INTRODUCTION:

India has emerged as the largest producer of milk in the world with a production of 91.5 million tonnes during 2004-05, and Indian Dairy Industry is known to the world as most successful industry which is based on "Anand pattern". In India 1,00,000 dairy co-operative societies (DCS) under 174 milk unions are operating throughout the country, involving more than 10.5 million farmers, cattle raising being a labour intensive activity provides substantial direct as well as indirect employment. Milk and milk products provide substantial income to the dairy farmers, dairy industry and, also have become a sources for earning foreign exchange earnings. In general rural milk economy has been operated as a subsidiary system within the agriculture economy. In most villages, it has constituted an auxiliary source of income for the poor. The establishment of Kaira District Cooperative Milk Producers Societies Union Limited in 1964 paved the way for the formation of cooperative milk marketing system as an alternative to the traditional marketing system. Operation flood, the largest dairy development project for the whole Asia was launched during 1970 with a three tier cooperative network. Karnataka state which is one of the forerunners in milk production, could able to consolidate its position under operation flood as the third largest in both milk procuring and in milk sales under cooperative sector in the country.

Dairying is an important sector that generates employment with lower investment. It is estimated that an investment of Rs. 10 lakhs in dairying generate 290 man years of employment, whereas the same investment can generate only 120 man years employment in crop production. India accounts for 16 percent of world’s cattle population and one half of the Asia cattle population. India is the largest livestock holding country in the world. With regard to buffalo population,
it is possessing and 53.5 percent of world buffalo population and 55 percent of Asian buffalo population.

Karnataka State Cooperative Milk Producer’s Federation played an important role in marketing milk and milk products and supplying cattle feed to all its Union members which are affiliated to federation to increase milk yield of milking animals and also providing artificial insemination services to its members through union and DCS, in the State. The Federation in order to expand its market for Nandini milk and milk products has opened number of marketing branches and milk vending booths in various places in the state and also in neighbouring states like in Goa, and Maharasthra state. The dairy development programmes in Karnataka since 1974 -75 to date, has passed through distinct phases KDDC and KMF through the establishment of a vast network of institutions have increased their volume of business. The average per day procurement as on 31st September 2007 was 30.19 lakhs kgs, where as its average daily sales including curd was 21.25 lakhs kgs in the same period. Similarly 1,27,608 metric tones of cattle feed sold to its milk producers in the same period. And its annual turn over was 1250, crores as on 31st September 2007- 08, it is an appreciable matter of federation towards its progress in the country. Karanataka is second only to Gujarat in milk production in the country, with 60% of its output coming from the co-operative sector.

In Karanataka 13 milk unions are in operation with 7668 Dairy Cooperative Societies covering whole state. In Belgaum district, one milk union is operating which covers whole Belgaum district. Even though Indian dairy industry has progressed very fast but still cooperative sector procure only 15-16 percent of the total milk produced in India. In Anand -pattern of dairying the activities of milk union are classified into three categories viz., the procurement, processing and marketing. The procurement, processing of milk is the sole responsibility of milk union, whereas marketing of milk is the responsibility of union but marketing of milk products it is responsibility is shared by the union
and state milk federation. For any union, its better performance, depends on its efficiency in its procurement, processing marketing activities.

Belgaum is a pioneer district in milk production. In this district one milk union has been functioning and covering whole district area and collecting nearly on an average of 48 thousand liters of milk every day by its 325 functioning dairy cooperative societies spread over the district. Union has 34 milk procurement routes, one chilling center, two bulk coolers i.e. in Gokak, Ramdurga and Athani respectively. The union has various sections in its premises to carry out day to day work. The union has registered 28 women dairy cooperatives under STEP programme and their total milk collection as on 31st December 2007 was 8800 liters per day. The union has sold 3,818.6 metric tonnes of cattle feed and various cattle feed seeds to its farmer members. The union has implemented number of dairy development programmes in the district and various schemes were under progress and union has taken interest in establishment of cooperatives milk producer societies in all villages of the district and it is working towards of its scheme success.

MAJOR FINDINGS OF THE STUDY :

Procurement:

The average rates of defunct Dairy Cooperative Societies are 25-11 percent per year observed which should be given attention immediately and restarts the same. The average milk procurement was negative and the milk procured by DCS members was also decreased over the study period, it was mainly to entry of private milk brands in the operation area of the union. Out of 325 functioning DCS 57 DCS have procured milk more then 250 LPD 13 DCS have procured more than 300 liters perday.

The milk procurement average curt was 0.67 per kg over the years out of 34 milk procurement routes in operation; 12 routes procured above 45% of milk, but their distance was high among all routes. The least efficient routes should be
discontinued to increase the overall efficiency of all the routes. The union has dual milk procurement price for flush and lean seasons. The study indicated that the reduction in price during flush season resulted in increased milk supply by the producers to the union, the price of milk was based on fact and SNF and the payments to producers were paid weekly.

Processing:

The major source of getting milk to the union was Dairy Cooperative Societies (87.51%) and others dairies (6.79%) and reconstitution of milk (5.68%). Of the total 93.3%, 83 percent of milk handled was sold as milk and rest was converted into milk products and sent to others diaries. The highest amount paid to cow milk producers where the quantity of milk procured was high from cow milk producers. Among two bulk coolers, Ramadurga bulk cooler has utilized highest capacity during 2005-06 and Gokak chilling centre's average utilized capacity was 89.43 over the months, and main dairy plant utilized 41.31 percent of total capacity over a period of six years.

Handling losses in milk were to the tune of Rs 3.23 lakhs on an average over the period. Hence the handling loss should be prevented by careful attention in all steps.

7.3. Marketing:

1) The union has received 96.0 percent of Revenue by Selling milk, the rest by milk products. High share of liquid milk sales in total milk is good for the union because it brings the cash component at a faster rate. The market share of union was highest in Goa state, where its on an average share was 57.64 percent over the years and lowest share in Maharastra state. The total milk sold in study area of Belgaum district, Belgaum city constitutes major share which its on an average was 48 percent but the total milk sold by all channels in Belgaum city union brand constitutes only 15 percent, private brands were main competitor to union brand.
2) The union is unable to procure the required quantity of milk even to meet the required demand for liquid milk. The union has purchased milk from other dairies (5.64%) and reconstituted its powder to meet the demand for the liquid milk in its marketing area during lean season. In flush season union sends milk to other dairies. In case of distribution of milk union has 13 routes all are operational and 281 agents are distributing milk in its operational area, (Belgaum district, Goa and Maharastra). The commission paid to agents differs with different types of milk but on an average commission paid to different them was Rs.0.75 paise per liter. The distribution at transportation cost was Rs.0.64 per liter. The union sold maximum milk and products through commission agents and least through milk parlours.

3) On an average about 305 Dairy Co-Operative Societies are functioning under profit. These DCS are to be encouraged by providing all infrastructure facilities. At the same time, about 20 DCS are functioning under loss with Rs 2.09 lakhs. These DCS are to be restructured so as to avoid losses.

4) The targets and achievements of milk procurement has been observed continuously and found that the union failed to reach target during the year 2005-06 and, over all achievement of the year was 93.99 percent. The cause for this non achievement was over ambitious target. But in flush season target was achieved due to the availability of surplus milk.

5) The amount of milk procured by private agencies in the study, area was higher. There were 16 dairies in operation, among which 6 dairies procurement was appreciable, they are namely Hatson, Warna, Sahyadri, Deccan, Bharat and Mayur. The procurement of these units was 80 thousand liters per day and all together private agencies procurement was 195 thousand liters per day. All private agencies share was 72.16 percent in the study area.
6) Similarly, milk sales share is also higher in the study area. In milk marketing network five private dairies have captured major market in total milk sold, namely they are Mayur (6.12%), Arokya (5.92%), Morana (4.15%) Krishana (3.40%), Warna (2.47%). All private 18 agencies' market share is 33.25 percent, but union share is only 16.78 percent and 49.95 percent milk is being sold by loose milk vendors. To increase unions share in the market union should increase its agents in the operational area of Private agencies and should make survey often to consider consumer preferences. The sales promotion measures are very important to increase sales in competitive atmosphere and union should pack and sell milk to consumers at required quantities.

7. Socio–Economic Features of Dairy Farmers:

On an average, age of dairy farmers has been found to be 49 years. The proportion of literacy found to be 75 percent. The illiteracy is relatively highest in small farmers than medium and large farmers. The average family size of dairy farmers is about 6 members and land holdings is 9.04 and 1.74 hectares in large and small farmers respectively with regard to cropping pattern. Sugar crop is the predominant crop in kharif season and groundnut is major crop in rabi season.

8. Composition of Milch Animals:

The herd size crossbred cow per farm household is smallest in small farmers, whereas it is highest in large farmers. But, indigenous cows are relatively more in number in all the categories of farmers due to low maintenance and purchase cost. On the other hand, buffaloes population is highest in small farmers than in medium and large farmers. This trend shows that as the size of land holding increased the animal population also is increased.

All the small farmers do not have a separate shed for the animals. Whereas most of the medium farmers have one shed each and large farmers have more than one shed each.
9. **Pattern of Feeding**:

With regard to feeding pattern, among dry fodder, green fodder (dry weight) and concentrates, dry fodder has been the major source of animals feed accounting more than 50 percent of animals diet followed by green fodders (dry weight) (30 percent) and concentrates (20 percent). This is attributed to greater availability of dry fodders in the study area as reflected in the cropping pattern. Dry fodder is the highest in small farmers as compared to other farmers. Green fodder is more in large farmers than in others. In crossbred and indigenous cows small farmers use more concentrates in as compared to buffaloes.

10. In case of crossbred cows, small farmers use highest amount of concentrates which is mainly due to its intensive care taken by them to increase milk yield form a smaller heard as compared to larger heard. While in indigenous cows use farmers category due to intensive care for milch animal, but on the whole, more concentrates are used by large farmers in absolute term due to high income. In buffaloes, concentrates use is highest in case of medium farmers than small and large farmers; because of medium farmers used more maize, wheat and jowar available at lower cost.

11. **Milk Yield response to feeding** :

In the case of crossbreed cows, among all the explanatory, however, the impact of concentrates on milk productivity is higher in small farmers than medium and large farmers. In case of indigenous cows, green fodders is most predominant factor affecting milk production. Under large farmer category there is enough scope to increase the use of concentrates than in small and medium farmers.

12. **Economics of milk production**:

The overall net return is maximum in small and medium farmers than in large farmers. This is mainly due to the managerial skills exhibited by small dairy farmers in betters utilization of their resources, boosting output form dairy enterprise. In indigenous cows, the net returns are maximum in large farmers.
followed by small and medium farmers due to higher milk yield. In buffaloes net returns are maximum in small farmers followed by medium and large dairy farmers. This is again due to the good managerial skill of small dairy owners.

13. The cost of milk production was lowest in the case of small farmers than in others. On an average, the cost per liter of milk production was Rs. 5.78 Rs. 8.00 and 6.90 in case of cross bred cow, indigenous cow and buffalo, respectively.

14. Pattern of employment in dairy Units :

In all categories, use of hired labour dominated and it was the most dependable labour (63.92 %) followed by hired mute labour which was found to be 36.08 percent of the total hired labour force. Roughage collection, transportation, cleanings milk, feeding cleaning sheds were the operations of labour employed in dairying. Hired labour was much in large farmers than in small and medium farmers. It was quite natural that large farmers could absorb higher hired labour force to turn out large scale operations, but small farmers utilized mainly more family labours.

15. Pattern of production and utilization of milk:

The highest milk yield was found in crossed cows followed by buffalo and indigenous cows. But in all three types of milch animals, highest milk yield was obtained by the small farmers compared to other categories owing to intensive dairy management practices of small farmers. At the same time, milk sales were also maximum in small farmers than others. Major income of farmers was supplemented by dairy than agriculture, but milk retention was more in large farmers as compared to medium and large farmers.

The quantity of milk consumed and processed have been increased with the increase in farm size among all types of animals. This could be attributed to the prevalence of joint family and good economic conditions of large farmers as well
as surplus milk availability after meeting the consumption requirements. Small farmers have processed milk mainly for butter/ghee while medium and large farmers meant for producing butter, curd, khoa and other products.

**Major problems faced by the union:**

The major problems faced by the union were identified and are listed as below.

i) Frequent changes in the milk procurement price has made fluctuation in milk procurement.

ii) Increasing number of defunct Dairy Cooperative Societies which reduced milk procurement.

iii) Low volume of liquid milk sale.

iv) Increase overheads of the union.

v) High procurement cost.

vi) Decrease in the numbers of milk supplying members.

vii) Increase in milk handling losses.

viii) Inadequate technical staff of the union.

ix) Strong competition from private agencies.

**The constrains of dairy farming observed in the study area:**

The poor quality of breeds of dairy animals, non availability of sufficient fodders in the villages, poor quality of fodder, non availability of concentrates in required quality and quantity; and high cost of fodders were the major production problems faced by dairy farmers in the study area. Among several marketing problems faced by dairy farmers, low local demand for milk, low price of milk in the village, low quantity of milk to take to market and sale on credit are identified as serious ones. As far as processing was concerned, low local demand for processed product and lack of near market for processing products were the serious constraints observed in the study area. Similarly, high cost of veterinary service was of severe concern to small farmers than others farmers. A majority of the farmers in all the categories of farmers faced the problems of water and
electricity. It was more so by small farmers then medium and large farmers. In general, a cross all farm categories, non availability of grazing or pasture land was a severe problem. This was partly because of commercialization of agriculture and partly because of urbanization of village. For majority of the farmers in the all farm size categories low price for milk was also the severe problem.

However, many farmers opined that they are not aware new of techniques available for processing milk into khao and others value added with products. Hence, dairy extension has a major role to play in the transfer of processing technology for these value added products, which would enhance farmers incomes considerably.

**Policy Perspectives :**

1. Every possible step is required to be taken up to increase the number of Dairy Cooperative Society and milk supplying members to increase procurement which ultimately reduce the cost of procurement, and union has to concentrate more on activating defunct DCS than starting of new one's which increase the procurement and inturn overall performance of the union.

2. Arrangement are to be made to provide a reasonable attention to DCS which supplies milk below 100 LPD and increase procurement by conducting the camp and motivating the farmers by explaining the advantages of supplying milk to the cooperative union. Supplying timely inputs like feed and fodder seeds and prompt veterinary service through extension agency to the milk producer are also to be considered on top priority.

3. The milk procurement route having high cost should be discontinued because this reduces the earning.
4. Adequate technical and input service are to be provided by the union, because poor producer of milk could not afford to get these services. The coverage of hospital and artificial in semi nation centers are to be increased to provide better veterinary services.

5. The handling losses are to be reduced so that the union could earn a profit of Rs. 3.23 lakhs per annum as it is possible by efficient handling.

6. The union should achieve attest 85 percent its capacity to reduce its fixed costs.

7. The union should take care to avoid the delayed payment to the societies to safe guard the interest of the producer members. For this purpose, the union has to provide adequate working capital to DCS regularly.

8. Before union could make any policy regarding the milk and products diversification it should undertake a consumer survey to asses the feelings of the consumers and market segmentation, analyze the competitors in the field.

9. It is required to educate the consumer about the Nandini (Kmf) products by using appropriate promotion techniques like advertising simultaneously in Radio, Television and New papers etc.,

10. The union has to develop marketing strategies to counter act the movements of major private brands of milk and recapture the market area from them.

11. Agents should be paid higher commissions and they should be motivated with frequent meeting suggestions to improve the quality of Nandini milk to be given.

12. The sales promotion techniques are not materialized. It is the need of the hour for a market research survey to identify the different sources
from which the consumers receive the information which are the important for sales promotion.

13. Financial institutions functioning in the area should give more importance in advancing dairy loans and encouraging small, medium formers and landless labourers to take up dairying on a large scale, which would help them in mitigating their problems of income and employment and consequently, it would contribute in enhancing their standard of living.

14. The milk producers Dairy Cooperative Societies should serve as a link between the members and financial institutions for the purpose of getting loan for purchase of milk animals and for recovery of loans

15. The shortage of fodders was a major problem in the study area. The study has clearly shown that green fodder is a critical input in enhancing production of milk. The availability should be increased by every farmer allocating a portion of the farmland to fodder production.

16. In terms of both milk yield and net returns, performance of crossbred cows is much better than local cows and buffaloes. Hence, there is an urgent need to ensure availability and maintenance of high quality cross bred cows.

17. The cost of feed and green fodder constitute the lion's share in the variable cost. Hence, any attempt to reduce cost of milk production and make milk production more efficient should aim at supply of good quality feed and fodder at reasonable rates to the farmers by the farmers dairy cooperatives or union state federation.

18. Excess labour utilized could be withdrawn for use in others operatives without adversely affecting the dairy productivity.
19. Dairying is an important source of income especially for small and marginal farmers and agricultural labourers. However, due to the requirement of heavy capital investment per animal of Rs. 12,189/- in crossbred cow, Rs. 4,885/- indigenous cow and Rs. 8,555/- in buffalo, the said farmers may not be able to invest on their own resources. Hence, necessary finance facilities are to be provided by commercial Banks, Co-operative Banks and others financial institutions, so as to make dairy farming grow at faster rate on more commercial basis.

20. The most graceful constraint observed in study area was that the milk holidays are declared by DCS in flush season, which adversely affect dairy farmers, and face difficulty to market their milk through alternative market channels. There therefore is need to take up alternatively the production of dairy products which can use the surplus milk. This can avoid the problem of declaration of milk holidays. Farmers should explore the possibility of taking up the production and marketing of indigenous dairy products to tide of this adverse situation.

21. Due to the faulty management practices followed by dairies, dry days and extended for longer period in most of the study area. This of course not only increases the productive life of the animals but also reduce the total milk produced by the milk animals during its productive life extension. Agencies should take care of this problem in their extension training programmes.

22. Quality of fluid milk produced is the bone of quality of milk and milk products. This has to be addressed on a war footing level since every consumer in the urban, and town areas is becoming highly quality conscious. Clean milk production should be taken up on war footing on top priority basis.
Globalization of milk production requires that the productivity of resources used in milk production like labour, concentrates, green fodder should be increased. The application of Research and Technology should address this issue, failing which our efforts in the direction of globalization will meet with limited success.

The enhanced milk production that is likely to result by the modernization and globalization, will have to be marketed rather than aggressively, otherwise it will result in a huge surplus creating a downward pressure of prices. Development of new products and improving the efficiency of the system there by increasing the cost effectiveness will so a long way in promoting the sector. Aggressive strategies to set up instead of the processing facilities should be drawn up and promoted by an enabling policy environment.

Conclusion:

Dairy farming is a potentials sub-sector for generation of income and employment, 75-80 percent of farm families of small farmers, marginal farmers and landless labourers are employed in this sub-sector. Dairy generates employment with least unit cost of employment. The Indian dairy sector registered a spectacular growth rate of five percent per annum during the last three decades and as a result, India emerges as the world's largest producer of milk. The current level of milk production in India is 91.5 million tones which has come to second place in the world milk production. White revolution has indeed brought about a comprehensive development of the dairy industry in India.

Milk and milk products being the second largest contributor next to agricultural products play a vital role in the country's economy. Agriculture and animal husbandry are the two main supporters on which the entire structure of the village life rest in India. Apart from land and irrigation, livestock is the largest
productive resources in the rural economy of India. Dairying in India has emerged as a dynamic instrument of socio-economic changes which not only provides the milk and milk products but also helps in augmenting farm family income, narrowing down the potential gap, providing drought power, meat, hides and skin, harms, bane manure for croup production and in earning foreign exchange. India has the potential to be world's leading exporter of milk products under the GATT. This is possible because dairy is labour intensive and India has good labour resource with low wages compared to existing leading exporters. As subsidies are going to be curtailed in western countries, Indian milk products are bound to have better market, but only condition is to improve the quality. The production of milk is centered in and around rural areas whereas the demand for milk is concentrated in urban areas. Therefore, there is a need to have vertically integrated activities to procure the milk from rural area, to process, to increase the shelf-life and to market the milk in urban areas. The dairy cooperative structure has provided the institutional support. In this effort more than 77993 primary Dairy Cooperative Societies have been organized, most of them serving in one or two villages. These operate in 174 centres of the country's major milk sheds managed by milk union. This structure is topped by 23 state cooperative Dairy Federations. The country has now achieved the objective of "Operation Flood" programme to increase milk production and to stop importing milk powder. In Karnataka state, Karnataka Cooperative Milk Producer Federations, Nandini Brand of milk products is a household name today, with one of the highest annual sales turnover in the dairy industry. KMF came into existence in may 1984. KMF with high processing capacities and wide distribution network has ensured the penetration of Nandini in the remote parts of Karanataka. The philosophy of dairy development has always been to eliminate middle men and organize institutions to be owned and managed by the milk producers themselves, by employing professionals. The Karnataka State Milk Federation has around 30 chilling centers, 13-farm coolers, 14 liquid milk plants and two product dairies for chilling, processing, conserving and marketing of milk. Under State
Federation 13 milk unions are functioning; and these all together controlling 7,676 Dairy Cooperative Societies in the state and average milk procurement has been increased year by year. The dairy development programe in Karanataka since 1974-75 to date has passed through distinct phases namely KDDC and KMF through the establishment of vast network of institutions and increased its volume of business. Among thirteen unions Belgaum Milk Union (BEMUL) is one of the successful union in its function covering whole district, under union supervision 325 DSC are functioning in the district. Union is running financially with good condition and status among all unions in the state. It is in this context, a detail study of the marketing of dairy products in Belgaum district has been taken up, and an attempt has been made to study the cost and return of milk production and performance of milk union by using indicators based on both quantitative and qualitative data compiled from a variety of sources and for different period of time from union Dairy Cooperative Societies and also farmers beneficiaries of the study area. The present study will help planners, policy makers and administrators for taking the future course of action. The results of the study will also help to know the successful working of district level organizations and it will also help to know the extent of knowledge of improved dairy management practices which are essential in increasing the milk production. Similarly present study is a modest one which helps in identifying the constraints in dairy farming in rural area of the country.