

An economic analysis of growth trend and strategies for organized dairy plant in Karnataka

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Abstract : Dairying is an important activity in Indian economy contributing about 27 per cent of the agriculture gross domestic product (GDP) and around 4.35 per cent of the national GDP (Government of India, 2007-08). Karnataka stands eleventh in milk production in the country and it occupies second position with respect to milk production under co-operative sector in the country. The milk production was around 50 lakh litres per day during the year 2013-2014. Karnataka milk federation operates in 27 districts with 11,500 dairy co-operative societies covering 19,500 villages involving 1.6 million farmers. Among the 27 districts, Kolar and Chikkaballapur districts operating under Kolar milk union was purposively selected for the study. The compound growth rate for the period 1993-94 to 2012-13, in respect of total number of DCSs functioning, total number of members of DCSs, quantity of milk procured per day and quantity of liquid milk, curd and UHT milk sold per day, recorded 4.03, 3.11, 4.07, 10.89, 19.56, and 27.20 per cent, respectively and were highly significant. The main procurement strategies followed by Kolar milk union were changes in milk procurement price, ensuring availability of feed and fodder, systematic disease control and creation of disease free zones and artificial insemination camps. And the main marketing strategies followed by KOMUL were expansion of retail networks, creating brand awareness, quality improvement, training of channel members, promote the new products, introduction of new packs, streamlining the indenting system and collaboration with local NGOs.

Key words : Kolar milk union (KOMUL), Compound growth rate, Procurement, Marketing strategies

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INTRODUCTION

India has registered creditable progress in milk production and today the milk production of the country stands above 127 million tonnes in 2012-13 (Economic Survey, 2013) and India continues to retain the supremacy as the largest milk producing nation in the world. The share of organized sector in handling of milk in India is low, relatively

(hardly 20 %) though over years, the share is improving. The organized segment of dairy sector was hitherto dominated by Co-operative structure, established on a three-tiered organizational hierarchy. With the liberalization of India's economy (1995) and market entry by the private sector, new dynamics have emerged. These include increased supplies of a greater variety of value-added products and increased inter-firm competition with companies and supporting their sales development with integrated marketing initiatives. This fostered greater attention to branding, product positioning and product differentiation with intense price discounting for some products. In response to these challenges, the organized dairies have started to integrate their operations in areas such as procurement, logistics, processing, distribution and inventory management (Aramyan *et al.*, 2007).

According to Singh and Datta (2014) growth of milk production at state level differ significantly. It shows that only few states has consistent and systematic growth process was achieved during 1990s and 2000s, the growth process continued during the eleventh five year plan period also. Other than these states the growth process was found to be inconsistent and volatile. Around 390 districts across the different states indicate that average realized productivity is about 3.03 kg per day.

Kolar milk union (KOMUL) is the Karnataka's second leading milk union. The union is registered under Co-operative Societies act after bifurcation from Bangalore district co-operative milk producers union during 1987. The area of operation is restricted to Kolar and Chikkaballapur districts having 2919 villages of 11 revenue taluks. Milk union envelops three chilling centres has obtained certification for ISO: 9001-2000 quality management system and are in the process of upgrading the system to ISO-22000. It is the KOMUL to first install "bulk milk coolers and community milking machines" at Society level (village) in the state of Karnataka, to get the quality milk required for ultra-high temperature milk under the brand name of Nandini 'Good-life'. KOMUL procures on an average of eight lakh kg of milk per day and nine lakhs kg of milk per day is the highest procured since inception of union. KOMUL projects to collect 20 lakh kg of milk / day by 2020.

RESEARCH METHODOLOGY

The secondary data pertaining to total number of DCSs functioning, total number of members of DCSs, quantity of milk procured per day and quantity of liquid milk, curd and ultra-high temperature milk sold per day for the period of 1993-94 to 2012-13 was collected. The procurement and marketing strategies of Kolar milk union was also collected from the KOMUL management information system division. The analytical tools and techniques employed for the present study are elaborated under the following headings.

Tabular analysis :

Simple conventional method of tabular presentation was used in order to show the growth trend on total number of DCSs functioning, total number of members of DCSs, quantity of milk procured per day and quantity of liquid milk, curd and ultra-high temperature milk sold per day. It was also used for present the procurement and marketing strategies of Kolar milk union.

Growth rate analysis :

A time series data on total number of DCSs functioning, total number of members of DCSs, quantity of milk procured per day and quantity of liquid milk, curd and ultra-high temperature milk sold per day were computed for a period of 1993-94 to 2012-13. The growth rates were computed by using the exponential growth functional form.

$$Y = ab^t \quad \dots (1)$$

where,

Y = Dependent variable

a = Intercept

b = Regression co-efficient

t = Time variable

The compound growth rate was obtained from the logarithmic form of the equation (1) as below :

$$\ln y = \ln a + t \ln b$$

The per cent compound growth rate (g) was derived using the relationship.

$$g = (\text{Anti log of } b - 1) * 100$$

RESULTS AND DISCUSSION

After bifurcation from Bangalore district co-operative milk producers union during 1987. The area of operation is restricted to Kolar and Chikkaballapur districts having 2919 villages of 11 revenue taluks. It is KOMUL which first installed "Bulk milk coolers and community milking parlours" at Society level in the state of Karnataka, to get the quality milk required for UHT milk, under the brand name of Nandini good life. Union procures on an average of 8.00 lakhs kg of milk per day and 9.0 Lakhs kg of milk per day was the highest procured since inception of union.

Table 1 presents the compound growth rate for the period 1993-94 to 2012-13, in respect of total number of DCSs functioning, total number of members of DCSs, quantity of milk procured per day and quantity of liquid milk, curd and UHT milk sold per day, recorded 4.03, 3.11, 4.07, 10.89, 19.56 and 27.20 per cent, respectively and were highly significant. The similar observations also made by Shakeel *et al.*, 2000 and Kumar, 2010. From the results it is evident that the good life registered spectacular growth and were hold great promise for future.

Procurement strategies of Kolar milk union :

The study found that the methods which are followed by KOMUL in order to increase the quantity of liquid milk procurement and to retain members as active members of DCSs and for encouraging them to supply milk to DCSs for to a long period. The main strategies which are followed by KOMUL in order to increase procurement are as follows.

Periodic changes in milk procurement price :

It could be observed that the price paid to producers was high during the period from January to May while it was low for the period from June to September. This is because in flush season (winter and *Rabi*) availability of feed and fodder was more for animals as compared to pre and post- summer season, besides high milk production.

Ensuring availability of feed and fodder :

In order to improve milk production, the Union is also paying maximum attention towards the management and feeding conditions of dairy animals. The balanced cattle feed procured from Federation's Rajanakunte feed plant are being sold to DCSs on credit basis and the amount is being recovered from milk bills on monthly basis. For cultivation of fodder, the union is also supplying legume seeds and non-legume root slips to its member producers at 100 per cent and 75 per cent subsidies, respectively. Seeds related to seasonal crops such as maize, African tall grass and sorghum Sudan multicut variety are also being supplied for fodder cultivation purpose.

Artificial insemination :

Union is operating two kinds of artificial insemination (AI) centres namely, the single AI centers and cluster AI centres. In single AI centre, concept the trained staff of the DCSs - usually the resident of same village, is carrying out this service so that the facility is made available round the clock as and when the animal reported to be in heat. The cluster AI centre is the concept where in which a string of non-AI centres was attached to one AI centre and a trained Inseminator with a mobile (Moped) facility, discharges his service at the doorsteps of member producers.

Sr. No.	Particulars	Total no. of members of DCSs	Total no. of DCSs functioning	Milk procurement (kg / day)	Milk sales		
					Curd	Sachet milk	Good life
1.	Annual compound growth rate	4.03**	3.11**	4.07**	19.56**	10.89**	27.20**

Source: Management information system division, KOMUL

** indicate significance of value at P=0.01

First aid centres :

Union is supplying few selected drugs related to first-aid therapy to majority of its DCSs. Suitably trained first-aid worker, usually the resident of same village where DCSs is located was appointed to take up initial treatment till such time, the emergency service of a qualified Veterinarian is made available.

Vaccination programme :

Union has taken up mass vaccination programme against foot and mouth disease (FMD) and Theileriosis to prevent its periodical outbreaks. Every year these vaccination programmes are being carried out at regular intervals during the months of October and November against FMD and during December against Theileriosis. Under the project BBPCP, the union is also undertaking vaccination programme against Brucellosis, in dairy co-operative Societies, which are found positive for Brucellosis.

Mastitis control programme :

Based on statistics available, more than 30 per cent of the cases KOMUL treat in the field are belonging to Mastitis. So, the union has taken up mastitis control programme in which each member producer has to buy one bottle of dipal solution and a dip-cup specially designed for dipping teats. The member producers are also being supplied with booklets containing strips of pH paper called Mastect with the help of which one can detect mastitis at an early stage of infection.

Animal disease diagnostic laboratory :

This laboratory has facilities to undertake routine Hematological, Parasitological, Bacteriological, Screening of animals in addition to examination of Dung samples for Parasitic ova, Skin scraping for external parasites and Anti-Biotic Sensitivity Test against infectious agents causing Mastitis, Metritis etc.

Marketing strategies of KOMUL :*Expansion of retail network :*

In addition to appointing agents in the newly formed extension areas of Bengaluru city, exclusive parlours and any time milk counters have been set up at strategic places in the city. The transport-cum-distributor system has been introduced to cater to the milk demand of agents during the day.

Creating brand awareness :

Action has been initiated for creating brand awareness through providing kiosks for milk agents, participation in exhibitions, organizing painting competition among school children, testing of milk at retailing points, door-to-door campaign in the areas where the progress is low, organizing school children's visit to dairy units and meetings with Mahila Mandala members, etc. All these have immensely helped to create positive brand image.

Quality improvement :

With the commissioning of bulk milk coolers and community machine milking parlours, the quality of milk received at dairy has increased which in turn has helped to supply quality milk to consumers.

Training of channel members :

Motivation and selling skill training programme for agents, transport contractors and their staff are regularly organized at KMF Central Office for improving and promoting better understanding among the channel members and end-consumers.

Promotion :

Increased number of point of purchase materials like posters, bus back panels, sun pack boards, electronic media coverage, AIR, etc., have immensely helped in promoting the products.

Introduction of new packs :

Careful assessment of consumer's requirement has resulted in segmenting the products and to achieve higher volumes at that particular segment. The Consumer Redressed Mechanism is in place and as and when the complaints are received, action has been initiated to redress the complaints at the earliest point of time and "no questions are asked".

Streamlining the indenting system :

The indenting system from agents has been streamlined. The entire process has been outsourced and dedicated telephone lines are provided. This has helped in catering the last minute agents' indents, if any. The surplus milk is sold to neighboring milk deficit States namely, Kerala, Andhra Pradesh, Goa, New Delhi, Maharashtra, Pondicherry and the rest is converted into value added products.

Collaboration with local NGOs :

The self-help groups (SHG) has been promoted by KMF agents for selling milk in the areas of Gulbarga and Shimoga milk unions. In addition to sale of milk, possible role for NGOs in strengthening milk marketing includes gender sensitization, formation of SHGs, training of SHGs, assisting in supervision and monitoring of accounts of SHGs, eradication of social evils, health and nutrition awareness, sales campaign, consumer education and door-to-door campaign, market research such as demand analysis, etc.

Table 2 depicted the Union procurement strategies namely number of emergency animals treated, number of Artificial Inseminated (AI), quantity of fodder supplied, quantity of feed supplied and farmers covered under insurance in the year 2012-2013.

Sr. No.	Particulars	Quantity
1.	Emergency treated animals	1,00,901
2.	AI (No.)	2,15,869
3.	Fodder	
	Co-3 (Acre)	806
	African tall (Qts.)	1,250
	SSG (Qts.)	1500
	Mineral mixture	1,65,375
4.	Feed (MT)	45,128
5.	Farmers health insurance covered (No.)	1,01,616

Sr. No.	Products	Price (Rs.) /lit.	Place	Promotion	Quantity / annum
1	Toned milk	28.00	Karnataka	Expansion of retail network	9.10 million tons
2	Good life			Creating brand awareness	
	Brick	50.00	J & K, Uttaranchal,	Quality improvement	
	Fino	40.00	Assam, New Delhi, Chatishgud, M.P., Maharashtra, A. P., T.N., Kerala, Goa and Pondicherry	Training of channel members Introduction of new packs Streamlining the indenting system Collaboration with NGOs	8.39 million tons
3	Curd	35.00	Karnataka		0.55 million ton
4	Peda	300.00	Across the Nation		14.50 tons
5	Ghee	350.00	Across the Nation		2190 tons
			N.M.P- 26		
			M.D.N- 63		
			Agents – 508		

M.D.N- Milk distribution networks

N.M.P- Nandini milk parlours

Forward linkages of Kolar milk union :

The forward linkages of Kolar milk union mainly comprises of marketing of milk and milk products. The marketing management was studied by in terms of using 4 Ps, viz., price, place (distribution), product and promotion. Table 3 depicted the products produced, price, places of distribution and promotion activities of Kolar milk union.

Pricing :

The procurement and sale of milk and milk products varies from season to season. The current procurement price is Rs. 24.00 per litre of milk and sale prices of processed milk and milk products is given in Table 3.

Place (distribution) :

There are about 63 milk distribution networks, 508 agents and 26 Nandini milk parlours operating directly under Kolar milk union as against 4,173 agents and 474 milk parlours operating in the whole of Karnataka by Karnataka Milk Federation. There are 100 milk trucks to distribute milk to the distributors, they travels in 30-40 specified routes and deliver to main distributors across the country. The main places of distributions are Jammu and Kashmir, Uttaranchal, Assam, New Delhi, Chhattisgarh, Madya Pradesh, Maharashtra, Andra Pradesh, Tamil Nadu, Kerala, Pondicherry and Goa.

Conclusion :

The growth trends of Kolar milk union with respect of total number of DCSs functioning, total number of members of DCSs, quantity of milk procured per day and quantity of liquid milk, curd and UHT milk sold per day shows that steadily increasing, means that the union performs good in both backward linkages and forward linkages. Ultra high temperature (UHT) milk shows that better demand from consumer's side, this is mainly due to longer shelf-life and attractive tetra packaging.

Among the all products which were manufactured by Kolar milk union, good life (UHT milk) demand has been steadily increasing besides there is good profit margin as well. Hence, it is suggested that efforts are to be made to reduce the variable costs further to generate higher profits. And also increase the awareness of nutritional importance of milk and milk products in the rural and semi urban areas for better market in all the seasons. Milk union can also get good profit by manufacturing new functional dairy product like dietetic and energy drinks, probiotic fermented products etc. The procurement and marketing strategies which are followed by Kolar milk union are quite effective in nature and they benefit both the dairy farmers and the milk union. Union has to give more attention at gross root level *i.e.* milk producing level for better future.

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