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PRODUCTION AND PROMOTION OF MILK IN MADURAI DISTRICT – AN VIEW

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Abstract

The allied activities had occupied pivotal role in the production prospects of livestock and poultry, fish products and forestry products. The three sub-sectors namely animal husbandry, fisheries and forestry are providing subsidiary occupation and income to the rural masses besides contributing income to the national economy. Animal husbandry activities are all important both as principal activity and as subsidiary activity along with agriculture. Dairy fits well with farm enterprise and also creates gainful employment opportunities, which reduce rural unemployment. It contributes about six to eight per cent of the national income. This would lead to fuller utilization of soil fertility, fuller employment for farmers throughout the year and an increase in rural incomes. Dairy products are a major source of cheap and nutritious food to millions of people in India and the only acceptable source of animal protein for large vegetarian segment of Indian population, particularly among landless, small and marginal farmers and women.

Key words: Livestock, Poultry, Animal Husbandry, Fisheries and Forestry and Soil Fertility.

Introduction

Poverty anywhere is a threat to prosperity everywhere. India is a nation, which has remained poverty-stricken, even after independence. Removal of poverty has always been the principal aim of planning. Anti-poverty programmes like IRDP, NREP, RLEGP and TRYSEM rely on direct interventions and make a forward attack at resource endowment, employment and skill development. Milk is a wholesome food and it is consumed by people of all age groups ranging from children to adults in order to acquire growth or to get energy. Since time immemorial, milk has been universally recognized as a nutritive food par excellence. Proteins constitute 3.2 and 4.3 per cent in cow's milk and buffalo's milk respectively. Besides proteins, milk contains many other protective elements such as vitamins, minerals and amino acids. Milk has contributed immeasurably to health, nutrition and pleasure of mankind and thus it forms a vital part of the human diet in most societies throughout the world. Dairy products are tailored to suit the changing social and dietary habits of many people in different parts of the world. They have encouraged the dairy industries of many countries to take a new look at the range of dairy products.

New Product Development from Milk

Innovation has led to new product development ultimately leading to product differentiation though the basic material remains the same. There are different ways to create dairy products by adopting technological processes such as fat fractionation, Electro-dialysis and membrane separation, to mention only a few. The concept of milk as an industrial liquid paves the way for a large number of dairy products that widen the base of the markets for dairy products. Dairying has given 'variety' to the food industry. 'Research and Development' (R&D) has done valuable work in the sphere of milk products. Milk occupies a prime position in the dietary habits of the people of the world. Hence, the demand for milk is ever increasing. This compels the state to increase the quantum as well as the quality of milk, which is a very serious proposition. This calls for a very careful planning and distribution of milk and dairy products. On account of these, study of various aspects of dairy sector is very much needed to appreciate and offer solutions to different problems of our economy.

Importance of Dairying

Dairying has become the most important subsidiary occupation and employment. For the development of the dairy industry in the country, improvement in the marketing of milk is critically important. One of the ways to achieve this is to increase the competition in the market and the role of milk producers in marketing. In many States, this has been done by establishing and encouraging formation of Milk Producers' Co-operatives. These institutional bodies operate in the rural areas to collect and handle milk supply from the producers and distribute the same to the city dwellers and consumers. These developments boost milk production. Its effective marketing and distribution assume a significant importance. Indian rural economy has been developed by large farmers, small farmers, marginal farmers and landless labourers. They are also involved in the production of milk. A scheme, called 'Operation Flood' was launched for the first time during 1970. It promoted the production of milk both in the organized and the unorganized dairy markets. It also related to the rapid increase in the creation of modern infra-structure for milk-processing. For the process of economic development to become viable, it is necessary that the marketed surplus increases with increasing production volumes. And to achieve this goal, it is necessary to ascertain the determinants of marketed surplus of milk that would help policy makers in formulating policies for increasing the marketed surplus through establishment of efficient marketing systems. There is dearth of empirical evidence on the determinants of marketed surplus of milk. The increasing production of milk should lead to expansion of marketed surplus of milk. It calls for ascertaining the determinants associated with the increasing marketed surplus.

Origin of Dairy Farming

The history of dairy development movement in India is of recent origin. During the Pre-Independence period this movement was limited to a few pockets of Calcutta, Madras, Bangalore and Gujarat. The most notable of this venture was Anand Co-operative Milk Producers Union Limited (AMUL) of Kaira District, Gujarat. But After Independence, Indian government took great initiative in setting up new dairy co-operatives in every corner of the country.

Anand Milk Union Limited (AMUL)

The Aarey Milk Colony was established in 1945 by the Bombay Government under Greater Bombay Milk Scheme. During 1946, the first farmers' integrated dairy Co-operative was established in Kaira District at Anand which later came to be known as AMUL. Thus after Independence, both Amul and Greater Bombay Milk Scheme together set a faster pace of dairy development with emphasis on developing techniques of processing and marketing under Indian conditions. The growing demand for milk in Bombay provided the stimulus for the milk products in Kaira District to increase production and the Kaira District Co-operative Milk Producers Union, popularly known as 'AMUL' came into being. Starting with just two milk producer societies with a daily collection of 250 litres in 1948, Amul now has a membership of 360000 farmers handling about 850000 litres and disbursing about Rs.100 crores annually towards the cost of milk supplied by them. The Anand pattern is a three-tier structure consisting of the producer societies at the village level, which collect the milk from the producers twice daily and pay them. On behalf of its member Unions, the Federation undertakes the collective marketing of milk and milk products, besides attending to quality control. The role of the government is to supervise, guide, encourage and wherever necessary discipline the erring co-operatives. The Anand pattern thus establishes a direct link between the producers and the consumers.

National Dairy Development Board (NDDB)

The NDDB was set up under the aegis of the Ministry of Agriculture and Irrigation, Government of India in September 1965 under the Societies Registration Act 1860. Its Board of Directors including Chairman are nominated by the President of India. The secretary of NDDB is the Chief Executive of the organisation who is supported by professionals to carry out the Board's activities. It promotes project of general public utility as well as international liaison with other National Dairy Boards and international agencies to facilitate the exchange of information for conducting research in the field of dairying and animal husbandry. The package of services which the NDDB offers helps in the creation of viable co-operative farmers' organisations with facilities for procuring, processing and marketing of milk and milk products. The NDDB's approach towards the modernisation of dairying has been well-accepted under India's various Five-Year-plans and

the World Bank-aided projects in India and abroad. The Indian dairy industry is thus on the threshold of a new era of quantum jump in milk production, which would totally transform the dairy scenario to the rural masses in terms of higher income, improved amenities and better living.

The establishment of a co-operative structure, which ensures a guaranteed market for the producer acts as an incentive for higher milk production and eliminates intermediaries in the milk trade. Being well-organised, the milk producers are able to bargain for a higher price in line with increasing cost of production. But the State Governments in their anxiety to protect consumer interests act as a check against steep increases in price.

Operation Flood Programme in India

The performance of the Indian milk sector during Operation Flood programme covers Operation Flood phase I, II and III. The dairy Co-operative sector during Operation Flood has played a major role in increasing the milk production as a single largest farm commodity in terms of value. The State-wise milk production is analysed by an exponential function to reveal its compound growth rate over various Operation Flood phases in the country. A significant positive compound growth rate was observed in major Indian states. The milk utilisation pattern had also switched over the period. In a nutshell, operation Flood covered nearly 7.51 per cent of rural people in the country and had provided them with income-generating opportunities for their subsistence.

Next to crop husbandry, the most likely programme for extensive support has been animal husbandry, particularly dairying sector, which has got the largest employment potential in India since time immemorial. The dairying sector has passed through an exciting stage of development and is becoming increasingly important owing to the enormous growth in milk production in the past two decades. It has brought about remarkable changes in the perspective of milk production that now focuses on the integrated approach of Operation Flood (OF) and its networking of milk, from producer to consumer. The Indian farmers (landless and marginal are around 70 per cent of total dairy farmers) carry out dairying as an agricultural enterprise primarily through small individual units having one to two milch animals. These farmers are scattered over rural areas and they lack milk marketing infra-structure at the village level. Generally, they sell their surplus milk to the private milk vendors at a low price with an irregularity in milk marketing. To provide competitive milk price and regular milk marketing arrangement, Operation Flood programme, the most significant rural development project, was drawn up by the National Dairy Development Board (NDDB), in 1970 to replicate the Anand Pattern of dairy development in other parts of the country-with institutions owned by rural milk producers, which were sensitive to their needs and responsive to their demands. The

Government of India also regarded the Anand Pattern as a model for dairy development due to its integrated approach to the production, procurement, processing and marketing of milk along co-operative lines. Before 1970 various Pre-Operation Flood dairy development programmes and policies were in operation in the country. These programmes had little impact on increase in milk production, bovine population and per capita milk availability in the country. During 1950-51 to 1969-70, milk production increased from 17 million metric tonnes to 20.7 million metric tonnes, whereas the per capita milk availability decreased from 132 gm per day to 107 gm per day. The average growth in bovine population also recorded a poor increase in the country during Pre-Operation Flood Period. This was the state of affairs in India's dairy development programme christened as Operation Flood, which marked that beginning of a new era in the history of dairy development in the country.

Indian Dairy Corporation (IDC)

The Indian Dairy Corporation (IDC) was set up under Company's Act on 13th February 1970. It is a Government of India undertaking. The immediate need to set up Indian Dairy Corporation was to handle the Commercial and Financial Transaction of "India-World Food Programme (WFP) project-618", popularly known as 'Operation Flood'. This has become mainly a financing-cum- promotional agency of the Central Government. The white revolution, aims at massive dairy development on a co-operative basis. Impressed by the economic transformation it had brought about in the life styles of the Gujarat farmers, it was decided that the 'Amul' (Anand Pattern) should be replicated nationally. Since the inception of Operation Flood programme in the country in 1970, it has completed three phases known as Operation Flood phase I, Operation Flood phase-II and Operation Flood phase III. Operation Flood phase I was originally designed to be implemented over a period of five years and launched on July 1, 1970, but was extended till March 31,1981 over 10 States. The Operation Flood-I project had an initial outlay of Rs.95.4 crore which was later increased to Rs.116.40 crore. The average liquid milk marketed through milk co-operative by the end of Operation Flood phase I was 27.9 lakhs litres per day.

Operation Flood phase II was launched on October 2, 1979 while Operation Flood phase-I was still underway and concluded on March 31, 1985. Operation Flood Phase II covered 22 States/Union Territories. Operation Flood phase III was started on April 1, 1985 to consolidate the extensive milk procurement, processing and marketing infra-structure created under Operation Flood I and Operation Flood II in 23 States/Union Territories and finally completed in March 31, 1996. The Operation Flood II programme had an outlay of Rs.485.5 crore, whereas it was 1303.1 crore during Operation Flood III programme. By the end of phase III, 72.5 thousand village level Dairy Co-operative Societies (DCSs) were established in 170 milk sheds covering 267 districts in 23 States/Union Territories of India

from where milk is collected twice a day. Nearly 92.6 lakh farmer members supply about 10.99 million kg milk per day which is processed by 370 liquid milk processing plants and product factories under the organized sector in India. The average liquid milk marketed through milk co-operative by the end of Operation Flood phase III was 100.2 lakhs liters per day. The growth in annual milk procurement, average liquid marketed and liquid milk converted into milk products under Operation Flood programme extended the organized marketing of milk to cover 500 towns which involved the development of procurement, processing and transportation facilities in the milk sheds. The basic infra-structure of milk processing capacity had increased substantially in the country over the various Operation Flood phases. Similarly trends were also observed for technical inputs like a number of Artificial Insemination (AI) Centre, and cattle feed capacity.

Growth Performance of Milk Production in India

Till the new economic policy was announced, National Dairy Development Board (NDDB) had a monopoly on the importance of dairy products and the construction of new processing capacity was subjected to industrial licensing. There was a boom in investment in new dairy processing capacity immediately after the liberalization of economy, particularly in the private sector. Availability of various incentives and tax concessions offered by the States to the private industry is the primary reason for rapid expansion of processing capacity in the private sector. In 1991, as part of the economic reforms, the dairy sector was de-licensed. This effectively opened the industry to private entrepreneurs (including multinationals as the foreign companies were allowed to raise their equity holding to 51 per cent). The basic philosophy underlying de-licensing was encouraging the competition in procurement and marketing of milk, thus enhancing value for both producers' and consumers. It was also expected to spur increased in flow of capital and new technologies. De-licensing did have the indented effect of attracting private sector investments into the dairy industry. Within a year, over 100 new dairy processing plants were established in different parts of the country, most of which were designed to manufacture a range of high value added products. Therefore, it is necessary to study about growth performance of milk production in India during post reform period. The New Industrial Policy (NIP) also known as LPG is intended to bring about significant and far reaching changes in industries, trade, import liberalisation policy and foreign direct investment policy to make Indian industry more competitive and efficient to enhance economic growth. Naturally the question arises as to how production of milk in India has been enhanced after 1990-91. Growth rates are perhaps the most commonly used measure in economic profession. Therefore, the study makes an attempt to examine growth of milk production during post reforms period in India.

Cost Analysis and Cost Components

The present study deals with the cost analysis and cost components of milk producers. The study consists of the average cost of milk production per animal per litre. The total cost of milk production is divided into two, as variable cost and fixed cost. The variable cost includes the cost for feed, maintenance and miscellaneous expenses. The feed cost includes the cost for green fodder, dry fodder and concentrates. The maintenance cost consists of cost for feeding and watering, washing and cleaning, veterinary care and milking expenses. The fixed cost includes the depreciation on fixed cost, depreciation on cattle shed and interest on fixed cost.

Variable Costs

In order to make production decisions in the short run, only variable costs need considered which include the cost of feeds, maintenance and miscellaneous expenses.

1. Feed Cost

The actual quantity of feeds and fodder fed to individual animal on the previous day of visit to the selected households was multiplied by the purchase price or the market price of the type of feeds and fodder fed, to determine their value.

i) Green Fodder

Green fodder includes the sugarcane tops, grass and other leaves. The cost of these items varies according to place and time. The respondents used only the cheapest available. The respondents from urban areas pay for it but the respondents from rural areas seldom pay and even where the payment is made, it is very low. But the study has included the opportunity cost of these items also. The cost in rupees given by the respondents has been taken only for green fodder used.

(ii) Dry Fodder

The dry fodder is the paddy straw. The paddy straw is purchased for a price which varies. The study considers the approximate value of paddy straw used to feed the animals, and the information given in this regard by the respondents has been taken into consideration to arrive at the average cost.

(iii) Concentrates

Sarson cake, grams and cotton seeds, feed and feed mixture, ground nut cake, rice bran and cotton seed cakes are included as concentrates. The concentrates are purchased from the market. The respondents use any one or combination of any two or three types of feed purchased either daily or once a week or once a month. The cost per kilogram is less when they purchase in bulk. Even though some variations are found in the values of concentrates as given by the respondents, only the average cost is taken into consideration.

2. Maintenance Cost

Maintenance cost includes the cost like feeding and the veterinary care for animals. The labour cost incurred while maintaining the dairy business is taken into consideration. The veterinary charges include the charges for artificial insemination, cost of medicine and honorarium for the dispensary staff.

3. Miscellaneous Expenses

Miscellaneous expenses include the expenditure on minor repairs of cattle-shed and store, dairy equipment, water and electricity charges, purchase of ropes and the like. These expenditure details have been received from the respondents, with reference to lactation and dry periods for cow and buffalo. Only the average cost is taken into consideration.

Fixed Costs

Fixed cost refers to those cost which remain unchanged over a short period of time. Total fixed costs included depreciation on fixed assets like animal, cattle-shed, stores and dairy equipment.

1. **Depreciation**

The annual depreciation on the fixed cost is charged at the rate of 15 per cent. In the case of depreciation on cattle shed, it is charged at the rate of 2 per cent for 'pucca' sheds and 5 per cent for 'thatched' sheds.

2. **Interest on Fixed Cost**

Total investment on animal, cattle-shed and other dairy equipments is taken as the fixed capital. The interest on fixed capital is worked out at the rate of 12 per cent per annum. This is the rate of interest charged by commercial banks on dairy loans.

Income from Dung

Dung is sold by the producers as a commodity for various purposes.

- **Net Cost of Milk Production**

  The net cost of milk production is obtained by deducting the income from dung from the total cost of milk production (that is, fixed costs and variable costs).

- **Average Cost of Milk per Litre**

  The average cost of milk per litre is obtained by dividing the average net cost of milk production with the average milk production.

- **Average Cost of Milk Production per Animal**

The average cost of milk production per cow and buffalo is worked out separately during lactation period and inter-calving period (that is, including lactation and dry periods).

Marketing of Milk

Indian dairy sector made remarkable progress over the last few decades. The co-operative movement, especially Operation Flood, has been an important driver of this progress and has played an important role in facilitating the participation of smallholders in this expanding sector. The Indian dairy industry is gearing itself to face new challenges and opportunities in the 21st century. Its strength lies in the synergistic partnership forged between the farmer and the dairy professional, combining the farmer's earthy wisdom and energy with latter's knowledge and skill. This has imparted confidence and strength to India's White Revolution, giving it direction and thrust.

Another source of its strength is the Indian consumer. Rural or urban, he has to have his glass of milk as far as possible. For him, there is no substitute for it to safeguard his health and welfare. This attitude, inherited for centuries, has made India the world's largest consumer market for milk. Milk is a highly perishable commodity, and is produced in small lots, twice a day, scattered over a very large number of farms in almost all the villages. It is demanded daily almost in every household in both rural and urban areas. The quality of milk and prices paid by consumers vary widely. Usually, consumers complain that they pay a higher price while milk producers complain that they do not get a reasonable price for their produce. Therefore, a very strong mechanism for collection, transportation and distribution of milk is essentially required in any programme of dairy development. The milk marketing structure is constantly undergoing a change in the country. Despite three decades of co-operative movement in India, however, a large proportion of milk and milk products in India continues to be marketed through the 'informal or unorganized sector' although the share of organized market has steadily increased over the last three decades. Even then, due to wide dispersal of producing and consuming units, unorganized sector is bound to exist in milk marketing.

Conclusion

India is a nation, which has remained poverty-stricken, even after independence. It is because of the deficiency mainly in the productivity of agricultural operations, on the one hand and the explosion of population on the other.The proper use of advanced technology has far-reaching effects. The attention of the authorities and agricultural exports to drawn in to the labyrinthine plight and whirlpool struggles is the farmers, staring at the barrel of abject poverty in the absence of redemption. The farmer need to be provided with better alternative avenues of employment and earnings. They should be actively lifted out of centuries of uneven struggle against marauding poverty and despondency leading to even suicides. Ways and means should be found to maintain a steady increased production and marketed surplus. The study has gone into emerging trends in the marketing of milk. The suggestions offered at the end of the thesis could go a long way to show an outlet for the gradual uplift of the financial plight of the small and marginal

farmers. Success in farming will provide the necessary boost to the agricultural industry that can contribute to the vast changes in the length and breadth of the rural India. If proper efforts are undertaken to bring into practice, some of the breaking grounds hinted at by the present researcher and the motivation behind its writing would have been amply rewarded.

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