CHAPTER 2
REVIEW OF LITERATURE

The second chapter highlights on the overall review of literature available on the present topic the review has been taken for different research papers and same related literature available on the study few studies trial to focus on the dairy co-operatives are fallows

Dabas, Singh and Rastogi (1971), Have studied that dairy farming will be more remunerative than the arable farming. They were attempted to compare a 25 acre farm with arable farming with another farm of the same size with dairy farming under. Similar agro-climatic and management conditions. The study conducted that dairy farming is more profitable than arable farming giving a net return of R. 1854 per acre as against Rs. 749 per acre under arable farming further, the return per rupee of investment also higher by 18 paise in the dairy farming\(^1\).

George and Srivastava (1975), Have calculated benefit cost per buffalo in Baroda District. The internal rate of return was 44 percent of cattle development. At discount rates of 7.5 and 10 percent, the benefit cost ratio including inputted costs came to be 1.37 and 1.36 respectively. They concluded that “dairying could be used as an effective means for increasing the income position of the rural poor if adequate finances lined with extension and marketing facilities are provided.”Amongst the sectoral unions of workers in the unorganized sector, the national level federations of building and construction workers is one of the largest in India\(^2\).

D. S. Thakur’s, (1975), Analysis on progress of milk societies, milk unions and the impact of milk co-operatives on the economic conditions of rural people including the weaker sections in the Gujarat was remarkable in terms of increasing number of milk societies; total membership, share
capital, reserve fund, net profit, milk collected and transactions were made since their inception. He also examiners the impact of technical inputs disbursed by milk co-operatives on production and marketed surplus of milk, adoption of improved agricultural inputs and the annual income of the milk producers. He found that the annual income from dairy enterprise per household was Rs. 2224 against Rs. 5346 from crop enterprises the further in the villages under experimental group. The income from former was about a little less than half of the latter pointed out that. The milk production per animal and marketed surplus is a little higher in the experimental villages than that in the control villages. In experimental villages, the use of improved agricultural input and total incomes are found to be higher. The marketed surplus of milk is higher in the case of the weaker sections compared to the medium and large farmers in general seems to be too obvious a conclusion.  

Pandeyet. al. (1975), Evaluate the economic impact of Dairy Development Project, Aligarh, on milk production, number and composition of milk animals, area under fodder crops, incidence of diseases and the attitude and awareness of the farmers towards various dairy development programmes. During 1971-71 to 1974-75, the buffalo population and milk production in the project villages are reported to have increased by 28 and 33 percent respectively. He found effective control of mortality rate and incidence of diseases on cattle population. The average gross income per farm family has increased by about 10 percent during the last five years contribution of milk production enterprise to the total farm income increased from 13 percent in 1970-71 to 17 percent in 1974-75, whereas income from crops is reported to be practically unchanged.

Kahlon et. al. (1975), Conducted a study in Ludhiana District of Punjab show through a linear programming exercise that there is significant
potential for raising incomes of the farms through optimization of resources coupled with adoption of complete package of recommended practices and dairy husbandry. They observed that income from dairy cattle was obtained throughout the year while income from crop husbandry logged by few months. According to optimal plans drawn for the existing farms having dairy enterprise, the large tractor farms yields an increase of income of 76.82 percent compared to 44.06 percent increase on the small farms and 66.95 percent increase on the medium tractor operated farms at the recommended level of technology.

Radha Krishnan and Sivanandham (1975), In their research paper use of the input output for 90 farms situated in Sarkass Amkulam block of Coimbatore Taluk (Tamil Nadu) in order to explore the possibilities of maintaining the milky animals within the availability of fodder, labour and other resources. Linear programming model is used to arrive at optimum cropping and livestock combination on the average situation form. They had shown that the readjustment of cropping pattern to suit the farming situation would earn 44.21 percent additional income and the maximum number of milk animals that a farmer can maintain would be five. The set of constraints did not include such an important resource as capital and housing arrangements for the cattle. Also, an assumption that bullock pairs are not maintained on the farm since it can be hired; would also invalidate the results of this exercise.

Rajvir Sing et.al. (1978), Formulated the input-output relationship for crossbred cattle maintained by urban households and fitted linear, semi-log and Cobb-Douglas types of production functions. The result showed that Holstein crossbreds gave superior performance as compared to Brown Swiss and Jersey crosses. Concentrate feed was found to be a better source of DCP in rainy and summer seasons. The results indicated; possibilities of
economic substitution of concentrate by green fodder such as berseem during winter season. The coefficient of order of lactation was found to be positive and significant in winter and summer seasons. In the crossbreds, the coefficients of age of first calving. The DCP from green fodder and concentrates were found to be significant. It was interesting to note that the age of first calving and market value of the cow had a significant effect on milk production during one season and negative influence in another season for the same set of crossbred cattle.

Bedi M.S. (1978), Analyzed data pertaining to 72 crossbred cows and 30 buffaloes to study economic allocation of feed and fodder. The cows, on an average yielded 9.29 kg milk per day and had an intake of 3.71 kg concentrates and 19.16 kg fodder, while corresponding values for buffaloes were 5.08, 2.56 and 25.44 kg, respectively. Linear, Quadratic and Cobb-Douglas production functions were applied to the data. The linear equation was the most appropriate for working out different feed combinations for specified levels of milk production. It was also used to estimate the marginal rate of substitution of fodder for concentrate. Results have shown that concentrates have a feed value for cows than for buffaloes.

Acharya and Pawar (1980), Studied the comparative economics of different breeds of cattle and buffaloes the average milk production of crossbred cows was 8.68 liters per day. The total milk of crossbred cattle in lactation was estimated to be about 2609 liters. On the other hand, milk production of buffalo and local cattle in lactation was 1359 liters and 604 liters, respectively. The average milk production cost per liter of milk of a crossbred cow, buffalo and local cow was observed to be Rs. 1.60, Rs. 1.89 and Rs. 2.52, respectively. The total labour requirement of 163 days for buffalo during the inter calving period was highest as compared to 159 days.
for crossbred cow and 133 days for local cow. This could be attributed to the larger inter calving period among buffaloes (574 days) than cows.

Singh, K. and Das. V. M. (1980), While conducting study on impact of operational flood at the village level found that the proportion of animals in milk to total milk animals was higher in the co-operative villages than in the control villages. The average household income from all sources was substantially higher in the co-operative villages than non-operative villages; however, the distribution of income from milk did not show any trend. The study further observed that the average employment of family labour in milk production was marketed higher in the co-operative villages than in the control villages. The awareness of scientific animal health care and improved feeding practices of respondents of co-operative village are more than control villages.

Kherde, R. L. and Subramaniom, R. (1980), Studied the impact of milk marketing through dairy co-operatives and found significant increase in the milk production in the co-operative villages whereas there was decline in the duration of age at first calving, calving interval, dry period and mortality rate in buffaloes. The net income of the milk producers increased under co-operative villages probably due to efficient and assured milk marketing through co-operatives. Employment days generated per farm in co-operative villages were more than non-co-operative villages.

In their article Huria and Acharya (1980), Examined the following issues on dairy development in India: (i) in the absence of sufficient pasture land how to reduce the cost of animal feeding by keeping energy input output ratio be kept as favorable as possible, (ii) to preserve the symbiosis between dairying and agriculture so as to provide low cost energy system. For the better utilization of agricultural waste small size land holding farmers should keep small number of dairy animals, (iii) from the point of
view of nutrition, milk is indispensable for infants, when breast milk is for any reason lacking so it is important to workout procedures for costing milk in a realistic way, so that price always acts as a stimulus to sustained dairy development and (iv) Modern technology needs constantly to be reviewed for ideas that favour the Indian situation, such as the development of ultra-high temperature (UHT) treatment of milk that stores for six months without refrigeration, or the extending of milk supplies using oilseed proteins. The important strides that dairy development has made need to be sustained through constant scholarly evaluation and mid-course corrections of direction or emphasis.\(^\text{12}\)

**Patel and Kumbhäre (1980),** Have studied the potential of dairying for providing gainful employment to rural women in their own households, Based on data collected from 113 households in rural Karnal, it was found that landless households spent about 40 percent of total time on dairy enterprise by female family labour on small farm, women contributed around one third of total requirement of labour in dairy enterprise large farmers. However, did put great reliance on hired labour as their female members did not participate much in their dairy activity keeping in view to higher socio-economic status enjoyed by these families. This study showed that dairy activity has a large potential for gainful employment for under employed and unemployed female labour especially belonging to weaker sections in rural areas.\(^\text{13}\)

**Karan Singh (1982),** Analyzed the cost of milk production and observed that the cost of production per litre of milk was Rs. 3.24. The share of fixed cost was found to be 18 percent of the variable expenditure. After deducting the value of the dung and the sale value of the young stock, the net cost of milk production was estimated at Rs. 3.16 per litre. The estimated cost function with cost per litre of milk as dependent variable and
milk production as independent variable showed that the cost per litre of milk would decline with increase in the level of production in a herd. The optimum scale of the herd, when the cost per litre was minimum was found at 84 litres of milk output per day\textsuperscript{14}.

**Patel’s another study (1983),** The net cost of production of a litre of buffalo milk ranged from Rs. 1.78 to Rs. 2.41 in the districts, the overall average being Rs. 2.20. The inter seasonal comparison revealed that the cost was highest in rainy season (Rs. 2.30) followed by summer (Rs. 2.08) and winter (Rs. 1.66). With regard to the individual cost components, feed cost constituted the single biggest item of total cost (54 to 69 percent) followed by fixed cost and labour cost. The share of concentrates in the total feed cost worked out to about one-fourth in buffaloes and one-third in crossbred cattle\textsuperscript{15}.

**Sharma et. al. (1983),** In Gwalior found a wide range of fluctuation in the feed cost between 43 percent to 69 percent and cost of labour between 12 percent and 14 percent. Rao (1986) in Andhra Pradesh studied economics of buffaloes wherein the feed cost was as high as 65 percent. The review of earlier studied reveals that during the past five decades, there was not much fluctuation in the proportions of different cost factors of milk production in India as well. The feed cost revolved around 60 percent on an average, except in one or two cases\textsuperscript{16}.

**According to Singh (1984),** The net cost of milk production for a litre of buffalo milk in Haryana state decreased with the increase in the size of land holding; it was observed maximum for the landless cattle owners (Rs. 204) and the minimum for the large farmers (Rs. 1.90), the average cost per litre for the state being Rs. 1.96. Season wise, it was maximum in summer season (Rs. 2.17) followed by monsoon season (Rs. 2.10) and winter season (Rs. 1.77). The overall average cost per litre of cow’s milk
worked out to Rs. 1.89. In order to establish the input-output relationship between the milk yield and the various explanatory variables, milk production functions were fitted. Out of all the functions tried, linear equations were finally selected, since it provided better estimates of the regression coefficients. The results for the state as a whole revealed that the stage of lactation and the human labour had highly significant and negative influence on the milk yield. As against this, the order of lactation, expenditure on green fodder, concentrates and the price of the animal bore significant and positive relationship with the milk yield. Miscellaneous recurring expenditure and the depreciation and interest on fixed assets did not appear to exercise any profound influence on the milk yield of buffaloes in the study area. In general, a rupee additional expenditure on green fodder resulted in an increase of 0.45 litres of milk yield per day. Similar increase in the case of dry fodders and concentrates resulted in an increase of 0.17 litres and 0.15 litres of milk, respectively. The investment of an additional rupee on green fodder and concentrates resulted in more than a rupee worth of milk.\(^{17}\)

Bowonder et.al. (1985), The net cost of maintenance during 1979-80 per cow per day of local cow, purebred exotic, crossbred cattle and buffalo was observed to be Rs. 9.74, Rs. 11.42, Rs. 13.37 and Rs. 9.91 respectively. The average yields for the respective. Breeds were, found to be 5.42, 7.70, 9.76 and 4.00 litres. The net cost of producing a litre of milk after taking into account the income received from the disposal of dung worked out to Rs. 1.80, Rs. 1.48, Rs. 1.37 and Rs. 2.48 respectively. This clearly showed that though the average cost of maintenance of a crossbred cattle was 37 and 35 percent higher than the local and graded buffaloes, the cost of production of a litre of milk in the respective breeds was 32 and 81 percent lower. The cost of milk production was the highest for the animals yielding below 1200 litres of milk in lactation. It was observed to be lowest (Rs.

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1.27) for those animals producing between 3601 to 4000 litres of milk. In the case of crossbred chattel the per day milk yield varied from 4.30 to 13.79 litres. The relative cost of producing a litre of milk was observed to be Rs. 2.73 and Rs. 1.20. In the case of buffaloes, the average yield per day varied from 2.60 to 5.50 litres. The cost of production too varied between Rs. 3.75 and Rs. 1.84

**Singh, M. et al. (1985),** Conducted a study on operational efficiency of U.P. milk co-operatives and found that the services like veterinary aid, cattle feed and marketing facilities were insufficient. Input services like artificial insemination (AI), pregnancy diagnosis, balance cattle feed and vaccination against communicable disease have appositive bearing on the efficiency of milk cooperatives. And concluded that the communication system should be made strong for quick transmission of latest technology, technical know-how pertaining to dairy as well as input services should be strengthened in the state to attain desired efficiency of milk co-operative societies

**Suhag kumar and Rathee (1986),** Estimated the economic performance of buffaloes in different seasons for the year 1981-82. It was observed that on an average, per day maintenance cost varied from Rs. 8.22 to Rs. 11.43 on different size of farms and in different seasons. The average milk yield of a milch buffalo was observed to be highest with small farmers in all the seasons (6.00 to 9.00 litres). This variation in milk production could be attributed to the calving season of animals and type of fodder fed. The average per litre cost of production of buffalo milk in various seasons was observed to be lowest in marginal farms as compared to small farms (Rs. 1.17 to Rs. 1.59)

**Singh et al. (1986),** Conducted a survey in Operation Research Project of NDRI areas in the year 1983-84. The results revealed that the
average gross cost for the maintenance of a local cow, buffalo and crossbred cow was about Rs. 2,344, Rs. 3,272 and Rs. 3,497 per annum; respectively. However, the average net income obtained from crossbred cow during the year was Rs. 890 as against only Rs. 56 from a buffalo and net loss of about Rs. 1,267 from a local cow. Interestingly, a crossbred cow generated average family labour income of about Rs. 1806 per annum as compared to Rs. 899 by a buffalo. However, local cow failed to provide positive family labour income. It was observed that the average net cost of milk production for local cows, buffaloes and crossbred cows was estimated at Rs. 4.01, Rs. 2.17 and Rs. 1.42 litre, respectively.\(^{21}\)

The study undertaken by Sharma P. (1986), During 1984-85 in rural and urban area of Gwalior district on factors affecting cost of milk production indicated that feed was the major component of expenditure on milk production, ranging between 43 percent and 69 percent, with an average of about 60 percent of total expenditure. Feed cost was found to be lower in rural area (Rs. 547) and semi-urban area (Rs. 8.27), as compared to urban area (Rs. 10.30), as fodder based feeding was more in practice in rural and semi-urban area as compared to urban area. The cost of production was however lower in urban (Rs. 2.19) and semi-urban area (Rs. 2.11) as compared to rural area where it was Rs. 2.87. This was because of higher milk yield of 6.5 kg in urban and 7.00 kg in semi-urban area as compared to rural area, where it was 4.3 kgs. Labour cost was the second important cost component accounting for about 12 percent to 24 percent with an average of 19 percent of total expenditure. Miscellaneous recurring expenses varied from 4.79 percent to 0.79 percent with an average of 5.63 percent, whereas the fixed cost varied from 10 to 20 percent with an average of about 15 percent. Out the factors affecting the cost of milk production in the command area of NagarjunaSagar Project, during the year 1981-82. Linear and Cobb-Douglas type of production function were fitted. It was
observed from the study that the inputs like green fodder and concentrates were the principal factors affecting milk production in alt size groups of farms. Regarding labour, only marginal farmers were utilizing this input in an efficient manner, while the rest of the farmer groups were over utilizing it and hence the component could be reduced\textsuperscript{22}.

\textbf{Patel, V. M. (1987),} Studied impact of milk co-operatives Gujarat, found that had created positive on the economy of milk producers and played a vital role for development of rural economy, ingot and that of the milk producers in particulars. The milk co-operative also gave assistance for various welfare programme / purposes and initiated many rural development activities in the village through various funds raised out of their savings\textsuperscript{23}.

\textbf{Bawander, B. et. al. (1987),} While conducting study on the impact of dairy development programme observed that where high breed cows have been distributed without other dairy development infrastructure it has not substantially helped to improve the income among the poor. The formation of co-operative societies for the procurement and chilling of milk and provision for cattle fodder along with cattle distribution scheme have been identified as important steps necessary for improving the socio-economic status of rural poor\textsuperscript{24}.

\textbf{C. Madan Mohan’s study (1989),} Study on ‘Dairy Management in India pointed out managerial deficiencies of Warangal district dairy i.e. over stabbing, the uneconomic strength of am power, low procurement, high overhead charges despite increase in milk sales. It further aims at democratization of dairy industry by farming producers’ co-operatives and consumer’s councils so as to facilitate paying remunerative price to rural producer and supplying quality milk at reasonable price to consumer. The study basically examined the managerial aspects of dairying\textsuperscript{25}.
Sidhu and Sidhu (1990), Have made comparative study of the primary co-operative service societies and the primary milk producers co-operative societies in Punjab. This study was conducted in Sungur district of the Punjab state. Two primary co-operative service societies, one successful and the other unsuccessful, namely, the Bari primary co-operative service society and the Rajomajra primary co-operative Service Society and two primary milk producers societies, one successful and the other unsuccessful the Jahangir primary milk producer's cooperative society and the Bunga Primary milk producers cooperative society respectively were selected on the basis their growth and performance overtime. The study revealed that both of the successful societies were characterized by the honest and dedicated management resulting in the loyalty of its members. Consequently, the successful societies were able to break the barriers of unfavorable socio-economic system. In the case of the successful co-operative society, the overdue were kept under check and the flow of credit was maintained. The main cause of the failure of the unsuccessful service society was dishonest and inefficient management. The leaders and big farmers were the main defaulters which encouraged the other members to default. Society failed to mobilize internal resources and failed to absorb high overdue which resulted in choking and dry up of the credit channel. The overdue went on increasing. Which further caused deterioration in the financial position of the society. This vicious cycle made the society unsuccessful. The unsuccessful milk producer's co-operative society failed due to the lack of spontaneity and dominance of big farmers. Who were divided in to two strong opposing groups which resulted in conflict on the point of location and leadership of the society. The members stopped selling milk to the society and the society failed to generate sufficient income to cover its costs.

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Chauhan and Sharma (1990), Have attempted to examine milk production consumption and marketed surplus of milk and identify various factors influencing surplus of milk in Bareilly district. Two villages from a block of this district were selected. Twenty five milk producers from each village were selected. These were classified as landless labourers marginal, small, medium and large farmers. The necessary information on numbers of animal milk production, consumption, investment, disposal of milk, family, size, education status income etc. Were collected for the year 1987 multiple linear regression equation was fitted to examine the empirical nature of relationship between surplus of milk with independent variables like level of milk production, monthly income, family size education score and investment on milky animals, The study revealed that the average per house hold production of milk was found to be 7.66 kg. out of which 29.11 percent of milk was marketed. A positive correlation was observed between milk production, consumption and size of land holdings. The weaker section of house hold contributed 57.85 percent of total market surplus a positive and significant relationship was observed between marketed surplus and total milk production, whereas marketed surplus bears significant negative relationship with monthly income and family size.

Matigatti, Murthy and Hiremath (1990), Have attempted to evaluate the impact of dairy co-operatives on cost-return structure of buffalo milk production in Dharwad district, six experimental villages were selected at random which fall in the area of operation of the working dairy co-operatives. Six control villages each very close to one of the above selected experimental villages were selected at random. The control villages do not fall in the area of operation of any of the dairy co-operatives. Farmers owning buffaloes in these villages were categorized into farmers owning only buffaloes and farmers owning both cows and buffaloes. A sample of 65 member combined farmers and 16 member buffalo farmers
were selected at random from the experimental villages. Again 65 non-member combined farmers and 16 non-member buffalo farmers were selected at random from the control villages. The study found that introduction of dairy co-operatives in Dharwad district has resulted in intensive cross breeding of cows and increase in their herd size. While the herd size of buffaloes increased marginally, the yield levels of buffaloes declined as the cross-bred cows became the major source of milk production and buffaloes were being neglected. The dairy co-operatives have succeeded in enhancing the profitability of buffalo milk through higher prices. It was also found that the yield levels of buffaloes increased when they were maintained independently.\textsuperscript{28}

\textbf{M. Verhagen (1990),} In his paper operation Flood and the rural poor concluded that “Operation Flood can at best have only a quite limited impact in terms of income and employment generation among the poor. Especially the poorest, the land less labourers, constituting about the bottom 25 percent of the rural population are by and large left out of the programme. The marginal farmers could benefit from the programme, but being generally small producers having few animals and of a low quality, their gains can only be small. In general, producers seemed to benefit more from the creation of stable outlet for their milk and the supply of inputs than from increases in production... limited access to fodder cultivation, not extending credit facility to the members by dairy co-operatives; are major barriers for promoting cross breeding programme among poor. So operation Flood is less oriented towards rural poor than towards the better off.”\textsuperscript{29}

\textbf{Baviskar, B. S. (1990),} In his study pointed out dairy co-operatives in Sanjaya and AMUL have brought many benefits to the milk producers in the village through providing a guaranteed market for milk at a fixed price,
supply cattle feed at a reasonable cost, regular and efficient veterinary and extension services at the village and there is no parallel to what AMUL has done for the milk producers of Kheda. So far reducing economic inequality is concerned he wrote “A charger proportion of the well-to-do than the small farmers are milk producers. The former have more buffaloes and derive greater benefits by supplying larger quantities of milk and since last 25 years they have not enlarged their herds due to the constants of space and family labour. On the other hand, the small farmers have clearly gained from the cooperatives, which help them earn additional income. But while dairying may add to the profits of the big farmers, it contributes to the survival and viability of the small ones. The marginal utility of the benefits derived from the co-operatives is much greater to the latter. In fact, about 90 percent of the land less labourers is unable to take advantage of the co-operative. Thus, the effectiveness of dairy development programmes in reducing poverty is serially limited.

M. Savara (1990), Studied “Dairy Development Amongst the Tribals in Surat District” found despite increasing quantity of milk produced by the small and marginal farmers and land less labourers, mostly trials. In reality, it accrued very low income for them. In the word of author: malnourishments trap which is lowering the quality of livestock, and a high milky animal and calf mortality rate. In other words, the Surat dairy programme does not seem to be self-sustaining development programme. For its survival it requires the perpetual inflow of money in the form of subsidies so that new productive animals can be bought lack of alternative regular employment and income generating opportunity, and loan-cum-subsidy facility to purchase milch animal at half of the price and on loan eagerly accepted by tribals to start dairy enterprise despite the negligible return i.e. surpass income of Rs. 0.47 per day with one milch animal for are location.
Saini, Thakur and Thakru (1991), Have studied the resource use efficiency on dairy farms in Himachal Pradesh. This study was conducted in to milk units of Himachal Pradesh viz., Mandi unit and Shimla unit, Three blocks from each of the two milk units representing two experimental blocks covered under milk co-operative societies and one control block representing absence of co-operative societies were selected. In this way, there were four experimental block two from each unit and two unit two control block, one from each unit, from each of the blocks, four village milk societies were selected randomly. There were sixteen experimental villages and eight control villages ultimately 15 farmers from each village were selected randomly, thus making a total sample of 360 milk producers comprising 240 milk producers in the experimental area and 120 milk producers in the control area the data were collected during the agricultural year 1988-89, Cob-Douglas production function was selected because this function gave better estimates of the regression coefficients and the best fit. The results revealed that the green fodder is the most important factor affecting milk production followed by cattle feed.

Sharma, Kuber Ram and Rathore (1991), Have attempted to estimate production and marketed surplus of milk on weaker section households and analysed the sections influencing marketed surplus of milk in Saharanpur district of Utter Pradesh two blocks of this district having good milk market infrastructure were selected. A sample of 8 villages, 5 from each of the two blocks were selected on the basis of density of cattle population. 195 households were randomly selected from each of the three categories viz. landless cattle. Owners, marginal and small farmers. Data on income, investment, educational status, size or family, size of holding number of milky animals, etc. was collected from selected households for the year 1987-88. Data on production, consumption and marketed surplus of milk was collected for three seasons viz, summer, monsoon and winter, the
linear models were used to identify the impact of various factors on marketed surplus of milk. The study revealed that the milk yield per day for annual marketed surplus and production of milk per day for household was highest for small farming, followed by landless labourers and marginal farmers. The study had also indicated that milk yield per day per animal was highest during rainy season followed by winter and summer, of milk per day per household was the highest during winter season. Followed by summer and rainy season. The study revealed that milk production was the most important factor influencing marketed surplus of milk of all the categories of households. Among other factors educational status of family members had a negative impact on marketed surplus for landless, labourers whereas it had a positive impact on marketed surplus of milk in case of marginal farmers. Investment in milk cattle was positively related to marketed surplus of milk, per capital income influenced marketed surplus of milk positively in case of landless labourers and marginal farmers, whereas it had a negative impact on marketed surplus for small farmers. Size of family and size of land holding were not found to be statistically significant.

Parthasarthy (1991), has studied the impact of dairy co-operatives on weaker sections in India. After taking the review of studies he has concluded that there has been a significant improvement in milk production, through the claim of a white revolution is exaggerated milk cattle are more equitably distributed than crop land as supplementary income from milk tends to reduce the overall inequalities. Further, landless labours are found to benefit. By and large the policy of integration of marketing input and veterinary services is well conceived. It has to be agro-economic situations and adaptation of the crossbred to the local conditions has been taking place and this need to be encouraged.
Singh. (1980), Worked out the economics of milk production of different breeds of milch cattle on different size of farms in Rajoure district in Jammu & Kashmir. The study revealed that the cost of maintenance of a local cow, crossbred cow, local buffaloes and graded buffaloes for the lactation period was Rs. 772, Rs. 1,485, Rs. 2,475 and Rs. 3,351, respectively. The average milk yield per day for buffalo was 4.50 litres. The milk yield of local cow and local buffalo was 1.80 litres and 3.10 litres, respectively. The net maintenance cost per day of buffalo was worked out to be Rs. 8.95 as against Rs. 4.60 for crossbred cow.

A study conducted in North Arcot district of Tamil Nadu by Thirunavu Kkarasu et. al. (1991), Found the impact of operation flood on the income and employment of the land less or the most vulnerable rural population has a strong empirical evidence that the programme is making a ‘revolution’ very quietly, but absolutely. The Scheduled tribe, Scheduled caste and other caste beneficiaries, out of total annual net income from all sources Rs. 4,766, Rs. 6,803 and Rs. 5,771 and livestock contributes Rs. 885 (18.56 percent), Rs. 1,700 (25.00 percent) and Rs. 2,197 (38.06 percent) to net income of households respectively whereas non-dairy households of ST, SC and other castes net annual income depicted Rs. 3,896, Rs. 3,729 and Rs. 3,545 and livestock’s contribution constitution nil Rs. 23 (0.60 percent) Rs. 451 (26.21 percent) respectively. The benefits of operation flood are mere skewed towards the upper castes than the lower castes. It is also intend out that to accelerate and sustain investment on rural infrastructure in the inaccessible areas as lack of adequate rural infrastructure may alienate the people from the development programme.

Mishra S.T. (1991), Using official estimates, discuss growth rates in milk production for two sub-periods, 1951-52 to 1971-72 and 1971-72 to 1987-88. The annual growth rate was one percent in the first period and 5.5
percent in the second. Their calculations based on feasible yield growth rates and growth rates of milk animals show that the rate was 2 percent per year during the first period and only 3.5 percent to 4 percent during the second period. They argue that the difference between the two sets of estimates is due to the fact that official estimates user estimated production of milk for the first period and overestimated it for the second period by officials to defend operation Flood programme. Despite per capita availability of milk has indeed increased, the data furnished by authors indicate a falling trend in per capita milk consumption in rural areas and an increasing trend in urban areas a finding which has serious implications for policy. Currently, India exports 3 and 4 million tons of liquid milk, largely to European Economic Community, reduced domestic availability of milk, and receives dairy commodity aid. They put it this trade is based on a strange logic of trying to achieve national self-reliance in milk production but at the same time transferring the means of achievement additional production elsewhere.

**Sharma and Vashist (1992),** Have studies the trends in milk production in Himachal Pradesh. The data on milk production and human population were compiled for 1974-75 to 1986-87 the production of milk registered an increase of 128.91, 104.25 and 100.40 percent in case of goats, buffaloes and cows respectively between 1951 and 1986. The per capita availability of milk showed an increase of 1.93 percent during the same period. However, this increase in milk production is not enough to meet even the nutritional requirement of the population of the state.

**J. M. Heredero’s study (1992),** On Milk Co-operatives and Tribal Poverty in Gujarat, concluded is as follows: the impact of the income from dairying can be better appreciated if we take into consideration the total income of the members. In Romgapura income from milk formed...
percent of the total income of a member between 1984 and 1986. In Nandagram, decentralized co-operative, income from milk, constituted 47 percent of the total in 1984 and 55 percent in 1985-86. The introduction of dairy farming has, thus, provided new income to tribal families to complement alternative sources of income. However, in 1984-85 only 51 percent of the members of Rangapsrn and 63 percent of the members of Nandagram supplied milk to the co-operative\textsuperscript{39}.

**D. R. Shah’s study (1992),** On dairy co-operativization in Tribal areas in Gujarat with a view to examine comparative strength and weakness of Ananda Pattern modem dairy co-operative structure and traditional dairy co-operative structure, and socio-economic impact of the dairy co-operativizations on the life and culture of tribals. The study explained that the traditional dairy co-operative structure could not become an effective alternative for the co-operative dairying through the weaker tribal producers residing in the remote part of the district. The traditional cooperative structure suffers from the basic limitation arising out of local area specialization, lack of integration and its exclusive dependence on nearby urban market. Ananda pattern dairy co-operative structure as it is well demonstrated by comparative analysis of the working modem Ananda pattern dairy co-operatives and traditional dairy co-operatives in the tribal area under study deserves the replication for development of dairying through rural poor producers. The comparative study of Choryasi co-operative (traditional type), has been compared with Ananda pattern co-operative namely, Sumul. The farmer shows that the greatest achievement is its survival due to provide higher price to producers owing to cheaper marketing and distribution arrangement, and retain its customers even by charging higher price by compensating them with better quality milk\textsuperscript{40}. 

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Sharma et al. (1993), pointed out in their study in Himachal Pradesh, Hill Cattle Development Programme Operated districts of Kangra and Kullu, the farmers can increase their milk output by feeding more concentrates to the animals and milk yield was higher in the winter season than in the summer and rainy seasons. By using regression coefficients, they concluded that the optimization of resources with the existing capital indicated the possibility of increasing the milk output in crossbred cows and buffaloes by diverting a part of funds from green fodder, dry fodder and labour to concentrates. Readjustment of feed inputs can raise milk production in all seasons on both the dairy and non-dairy households.41

Sharma and Singh (1994), have studied the economics of milk production in Himachal Pradesh. They tried to study the importance of integrating crop production with dairying. This study was conducted in Kangra and Kullu districts of Himachal Pradesh during 1989-90. A total sample of 200 farmers were selected by intensive enquiry consisting of 86 small, 63 medium and 51 large farmers. The study revealed that crossbred cows and graded Murrah buffaloes had an edge in terms of returns over non-district cows and local buffaloes respectively, owing to their higher milk yields. Results of this study have shown that the crossbred cows and graded Murrah buffaloes are more economical and efficient feed converters.42

Rao S.B. (1995), studied 80 households in Pipili block of Puri district in Orissa to find out the rationale for adopting dairy farming as a tool for income generation and employment creation. Results provided micro Level evidences in support of dairy enterprise as a measure for anti-poverty programmes. Dairy farming raised the income level of the beneficiaries by Rs. 2527, Rs. 2606 and Rs. 2210 for small and marginal
farmers and landless, respectively, Additional productive employment was generated through dairying\textsuperscript{43}.

**Gauraha (1995),** Examined and compared the cost structure and relative economics of milk production based on data collected from a sample of 18 urban and 24 rural dairy farms in Raipur District of Madhya Pradesh. The study brought out that average daily expenditure incurred on a much animal was higher in the urban area than in the rural area due to higher proportion of concentrate and green fodder fed to the animals. The average cost of production per litre of milk for crossbred cow came to Rs. 5.16 and 44 in urban and rural dairies respectively, while the corresponding figures for buffalo worked out to Rs. 6.32 and Rs. 6.33. The net returns were Rs. 3.84 and Rs. 4.68 per litre in the case of crossbred cow and buffalos milk respectively in the urban area. These were Rs. 2.55 and Rs. 3.67 in the rural area. The per day per animal yield of milk higher in crossbred cow than in buffaloes \textit{i Rout and Tripathy (1995) studied milk marketing costs, margins, and price spread indifferent milk marketing channels in Khurda district and observed that (i) In the direct’ selling of milk, the producers received 93 percent of the price paid by the consumers. This did not cover the total cost of milk production. (ii) In the marketing channel having one middleman, producers could recover variable cost but not the cost of Production fully. (iii) In the marketing channel having three middleman the price received by the producer was to the extent of 50 percent of the price paid by consumers. A both the areas. Koshta and Chandrakar (1995), from their survey found that a combination of bred and local buffaloes have produced more returns. Local cow breeds were economical in terms of milk production\textsuperscript{44}.

**Naik and Mohanty (1995),** Collected cost of milk production data from 50 households having cows in Khurda district of Orissa. This study
revealed that number of dry cows was more varying from 41 to 44 percent to the total. Feed including concentrates constituted major cost of milk production45.

**Singh et. al. (1995),** Studied the factors influencing milk production in Khurda block of Khurda district. In 1993-94, 61 households rearing cows and buffaloes were studied using Cobb-Douglas Production function. Results revealed (i) the superiority of buffaloes over cows in respect of 3 economic variables – feed cost, milk yield and milk prices, (ii) at the aggregate level concentrates fed to cows in milk yield more milk; and (iii) feeding of dry and green fodder did not have significant impact46.

**Koli P.A. (1995),** In his study on economics of milk production in Kolhapur district of Maharashtra State revealed that total and concentrates accounts 50.5 (percent), nired and family labour accounts, 39 (percent) cost in total cost of production, indicated that feed and labour accounts for 90 percent expenditure of the total cost the per litre. Cost of milk production was about Rs. 7.42 and per litre profit ranged between Rs. 0.68 to 1.08, the average profit per animal was about Rs. 2403, the output in put ratio was 1.1847.

**Atibudhi M. (1996),** Studied economic rationale of adopting dairy farming as a tool for income generation and employment creation in pipli block of puri district in Orissa. He reported that dairy enterprise was an effective tool for anti-poverty programme. The additional productive employment generated through the activity of dairying among the beneficiaries was 166, 169, and 171 man days for small marginal farmers and landless respectively, accounting for 43-45 percent to 53.27 percent more labour employment. He also revealed that adoption of dairy enterprise raised the income levels of the beneficiaries by Rs. 2527, Rs. 2606 and Rs. 2210 for small marginal and landless farmers respectively48.
Kale P.V. (1997), Studied economics of milk production and marketing in Ahmednagar district and found that at overall level the average size of herd was worked out to 3.52 milk animals. It was also found that at overall level Hf crossbred cows were profitable and gave net profit of Rs. 2159.79 followed by jersey crossbred cows buffaloes. It was noticed that the average per day maintenance cost was highest (Rs. 35) in case of Hf. crossbred cow followed by Jersey crossbred cow\textsuperscript{49}.

Birajdar R.D. (1999), Studied on economic evaluation of dairy farming system in Solapur reported that the per kg cost of milk production was found to range from Rs. 11.01 to 17.47 in buffaloes. Rs. 7.91 to Rs. 10.69 in crossbreds and Rs. 9.38 to Rs. 14.01 in local cow a cross various dairy farming systems the net cash returns per milch animal were positive in all the system’s except irrigated large dairy farming system in study area\textsuperscript{50}.

Waghmare B.S. (2000), Studied on economic analysis of mixed farming in the scarcity area of western Maharashtra reported that livestock production activity has been found to be the important activity in influencing the family income and employment on small and medium farms. The average investment on livestock was higher in irrigated region than that in rain fed region the number of livestock was 4.56 and 4.07 in irrigated and rain fed regions respectively. Among the bovines crossbred cows shared the largest proportion (42.82 percent) in rain fed region than in the irrigated region (29.50 percent)\textsuperscript{51}.

Patil P.M. (2002), Studied economics of buffalo milk production in Satara district of Maharashtra State and they reported that average number of milch buffaloes on small, medium and large units were 1.38, 3.18 and 5.36 respectively. The average daily milk was Rs. 11.65, 11.70 and 11.80 respectively the net maintenance cost gross return and net profit per day per buffalo was Rs. 57.00, 63.80 and 64.30 and Rs. 65.80, 71.02 and 73.16, and
Rs. 11.50, 7.22 and 8.86 respectively. The break even output for milk production was worked out to be 5.00, 5.56 and 5.56 liters per day on small, medium and large categories of respondents, respectively\textsuperscript{52}.

\textbf{Concluding Remark:}

In the last research a light is thrown on the milk producers, milk production cattle like cows, buffalos with milk producers, Employability through milk business, Hygienic awareness of livestock, Import ants of Fodder and dry and green grass, Selection of milk sell market milk produced from them, price of that milk per liter, expenditure on milk production, different types of milk giving cows and buffalos, profit made by dairy co-operatives and the profit made by milk producers.
References:


26) Sidhu and Sidhu R.S. (1990), Case studies of successful and unsuccessful primary co-operative service societies and milk producer's co-operative societies in Punjab, Indian Journal of Agricultural Economics, Vol. XLV, July. P. 367


