the study area, which can help them to raise the levels of income and employment.
The future of Indian dairy market looks bright as demand for milk and milk products is increasing at a faster rate throughout the world. On the quality front, India should improve its image as a reliable and consistent supplier of safe and quality dairy products conforming to the international standards by creating required infrastructure.