Topic- Issues And Challenges Of Supply Chain Management Of Dairy Industry

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Abstract

The current study was carried out to evaluate the challenges faced by milk producers in four milk unions/districts that were chosen from four geographical areas. There were four villages chosen from each district. In each region, there are two villages with organised dairy cooperatives and two villages without organised cooperatives. 120 Milk Producers in total The total sample size of milk producers in the State was 240, with 120 milk producers chosen from the organised sector and the remaining 120 from the unorganised sector. With the aid of Garrett's ranking technique, the limitations were prioritised. 5.8 people made up the average household in the chosen area, and the respondents' average age ranged from 44 to 46. Although the majority of households said that the cost of cow feed and miner mixtures was high, Dairy Cooperative Society (DCS) member families noted an adequate supply of cattle feed that was also made available on credit by the cooperative society. Households that were not members of the Non-Dairy Cooperative Society (NDCS) had to deal with other issues, such as a lack of marketing resources for the dairy industry, a lack of village-level chilling facilities for milk preservation, and a lack of access to the supplies and tools needed to produce high-quality milk. For the dairy industry to grow, the animal husbandry departments need to be revitalised. Villages should have access to veterinary information, and Dairy Federation should have marketing resources for selling milk and milk-related products.

Keywords: constraints; dairy; milk producers; Supply Chain Management.

Introduction

Animal husbandry and agriculture are intertwined in India and are clearly crucial to the country's economy as well as the socioeconomic advancement of millions of rural households (Vaidyanathan, 1989; Mishra, 1995; Chawla, et al, 2004; Sharma, 2004; Birthal, 2016). One of the most significant economic activity in the country's rural areas is livestock raising, which provides additional income for the majority of families who depend on agriculture. Livestock is frequently a key element of small-holder risk management plans as well (Randolph et al., 2007). A large share of the world's cattle population is present in India (Prabaharan, 2002; Sharma and Sharma, 2002). India is the country with the largest populations of cattle and buffalo worldwide. In 2012, India had 218 million cattle and 115 million buffalo, representing 14.7% and 58% of the total world population of cattle and buffalo, respectively. The majority of these animals are milch cows and milch buffaloes (GOI, 2004). 9.8 million persons in major status and 8.6 million people in subsidiary status are regularly employed in this field. More significantly, women make about 7% of the workforce in animal production (GOI, 2002). One of the world's most comprehensive integrated dairy development programmes, "Operation

Flood," has recognised India's dairy development as one of its most successful development initiatives (Shiyani, 1996; NAAS, 2003). India is the top producer of milk in the world, with 187.75 million tonnes produced in 2019–20, up from 17 million tonnes in 1950–1951. Buffalo contributes close to 51% of milk output, followed by cows (45%) and goats (3%). (4 percent).

The livestock industry produces one-fourth of the state's agricultural output. High-quality, high-yielding cattle and buffalo breeds can be found in the State. Cows of the Gir and Kankrej breeds and buffaloes of the Mehsani, Jafarbadi, and Surti types were renowned for their great milk production. The State Government's policy has been giving the cooperative sector in the state the necessary support for the development of the dairy industry. Indigenous buffaloes generate roughly 53.11 percent of the total milk production, followed by indigenous cattle with 22.9 percent. In contrast to goats, which contribute 2.36 percent of the state's total milk output, crossbred cattle account for 21.6% of the state's total milk production.

Cow and buffalo productivity in terms of daily milk production is rising steadily. Even though milk production has increased, there is still a lot of room for improvement. Cross-breed cows had the highest milk yields ever observed. However, in contrast to the predicted needs of the animals. The cooperatives have created cutting-edge methods for artificial insemination and veterinary care, and they offer these services to lots of milk producers for extremely affordable rates. To serve the requirements of the cooperatives' members, the district cooperatives have vans stationed in various centres that are outfitted with a professional veterinarian and medications. In addition, productivity of dairy animals continues to be extremely poor, and the milk marketing structure is archaic, despite the tremendous growth in milk output over the past three decades (Rajendran and

Mohanty, 2004; Sarkar and Ghosh, 2010). Currently, less than 20% of the milk produced in the nation is marketed by the organised sector, with more than 80% being sold by the unorganised sector (private organisations) (government or cooperative societies). However, there are several restrictions on both organised and unorganised sections of the nation's dairy business. Therefore, it is crucial to research the numerous constraints that dairy producers, both cooperative and non-cooperative, encounter.

Methodology

The region's average rainfall varies greatly by zone, from 250 mm to 1500 mm. Five of the eight agro-climatic zones are dry to semi-dry in character, while the other three are dry sub-humid. Four milk unions from four different regions of the state were chosen for the study period 2020–21 in accordance with the sampling framework. There were four villages chosen from each district. In each region, there are two villages with organised dairy cooperatives and two villages without organised cooperatives. There were 16 communities in all that were chosen throughout the State. 15 milk producers were randomly selected from each town. There were 240 milk producers in the entire sample.

Tool and Technique

Information was acquired about the difficulties experienced by milk producers. The specialists who produce milk in the organised and unorganised sectors helped identify the constraints, and producers were then asked to rank the issues that were presented to them. With the help of Garrett's Ranking Technique, orders of restrictions and compensation can be converted into numerical scores. The formula Garrett uses to convert ranks into percents is:

Percent Position = $100*(R_{ij} – 0.5)/N_j$

Where,

R_{ij} = rank given for ith constraint by jth individual;

N_j = number of constraint ranked by jth individual.

The per cent position of each rank will be converted into scores referring to the table given by Garrett (1981).

Result and Discussion

Socio-Economic Characteristics

The numerous socioeconomic elements, such as the size of the family, the dairy producer's education and training, the availability of land and off-farm income, their expertise in the dairy industry, etc., directly affect whether dairy farmers decide to grow and develop their dairy operations. Table 1 lists the socioeconomic traits of a subset of the sample households. This table shows that the average household size for the chosen category was 5.8 persons, which was practically similar across both groups (DCSmember of dairy cooperative society & NDCS- nonmember of dairy cooperative society). According to the family makeup, men made up about 38% of the population, followed by women, who made up 35%, and then children. The majority of responses were men. The average age of respondents in both categories ranged from 44 to 46 years old, which was a little older for DCS respondents compared to NDCS respondents. Additionally, the average family age was 29 years for dairy producers in the NDCS compared to 31 years for DCS members. According to data on the average educational attainment of families, most respondents had completed the seventh grade. Each family has about three people involved in dairy work.

It was anticipated that women would make the decisions because they deal with the dairy industry primarily. While it was indicated during data collecting that females back the decisions made by males, as per tradition followed in India everywhere, field data show that roughly 90% of decisions are made by men. According to the distribution of selected DCS households by social group, the majority of households (48%) belong to another backward class, followed by the General category (30%), Scheduled Tribe (18%), and Scheduled Caste (the remaining 4%). (3 percent). 46 percent of NDCS households are from other backward classes, 27 percent are scheduled caste households, and the remaining 15 percent are scheduled tribal households. The primary occupation of the households that were chosen was agriculture, which included farming as well as auxiliary support activities including dairying and animal husbandry. Very few households were employed in non-farm or agricultural labour, which was a very unexpected finding. As a result, a number of dairy producers initially got into dairy farming as a supplemental and supporting endeavour.

The operational land holding for the chosen DCS households is 1.8 ha, of which 88.9% is irrigated, compared to 1.9 ha for the chosen NDCS households, where 84 percent of the land is irrigated. The chosen homes in each group have a sizable amount of land that is irrigated as well as the capability of protective irrigation to save crops in the event that kharif receives less rainfall or to grow additional crops during rabi and summer. Compared to NDCS households, the DCS households were found to have more experience (21.7 years) (19.6 years). According to income group category, roughly one-third of the chosen households were below the poverty line, indicating comparatively better economic conditions for two-thirds of the households in both groups.

Constraints faced by Milk Producers

Infrastructural Constraints:

Table 4 illustrates the infrastructure limitations the chosen household had to deal with. It is clear from the table that for DCS households, the four main infrastructure restrictions were a low average milk yield of the milk animals, a lack of training facilities, a lack of better equipment, and a lack of green/dry fodder availability throughout the year.

The absence of emergency veterinary services, the scarcity of training facilities, and the sporadic availability of semen at the AI centre were the root causes of the primary infrastructure challenges faced by NDCS. In comparison to NDCS, the dairy cooperative members can simply use the AI

and veterinary services offered by milk Union. The lack of competent veterinary services and the high cost of medications were also mentioned by Rathod et al. (2011) as significant barriers to health care services.

Table 1: Family Profile of Selected Households

Sr. No	Particulars		DCS (n=120)	NDCS (n=120)
1	Av. Household Size (Nos.)			
		Male	2.2	2.3
		Female	2.1	2.1
		Children(Below 15 Year)	1.5	1.2
		Total	5.8	5.7
2	Gender of Respondent/HH (%)			
		Male	89.2	85.8
		Female	10.8	14.2
3	Av. Age of respondent (years)			
		Male	45.9	43.9
		Female	43.6	43.8
		Total	45.5	43.9
4	Av. Age of family (years)		31.1	29
5	Av. Education of respondent/HH (years)		6.92	7.23
6	% of Family members works in dairy		58.4	56.3

Source: Field survey data.

Table 2: Socio-economic characteristics of selected households

S. N.	Particulars	% DCS	% NDCS
1	Gender of Decision Maker (%)		
	Male	89.20	91.70
	Female	10.80	8.30
2	Social Group (% to total)		
	Scheduled Tribe	18.30	26.70
	Scheduled Caste	3.30	8.30
	Other Backward Class	48.30	45.80
	General/Open	30.00	19.20
3	Occupation (%)		
	Principal		
	Cultivator	71.70	65.80
	AH & Dairying	28.30	23.30
	Agri. Labour	0.00	3.30
	Nonfarm Labour	0.00	1.70
	Own Non-Farm Establishment	0.00	0.00
	Trade	0.00	0.00
	Employee in Service	0.00	5.80
	Other (Specify)	0.00	0.00
	Subsidiary		
	Cultivator	20.00	14.20
	AH & Dairying	71.70	76.70
	Agri. Labour	5.00	1.70
	Nonfarm Labour	3.30	6.70
	Own Non-Farm Establishment	0.00	0.00
	Trade	0.00	0.00
	Employee in Service	0.00	0.80
	Other (Specify)	0.00	0.00
4	Av. Operational land holding (area in ha)		
	Irrigated	1.60	1.60
	Un irrigated	0.20	0.30
	Total	1.80	1.90
5	Av. Experience in Dairy (years)	21.70	19.60
6	Income Group (%)		
	BPL	33.30	37.50
	APL	66.70	62.50
7	House Structure (%)		
	Pucca	64.20	50.80
	Semi-Pucca	20.80	24.20
	Kuccha	15.00	25.00

Source: Field survey data.

Table 3: Constraints Faced by DCS and NDCS Sample Household

S.N.	DCS Households	G.S. (%)	NDCS Household	G.S. (%)
A	**Infrastructural Constraint**			
1	Lack of improved equipments	61.02	Occasional availability of semen at the AI centre	64.41
2	Unavailability of green/ dry fodder throughout the year	59.03	Unavailability of emergency veterinary services	59.39
3	Low average milk yield of the milk animals	52.62	Lack of training facilities	56.3
4	Lack of training facilities	52.6	Lack of improved equipments	51.55
5	Unavailability of cattle feed and fodder seed on credit	48.78	Unavailability of vaccines	49.83
6	Unavailability of vaccines	48.26	Irregular & inadequate supply of cattle feed	49.3
7	Infrequent visit of veterinary staff	47.35	Unavailability of green/ dry fodder throughout the year	48.4
8	Unavailability of emergency veterinary services	46.44	Unavailability of cattle feed and fodder seed on credit	45.24
9	Irregular & inadequate supply of cattle feed	46.14	Infrequent visit of veterinary staff	45.08
10	Unsuitability of the time of delivery of milk during winters due to bitter cold in early hours of the day	45.2	Low average milk yield of the milk animals	43.58
11	Occasional availability of semen at the AI centre	40.58	Unsuitability of the time of delivery of milk during winters due to bitter cold in early hours of the day	34.93
B	**Economic Constraints**			
1	Low price of milk offered	64.45	High cost of veterinary medicines	65.38
2	High cost of cattle feed and mineral mixture	63.45	High cost of fodder seed	63.38
3	High cost of veterinary medicines	54.13	Low price of milk offered	63.38
4	High cost of fodder seed	52.93	High charges of emergency veterinary services	58.33
5	High cost of crossbreed cow	49.74	High cost of cattle feed and mineral mixture	57.8
6	Delay in payment of milk	47.82	Delay in payment of milk	53.53
7	Low provision of loan in society or govt. for purchasing cattle	45.04	High cost of crossbreed cow	52.96
8	High charges of emergency veterinary services	44.58	Low provision of loan in society or govt. for purchasing cattle	48.96
9	Low incentives or bonus for supplying milk	42.93	Low incentives or bonus for supplying milk	46.9
10	High charges for insurance	34.94	High charges for insurance	44.39
C	**Marketing Constraints**			
1	Less knowledge about marketing strategies	59.48	Less knowledge about marketing strategies	60.44
2	Low risk taking behaviour	54.39	Lack of time for marketing	54.88
3	Lack of time for marketing	53.5	No or less advance payment for milk by society/vendors	50.12
4	No or less advance payment for milk by society/vendors	49.96	Low risk taking behaviour	48.5
5	Irregular sell of milk	41.6	Irregular sell of milk	46.52
6	Inability to market for value added products	41.08	Inability to market for value added products	39.55
D	**Technical Constraints**			
1	Lack of knowledge about cheap & scientific housing of animal	59.1	Lack of technical guidance	62.18
2	Unavailability of high genetic merit bull	54.88	Poor knowledge about feeding and health care	52.31
3	Lack of technical guidance	46.1	Poor conception rate through artificial insemination	45.68
4	Poor conception rate through artificial insemination	44.82	Lack of knowledge about cheap & scientific housing of animal	45.27
5	Poor knowledge about feeding and health care	44.1	Unavailability of high genetic merit bull	43.58
E	**Socio Psychological Constraints**			
1	Lack of purchasing power	59.78	Lack of purchasing power	65.46
2	Lack of time due to busy in domestic /agricultural work	52.75	Lower socioeconomic conditions	55.24
3	Lower socioeconomic conditions	49.74	Lack of time due to busy in domestic /agricultural work	52.58
4	Milk of crossbred cow has poor acceptability	49.02	Lack of cooperation and coordination among members	46.35
5	Milk producers are meant for influential people	45.74	Milk producers are meant for influential people	46.09
6	Lack of cooperation and coordination among members	43.01	Milk of crossbred cow has poor acceptability	34.29

G.S.- Garrett's Score

Economic Constraints

Table 3 explains the financial restrictions the chosen household has to deal with. The table shows that the first of the four main economic difficulties for DCS households was the low price of milk given. According to Maity and Sidhu (2001) and Jayalaxami et al. (1997), the cheap price of milk is a significant barrier. The majority of farmers, according to Radder and Bhanj (2011), are not happy with the price they are receiving for their milk production, which has an impact on the product's quality. the second-highest expense after the high cost of veterinary medicines, the high cost of cow feed, and the high cost of fodder seed. The significant financial challenges that NDCS experienced were mostly caused by high veterinary service costs, high emergency veterinary service fees, expensive cow feed and mineral mixture costs, low offered milk prices, and high fodder seed costs.

Marketing Constraints

Table 3 illustrates the marketing restrictions that the chosen home had to deal with. The data shows that the DCS households' two greatest marketing challenges were their lack of marketing strategy expertise and their tendency to avoid taking risks. The NDCS households have experienced four marketing challenges: a lack of marketing expertise, a lack of or low milk advance payment from society or merchants, a lack of marketing time, and low risk-taking behaviour.

Technical Constraints

Table 4 describes the specific technological limitations that the chosen household had to deal with. Given that the majority of DCS residents are small and marginal farmers, it is clear from the table that the two main technical challenges faced by DCS households were a lack of purchasing power and a lack of free time due to their hectic domestic and agricultural schedules. The NDCS households had to deal with four technical obstacles: a lack of marketing time, a lack of

advance milk payment from society or merchants, a lack of marketing knowledge, and a low risk-taking attitude. According to studies by Kumar et al. (2011), the main obstacles to dairy development are a lack of dairy cooperatives (78.66 percent), poor housing conditions for dairy animals (69.33 percent), a lack of knowledge about how to feed dairy animals properly (81.33 percent), and poor clean milk production knowledge (72 percent).

Socio-Psychological Constraints

Table 3 summarises the sociopsychological limitations that the chosen household had to deal with. The data shows that lower socio-economic conditions and a lack of purchasing capacity were the two main socio-psychological restrictions mentioned by DCS and NDCS families. Another issue they ran into was a lack of time due to their hectic schedules with agricultural and home tasks.

Conclusion

The performance of the dairy industry is influenced by a number of variables, such as input supply (especially feed) and service provision (veterinarian services, artificial insemination (AI), or breed), or output services. While NDCS households did not have the ability to receive any support from the dairy cooperatives that were present in their area, they fully depended on the agent or private agency to obtain support for input and output service systems. DCS households reported an adequate supply of cattle feed and emergency veterinary services.

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