



3.7 DAIRY DEVELOPMENT

Introduction

“Eight hours for dairy, eight hours for family and eight hours for sleep”

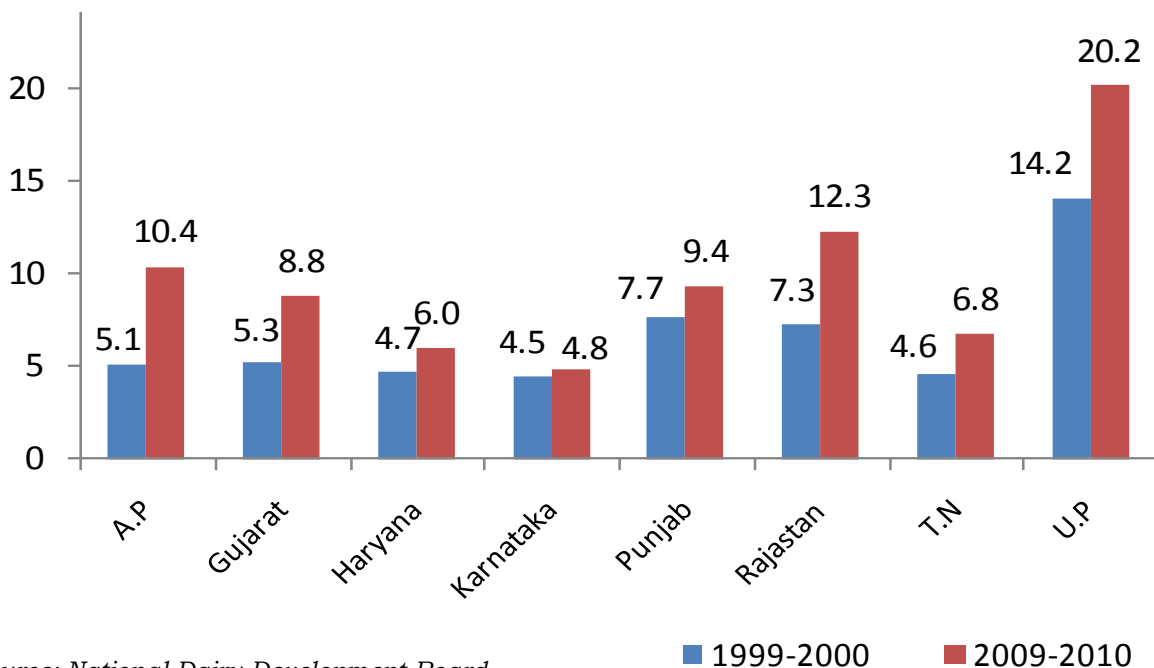
- Dr. Verghese Kurien.

Milk production and trade mainly operate as a cottage industry in the rural areas. A majority of those involved in this activity are women, for whom it provides employment and helps to supplement their family income. Traditionally, dairying and pasturing activities were done to meet the domestic requirement. Urbanisation has increased the demand for milk in urban areas and this necessitated procuring, processing and distribution of milk in a scientific manner. Further, to eliminate the middlemen and to protect the interest of the producers in the villages, Milk Producers' Cooperative Societies (MPCS) have been formed. This has assured a remunerative price, market

support to the producers and improved the rural economy, besides catering to the needs of the consumers.

India is one of the largest milk and milk products producing countries in the world. The country's milk production increased from around 20 million tonnes in 1960s to 121.50 million tonnes in 2011. The per capita availability (281g/day in 2010-11) is almost equal to the requirement of 280g/day. The State was placed between eighth to ninth position in the country in overall milk production in the last 10 years. Considerable reduction in buffaloes population, less increase in productivity of crossbred animals, existence of longer dry period and relatively larger share of milk from indigenous animals in some districts could be the reasons for lesser increase in milk production during the last 10 years in the State. Maintenance of pedigree records for crossbred animals,

Graph 3.7.1: Milk Production in Selected States (in L.MT)



Source: National Dairy Development Board



adoption of oestrous synchronization techniques and administering smart mineral mixtures to cattle, value added health conscious dairy products are the few strategies that can be employed successfully to tackle the above issues. In procurement of milk through cooperatives, the State stood between third and fourth position in the last 10 years. Tamil Nadu stood fourth in milk sales through cooperatives.

Milk production in Tamil Nadu during 2011-12 was around 68.34 lakh metric tonnes (L.MT.) While 12 percent of the milk is consumed in the villages by milk producers, 49 percent of milk is handled by the unorganized sector. The remaining 39 percent of milk is handled in the organized sector. The share of cooperatives in the organized sector is 24 lakh litres per day (LLPD) to 29 LLPD. The Dairy Development Programmes are implemented in Tamil Nadu through a network of milk cooperatives organized on 'Anand Pattern' model. The institutional framework has a three tier structure viz., societies at village level, unions at district level and federation of unions at the apex (State) level.

The milk procurement by the 17 District Cooperative Milk Producers' Unions (DCMPU) affiliated to the Tamil Nadu Co-operative Milk Producers' Federation (TCMPF) has steadily increased during the Eleventh Five Year Plan period. The main objective of milk cooperatives is to procure milk at a reasonable price and make it available to the consumers throughout the year at nominal cost. The dairy cooperatives are keen to meet the growing liquid milk demand in the State and keep the prices under control.

The dairy development activities have grown at a faster rate in western region than other regions. The dairy cooperative sector in the State has benefited by Government of India (GOI) schemes such as 'Intensive Dairy Development Programme', 'Strengthening Infrastructure for Quality and Clean Milk Production', 'Assistance to Cooperatives' and 'National Agriculture Development

Programme', in the last 10 years. Funds are also availed from the State Government. Tsunami Emergency Assistance Programme and ICDP assisted programmes were also implemented during the Eleventh Five Year Plan period.

In the recent years, private dairy operators play a key role in the dairy sector. They actually take care of the farm level production management to increase the productivity of animal, land, water and labour by scientific and partial mechanisation. The inputs like selection of animal, shelter, fodder, veterinary services, procurement of milk, training to farmers and financial tie ups with banks are provided by the private dairy operators. Also, they extend insurance arrangements followed by prompt and regular payment which have created an increasing trend in the dairy sector. At processing units, the value addition at plants is taken care by advanced technologies.

Review of the Eleventh Five Year Plan

The main objective is to ensure remunerative price to the producers and availability and supply of clean processed milk to the consumers. It has been achieved by providing veterinary health cover, breeding cover, improvement of milch animals and feed supply to the producers in dairy cooperative sector and provision of necessary infrastructure. Due to concerted efforts, estimated milk production has increased from 55.86 lakh metric tonnes (L.MT.) to 68.34 L.MT. during the Eleventh Five Year Plan period. This has resulted in an increase in per capita availability of milk from 271 gram/day to 279 gram/day in Tamil Nadu for the same period.

Financial Performance

As against the outlay of ₹43.70 crore, Dairy Development Department availed funds through various schemes and utilized ₹99.47 crore during the Eleventh Five Year Plan period. The details of outlay and expenditure made are furnished in Table 3.7.1.



Table 3.7.1: Eleventh Plan Outlay and Expenditure – Dairy Development Sector

S.No.	Scheme	Outlay 2007-2012	Expenditure Incurred
I	State plan schemes		
1	Creation of infrastructure facilities to dairy cooperatives	5.00	6.90
2	NABARD Loan to TCMPF for Thiruvannamalai processing unit	10.00	25.03
3	National Agriculture Development Programme/ Rastriya Krishi Vikas Yojana (RKVY).	10.00	59.57
4	Tsunami Relief Scheme (State Fund)	6.20	3.89
5	Setting up of dairy food park	5.00	0.00
6	Improvement of dairies (Own funds)	5.00	1.00
II	Centrally sponsored schemes		
7	Assistance to Co-operatives for implementation of the rehabilitation scheme (Shared Scheme on 50:50 sharing basis)	2.50	3.08
	Total	43.70	99.47

Source: Dept. of Dairy Department, GoTN.

The infrastructure created in the dairy development sector during the Eleventh Five Year Plan is given in the Table 3.7.2

Table 3.7.2: Performance of Dairy Development Activities - Eleventh Plan

S.No.	Item	2007-2008	2011-2012
1	Functional MPCS	7888	9231
2	Organization of new MPCS	364	1460
3	Membership (in lakh)	22.22	22.26
4	Pouring members (in lakh)	4.15	4.19
5	Milk production by societies (in LLPD)	25.00	24 to 29
6	Procurement by unions (in LLPD)	21.64	21 to 25
7	Artificial insemination (in lakh)	13.70	66.18
8	No. of Dairies	19	20
9	Milk cans supplied (in nos.)	5000	13000
10	Mobile input units (in nos.)	57	121
11	Milk collection kit supplied (in nos.)	50	450
12	Automatic milk collection station (in nos.)	136	271
13	Automatic Milking machine supplied (in nos.)	32	279
14	Bulk milk cooler installed	42	184
			(7.33 LLPD capacity)

Source: Dept. of Dairy Department, GoTN.



Achievements

- 1460 dairy cooperative societies have been organized/ revived during the Eleventh Five Year Plan period.
- Mineral mixture manufacturing units were established at Erode, Tirunelveli, Trichy and Villupuram to produce and supply mineral mixture to the milk producers to compensate the deficiency of minerals in the cattle feed.
- In order to accommodate the surplus milk of Salem, Vellore, Trichy and Villupuram, a new dairy with two LLPD and powder plant with 20 MT capacity is under construction at Thiruvannamalai at a cost of ₹60 crore through NABARD assistance.
- By pass protein plant has been established at Erode DCMPU for the purpose of better utilization of available protein through treated feed ingredients to enhance milk production and reduce cost of milk production.
- 85.09 lakh frozen semen straws have been produced at Nucleus Jersey and Stud Farm, Udthagamandalam, which is the first Frozen Semen Production Station to obtain ISO Certification in the country.
- Livestock Insurance Scheme is being implemented by the federation with 50 percent subsidy assistance of the Government of India through Tamil Nadu Livestock Development Agency (TNLDA). Under this scheme, 2.34 lakh cows and buffaloes were insured.
- For the welfare of milk producers, 'Welfare fund' has been created. Under this scheme, the producer has to pay ₹1.00 per month as premium and in case of death and loss of organ, they will get a maximum of ₹1.00 lakh as relief from the Fund.
- Under GOI sponsored 'Strengthening Infrastructure for Quality and Clean Milk Production Scheme' an amount of ₹23.42 crore was sanctioned to 13 DCMPUs and 147 Bulk Milk Coolers (BMC) were installed at various places adding 6.39 LLPD as chilling capacity.

- GOI sponsored 'Intensive Dairy Development Programme' (IDDP) is implemented in Sivagangai, Tirunelveli, Kanyakumari, Pudukottai, Virudhunagar and Thanjavur DCMPUs with the aim of improving milk procurement, milk sales, creation of infrastructure required for milk processing and marketing, extension of input activities and manpower development in districts for a period of five years. Under this scheme, the GOI has sanctioned ₹29.62 crore. As on date, farmer members belonging to 1161 MPCS in 10 districts were benefited. In addition to this, 127 new MPCS were organized and 70 dormant MPCS were revived.

Obstacles and Constraints

Autonomy in Pricing : The dual pricing policy of the private dairies results in diversion of milk by the producers to the neighbouring milk deficit States. The low procurement



Fig.3.7.1: Milk processing plant

price in the State makes cooperation face competition from private players on one side and on the sales sides, the low price of Aavin products create a huge demand pressure.

Shortage of feed and fodder: Balanced feeding can alone bring about an increase of 30 percent in milk production. Fodder cultivation and supply to farmers is essential in every village to increase milk productivity. Shortage of fodder in villages may be identified and suitable remedial measures may be taken to cultivate and supply fodder to farmers at nominal rate.



Scope

Value added products manufacturing facilities:

Today, the consumers are increasingly seeking 'functional foods' for their health and well being as means of nutritional intervention in disease prevention. Dairy products enriched with the health attribute of functional ingredients would be on sale and viewed as potential novel foods for health promotion in the next few years.

State Milk Grid

The major quantity of milk is procured from farmers who rear cattle in the villages. From the milk produced by small and marginal farmers, a small quantity is sold locally and the remaining quantity is collected by societies. In some areas, vendors collect milk from the farmers, sell certain quantity and supply the remaining quantity to MPCS and to others. The large farmers entrust the work to milk man. They milk the cows, collect milk and pay the cost to farmers. The milk is sold to private traders at a higher price. The pricing policy adopted by private traders is to pay ₹2 per litre above cooperative price and make profit. They procure only to their need and not the entire milk.

The milk thus collected is transported in cans to nearby bulk milk cooling units, where milk is chilled instantly to a temperature of four degree centigrade and kept in an insulated tank to avoid temperature loss. The raw chilled milk is again transported to district union dairies through insulated road milk tankers and processed. The milk required for local sale is homogenized, standardized, packed in sachets and sold locally. The remaining surplus milk is sent to Chennai Metro for metro sales. The milk procured over and above the quantity at particular point of time is sent to Feeder Balancing Dairies (FBDs) for conversion into milk products such as Skimmed Milk Powder (SMP) and butter. The shortage of milk in Chennai Metro is met by private at a higher price.

There are 9231 MPCS functioning in the State covering more than 50 percent of the revenue villages. The milk collected from MPCS through milk collection routes is chilled in 184 BMC units of 35 Chilling Centers (CC) located at strategic places in 17 DCMPUs covering 30 districts in the State.

Four major milk grids are there in the State viz., one at Madurai, second at Erode, third at Salem and fourth at Dharmapuri. The Madurai FBD can accommodate surplus milk from Kanyakumari, Tirunelveli, Virudhunagar, Dindugul and Sivagangai DCMPUs. Salem FBD can accommodate only Salem union milk. Erode FBD accommodates Villupuram, Erode, Coimbatore, The Nilgiris, Thanjavur and Trichy union milk. Dharmapuri FBD accommodates Dharmapuri and Vellore union milk. Besides, considering the improvement in milk procurement in Trichy and Vellore, a new powder plant at Thiruvannamalai will function from July 2013. The surplus milk from Vellore and Trichy will be diverted to this plant. The first priority of the unions is to send surplus milk to Chennai Metro and the quantity over and above to FBDs. Every month, a milk movement plan is prepared at TCMPF to monitor the milk flow in the State. The SMP and butter converted at FBDs are used for reconstitution and some quantity is sold locally in retail market. If daily milk procurement exceeds 26 LLPD, then milk will be sent to national grid. Previously, thick milk was sent to Mother Dairy, New Delhi for a period of nine months and for drying, facilities in other States were utilized. TCMPF have also sent milk to Kerala Federation during surplus period.

Twelfth Plan Objectives

- To bring the unorganized dairy sector into the fold of organized sector
- To improve input activities and animal health care for increasing milk production
- To encourage liquid milk availability
- To tap the milk potential of the State and to



Fig.3.7.2: Clean milk production

ensure stable growth in procurement and marketing

- To ensure quality of milk and milk products as per the statutory specification
- To monitor, supervise and regulate the dairy activities

Strategies

The major strategies for the Twelfth Five Year Plan are:

a). Provision of animal breeding, doorstep veterinary and emergency health care services, subsidized Artificial Insemination services, upgradation of milch animals, supply of feed, cultivation of fodder and insurance cover to animals of milk producers in cooperative fold, b). Ensuring clean milk production with quality testing at village level, c). Modernisation of cooperative dairy infrastructure and d). Development of e-governance programmes.

Schemes Envisaged

It is proposed to organize 6000 MPCS during the Twelfth Five Year Plan period by covering untapped revenue villages. Moreover, in rural areas, new women groups and MPCS will be established. It is estimated that 25 new private dairies may come up at the end of the plan period.

Strengthening the MPCS

- *Society infrastructure:* To ensure hygienic milk procurement, it is proposed to provide Stainless Steel (SS) can, SS kits,

SS pails, hygiene kit, milk analyser, automatic milking machine, chaff cutter and PC based automatic milk collection station to MPCS at an outlay of ₹61.43 crore. To assess the quality of milk and to fix the prices, milk testing equipments will be supplied to the MPCS.

- *Purchase of milch animals:* Cattle induction in cooperative ambit will be done aggressively. Animal loans will be arranged to loyal members who are in the field continuously through schemes. Towards the purchase of animals, an outlay of ₹175.00 crore and for calf rearing scheme, ₹31.82 crore is proposed.
- *Development of fodder:* It is proposed to encourage farmers to cultivate Azolla, fodder seeds, silage making, use of SMART mixture and GRAND nutrient supplement to increase milk productivity and bring down cost of production of milk. An outlay of ₹15.38 crore is proposed.
- *Input support-cattle feed:* A new cattle feed plant will be established at a total cost of ₹50.00 crore. The Madurai cattle feed plant will be modernized at a cost of ₹10.00 crore. Thus a total outlay of ₹60.00 crore is proposed.

Veterinary Health

- *Door step veterinary services and cattle insurance:* To reorganise the existing 121 veterinary routes and to establish 276 mobile veterinary centres to cover 9231 MPCS is proposed.
- Creation of infrastructure and post harvest management
- *Creation of chilling, processing and other infrastructure facilities:* An amount of ₹257.20 crore is proposed for chilling, processing and transport facilities and establishment of a new milk dairy and product dairy in Chennai Metro with efficient management system and aseptic packing system.
- *Chilling facility:* The chilling facility at villages and dairy handling capacities will be expanded to handle more milk. The



chilling centres functioning in the State will be strengthened. The chilling centres will act as a hub for supplying feed and fodder to MPCS at regular interval. Further, to eliminate the raw milk arrival at dairies it is proposed to install 100 Bulk Milk Chilling Units at strategic locations in the next five years and an amount of ₹25 crore has been proposed. To enhance the chilling infrastructure at villages, village level bulk coolers will be installed.

- **Processing Facility:** The handling capacities of large fluid milk dairies have to be expanded to commensurate with the estimated increase in milk procurement in the Twelfth Five Year Plan period. Hence it is proposed to expand and strengthen the handling capacities of Vellore, Villupuram, Madurai, Trichy, Pudukkottai, Coimbatore, Salem, Erode and Dharmapuri dairies at an outlay of ₹50 crore.

Box 3.7.1: Green Dairy Initiatives

Dairies and Bulk Milk Coolers consume electricity for various day to day operations like functioning of compressors, agitators, pumps and heaters besides lighting. Cost involved in electricity consumption for chilling of milk is 17 percent (out of chilling cost per litre of milk (60 paise), electricity consumption cost is 10 paise). Increasing power tariff would also find that electricity unit cost in dairy sector would go up. It has been proposed to install solar concentrator, water heating systems, solar lighting system in dairies in tune with Solar Energy Policy 2012 of the State. The scheme paves way for effective harnessing of solar energy thereby enhancing the efficiency of processing and pasteurization in dairies and Bulk Milk Coolers apart from reduction in operating cost.

Source: Dairy Development Dept, GoTN

- **Transport facilities:** Around 60 road milk tankers are proposed to be purchased at a total cost of ₹10.20 crore for federation and DCMPUs
- **New milk dairy and product dairy in Chennai Metro:** Under this, a new fluid milk handling dairy will be installed at a total cost of ₹60.00 crore and a new product dairy at a total cost of ₹10.00 crore will be established in Chennai Metro. Smart Cards for Aavin card holders will be introduced to the Chennai Metro consumers.
- **Energy efficient management system:** Under this, it is proposed to implement energy saving techniques, to provide solar power street lighting, water heating and green house lighting systems in dairies, CCs and BMCs. Introduction of soft water with 'Nil' effect on the system in all dairies and CCs are proposed at an estimated outlay of ₹2.00 crore.
- **Aseptic Packing System (APS) and powder plant:** It is proposed to establish a powder plant at Tirunelveli at an estimated cost of ₹60.00 crore and aseptic packing station for premium products at an estimated cost of ₹40.00 crore.
- **Management Information System (MIS) and Database in Dairying and Animal Husbandary:** It is proposed to improve the MIS and data processing with centralized database through online computer systems at all levels and provision of video conference facilities with an outlay of ₹13.10 crore.
- **Marketing Infrastructure:** It is proposed to improve the sales through various promotional measures, consumer education, provision of infrastructure and establishment of Research and Development (R&D) wing, retail outlet infrastructure, modernization of zones and head offices etc with an outlay of ₹22.60 crore. New milk products like milk shake and Shrikhand will be introduced for Chennai metro consumers.



- Human Resource Development:** The Metro dairies have been certified for International Standard Organisation (ISO) and Hazard Analysis and Critical Control Point (HACCP) standards. The quality of milk and milk products needs to be maintained right from raw milk collection, processing, packing and storage till it is delivered to the consumers. Further, the district unions are in the process of upgrading the dairies to get certified for ISO and HACCP compliance. Hence, it is essential that the personnel from society to dairy have to be made aware and trained with latest knowledge of the dairying activities. Training shall be programmed for this purpose. The training centres in the DCMPUs shall be provided with additional infrastructure required for conducting the training programmes effectively. The proposed outlay of ₹6.94 crore includes ₹2.61 crore for providing additional infrastructure in training centres and for training the project implementing and monitoring officials of taluk, district and State level.
- R&D wing for dairying sector:** It has been proposed to introduce variety of desiccated, frozen and fermented milk products in the market with nutritional value for the benefit of the consumers. In order to achieve this, it has been proposed to establish a new R&D Centre at Ambattur Dairy complex at a total estimated cost of ₹2.75 crore. Production of vermi-compost by utilizing the animal wastes will be encouraged. Similarly, production of organic vegetables will be explored and the possibilities of selling those organic vegetables through Aavin outlets will be attempted and R&D will be oriented to achieve this new attempt in this plan. Organic Consortia to be tied up with TANUVAS/TNAU. Next to fodder and water shortage, fatal diseases are the major constraint in dairying and indigenous cattle are repository for disease resistance and R&D activities to

include the utilisation of indigenous cattle on dairy development.

- The Food Safety and Standards Act, 2006:** The Food Safety and Standards Act came into force from 5.8.2011. The Food Safety and Standards Authority of India is the statutory regulatory Authority set up by GOI under the administrative control of Ministry of Health & Family Welfare, under 'Food Safety and Standards Act, 2006', for laying down scientific standards for articles of food and to regulate their manufacture, storage, distribution, sale and import, to ensure availability of safe and wholesome food for human consumption and for matters connected therewith or incidental thereto. The Act aims to establish a single reference point for all matters relating to food safety and standards, by moving from multi-level, multi-departmental control to a single line of command.

Twelfth Five Year Plan Outlay

Totally an amount of ₹656.38 crore is proposed as outlay for the Dairy Development Sector, of which an amount of ₹339.28 crore as State fund as shown in Table 3.7.3. However, additional schemes for the development of this sector will be taken up through funding from NDDDB, NABARD, Ministry of Food Processing Industries, GOI and own funds of MPCs and Unions.



Fig.3.7.3: Product Diversification



Table 3.7.3: Twelfth Plan Outlay – Dairy Development Sector

		(₹ crore)
S.No	Schemes/Project	Outlay
I	State Scheme	
	Ongoing Schemes	
1	National Agriculture Development Programme (NADP-RKVY) - Milk Production and Dairy Development Department	55.38
2	NABARD- assisted schemes	190.90
3	Headquarters Establishment – Milk Production and Dairy Development Department	5.00
	Total Ongoing Schemes	251.28
	New schemes	
4	Lumpsum Provision from State Fund	
	Infrastructure Development (₹61.42 crore), Purchase of milch animals (₹207.00 crore), Development of fodder farms (₹15.38 crore), Input support-cattle feed (₹60 crore), Strengthening village structure (₹9.30 crore), Door step veterinary services and cattle insurance (₹95.88 crore), Chilling centers and dairy infrastructure (₹257.20 crore) and HRD/MIS (₹45.37 crore)	88.00
	Total New Schemes	88.00*
	Total-Dairy Development (State Schemes)	339.28
II	Centrally sponsored schemes (wholly funded)	
	Strengthening infrastructure for quality and clean milk production, Chilling centre, Dairy infrastructure, purchase of milch animals, fodder development, door step veterinary services	317.10
	Grand Total	656.38

Note:* Remaining amount will be met from NDDB, NABARD, MoFPI and MPCS



The physical targets proposed for the Twelfth Five Year Plan are provided in the Table 3.7.4.

Table 3.7.4: Physical Targets for the Twelfth Plan – Dairy Development Activities

(lakh litres per day)

S. No.	Description	2012-13	2016-17
1	Total Milk Production in the State	196.99	230.45
2	Milk Retention	23.64	27.65
3	Milk handled by Unorganised Sector	88.65	103.70
4	Milk procurement-organised Sector	84.71	99.09
5	Milk procurement-private	47.44	55.49
7	Milk sales-cooperative	5.59	6.54
8	Milk procurement-unions	31.68	37.06
9	Metro milk sales	12.00	15.00
10	Milk dispatches to Chennai (less 5 percent)	11.40	14.25
11 A	Mixed milk supply @ 75 percent	8.55	10.69
11 B	Separated skim milk (SSM) supply @ 25 percent	2.85	3.56

Source: Dept. of Dairy Development, GoTN