RESEARCH ARTICLE Asian Journal of Dairy and Food Research, Volume 45 Issue 1: 182-185 (February 2026)

Impact of Dairy Co-operative Society on Feeding Pattern of Milch Animal in Karnataka

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10.18805/ajdfr.DR-1778

ABSTRACT

Background: The rural environment of Karnataka has been significantly and far-reachingly impacted by KMF's successful dairy development. The most advantageous milk purchase price for farmers, effective and prompt input services delivered to farmers' doorsteps, such as prompt veterinary health services to any remote village, high-quality artificial insemination for breed improvements, supply of balanced cattle feed at a lower price than the market price, *etc*., have encouraged farmers access their cooperative more and more frequently. In order to determine how DCS affects the way dairy milch animals in Zone-I and Zone-II of the Karnataka region utilize fodder, an attempt has been made in this article.

Methods: For the study, the KBY Milk Producers Societies Union was chosen since it encompasses three districts in Karnataka's North Eastern region. The milk union was further split into two main areas, the North Eastern Dry Zone and the North Eastern Transitional Zone, which are referred to as Zone-I and Zone-II, respectively. Six dairy cooperative organisations were chosen from each Zone based on how much milk was purchased each day. From each Zone 120 sample was collected, further 10 members and 10 non-members were selected at random from each DCS village in each zone. Thus, 240 individuals represented the study's entire sample size.

Result: At Zone-I: The average amount of feed and fodder used to be higher in the member (15.80 kg per day) than in the non-member (14.19 kg per day) for the buffalo, according to the perusal of the table. While 12.72 and 11.92 kgs per day of dry matter fed to cow by members and non-members, respectively. Non-member had given higher quantity of dry fodder (7.61 kg) than green fodder (5.06 kg), indicating member had fed higher feed and fodder to milch animals than non- members. This would possibly be due to the subsidies availed through DCS for feed and fodder purchase. Where in Zone-II: The quantity of dry matter given to buffalo was 13.90 and 11.43 kg by member and non-members, respectively. For cow 11.04 and 9.85 kg per day of dry matter was given by members and non- members, respectively. Even though the members fed relatively more quantity of feed and fodder than non-members, it was still less than the feed intake quantity recommended by National Research Council (NRC). Both members and non-members group fed less than recommended but the difference was found to be higher in non- member than members in both the cases of buffalo and cow. It was also interesting to note that buffalo feed intake was higher than cow.

Key words: DCS, Feed and fodder, Input services, KMF, Milk yield.

INTRODUCTION

In Indian culture, dairying has always been ingrained. In general, farming and dairying are closely related in India. Dairying has also been acknowledged as a tool for economic and social transformation, particularly for the rural community's most vulnerable groups. In the nation, livestock productivity is very poor. 4.90 litres of milk are produced on average each buffalo and 3.1 litres per cow. It is estimated that about 37 per cent growth in milk output has been due to increase in productivity of in-milk population and increase in number of livestock is the dominant source of growth in milk output (Bharadwaj *et al*. 2006). This type of growth associated with increase in number of livestock is not sustainable. Breed improvement, better feed and nutrition, animal health and better herd composition are important measures for raising livestock productivity.

Though the development of animal husbandry for cattle/ buffalo and dairying should be taken as an integral programme to improve the economic conditions of the rural poor, the dairying itself has a very key role to play in shaping the enterprise on industrial lines. Indian dairymen are increasingly becoming aware of the potentialities of scientific management of dairy animals in raising the standard of living of their kith and kin. The success of dairy development programme has given them the ray of hope that dairying can be as profitable as any other vocation. The massive dairy development programme (Operation Flood) is being

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How to cite this article: Rashtrarakshak, Deshmanya, J.B., Wali, V.B., Ram, J., Hiremath, G.M. and Tevari, P. (2026). Impact of Dairy Co-Operative Society on Feeding Pattern of Milch Animal in Karnataka. *Asian Journal of Dairy and Food Research*. **45(1):** 182-185. doi: 10.18805/ajdfr.DR-1778.

Submitted: 02-07-2021 **Accepted:** 09-12-2022 **Online:** 17-12-2022

implemented in the country since July 1970, which is not merely a milk collection activity, but is an integrated programme of production, processing and marketing. The overall objective of the programme is to improve the dairy farmer's income and productivity of animals and make available wholesome milk and milk products at reasonable prices to the urban consumers. Dairy development in India has made tremendous progress with setting up of dairy plants throughout the country, establishment of dairy cooperatives, rural milk procurement, milk processing capacity, farmers' membership *etc.* Around 65 million farmers (13 million rural households) are connected with the dairy cooperative institutions in India (Banerjee, 2008). India is presently the largest milk producing country with a production of about 100 million tonnes during 2006 (Anonymous, 2006). A growth rate of 4.5 per cent has been achieved by the dairy sector during the past decade as compared to a meager 2.0 per cent growth recorded by the agricultural sector as a whole. Growth in milk production has been caused by increase in per animal productivity, increase in population of milking cattle and buffaloes, increase in crossbred cattle and a marginal decline in the gross population of cattle. Dairy sector is highly livelihood intensive and provides supplementary income to 60-70 million households. Milk producer's cooperative societies have emerged as most viable institutions for milk procurement in rural areas. India has 1.13 lakh milk producers' cooperative societies with a membership of 1.23 crores. Milk procured by these societies was around 20.07 million litres per day during 2004-05 (Anonymous, 2006). Milk co-operatives are an integral part of the milk marketing and dairy development programme in India, White revolution popularly known as "Operation Flood" launched by the Government of India in collaboration with the world food programme of the United Nations in July 1970. It was the world's biggest dairy development programme. It transformed India from a milk deficient nation into the world's largest milk producer. Dairy farming is making a significant contribution to the national economy and socio-economic development in the country.

Karnataka Co-operative Milk Producers' Federation Limited (KMF)

Karnataka Co-operative Milk Producers' Federation Limited (KMF) is the apex body for the dairy co-operative movement in Karnataka. It is the second largest dairy co-operative amongst the dairy cooperatives in the country. In South India it stands first in terms of procurement as well as sales. One of the core functions of the federation is marketing of milk and milk products. The brand "Nandini" is the household name for pure and fresh milk and milk products. KMF has 14 milk unions covering all the districts of the state which procure milk from Primary Dairy Cooperative Societies (DCS) and distribute milk to the consumers in various towns/cities/rural markets in Karnataka.

The federation is striving to create a self-reliant and vibrant rural economy in Karnataka by providing a supportive and conducive environment for the growth of dairy co-operatives as autonomous economic and social institutions. The results of effective dairy development by KMF have made far-reaching and extensive impact on rural landscape in Karnataka. The best remunerative milk purchase price to farmers, efficient and timely input services, delivered at the door-steps to farmers, such as, unfailing veterinary health services to any remote village, quality artificial insemination for breed improvements, supply of balance cattle feed at less than the market price, *etc*., have made the farmers to increasingly patronize their cooperative. Hence, through this paper an attempt has made to see the impact of DCS on investment pattern of dairy farming in Zone-I and Zone-II of the Karnataka region.

MATERIALS AND METHODS

The dairy cooperative societies

Dairy cooperative society is a basic organization unit functioning at village level. All milch animal owners are eligible to become members of the dairy cooperative societies (DCS). The DCS act as a marketing outlet for the milk produced in the village. Input facilities are also channelized to the dairy farmers through these societies. There are 13,862 DCS which are the members of 14 milk unions. Each DCS is managed by the management committee consisting of nine members elected by the members of the general body. The tenure of committee is three years. The president of the management committee is elected annually and is eligible to contest for the elections to the milk union board of directors. The management committee appoints a paid secretary who is responsible for the day-to-day operations of DCS.

KBY Co-operative Milk Producers Societies Union Limited abbreviated as KBY. More than 344 functioning DCSs covering 13 out of 15 taluks in Kalaburagi, Bidar and Yadgir districts. There were, 15 bulk milk coolers, 113 automatic milk collection centers and 1 community Milking Parlours in the union. The union procures on an Average 0.51 lakh kg/day of milk and sells 0.55 lakh liters/per day. The union also produces butter, ghee and peda. In this zone also, the productivity of resources need to be enhanced. The differential of private and social profit '5.99 indicates reverse flow of resources to the sector. The Nominal Protection Coefficient (NPC) of 1.02 indicates that the zone does not have any price competitiveness. However the DRC and EPC indicate that the zone has comparative advantage for exports.

Sampling procedure

The KBY Milk Producers Societies Union was selected for the study as it covers three districts of North Eastern region of Karnataka. Further, the milk union was divided in two major zones namely North Eastern Dry Zone and North Eastern

Transitional Zone, considered as Zone-I and Zone-II respectively. From each Zone, six dairy co-operative societies were selected based on highest milk procurement per day. Zone-II consists of Pattan (1138 lit./day), Mallabad (980 lit./day), Kognoor (764 lit./day), Niloor (738 lit./day), Hirapur (694 lit./day) and Melakunda. K. (578 lit./day) DCS villages, from each DCS village 10 members and 10 non-members were selected randomly. Hence, the total sample size of Zone-II was 120. Similarly, Zone-I consists of Huliyur (1379 lit./day), Bhoosnoor (1376 lit./day), Sarsamba (944 lit./day), Tadol (846 lit./day), Dudknal (763 lit./day) and Khazoori (738 lit./day) DCS villages. From each DCS village 10 members and 10 non-members were selected randomly. Hence, the total sample size of Zone-I was 120. Thus the total sample size for the study was 240.

RESULTS AND DISCUSSION

Zone-I

Average daily feed consumption of buffalo and cow per day in Zone-I is depicted in the Table 1. The average amount of feed and fodder used to be higher in the member (15.80 kg per day) than in the non-member (14.19 kg per day) for the buffalo, according to the perusal of the table. While 12.72 and 11.92 kgs per day of dry matter fed to cow by members and non-members, respectively.

An evaluation of the table confirmed that member had used higher amount of green fodder (7.46 kg) than dry matter (6.22 kg). However, non-member had given higher quantity of dry fodder (7.61 kg) than green fodder (5.06 kg), indicating member had fed higher feed and fodder to milch animals than non- members. This would possibly be due to the subsidies availed through DCS for feed and fodder purchase. The members of DCS have been availing training programme facilities through dairy cooperative societies. Hence, they fed better feed and fodder than non-member. The comparable result was accepted in their analysis with Meena (2008) and Priyadarshini (2018) that members had better feed and fodder management than non-DCS members.

Even though the members utilized quite higher quantity of feed and fodder, they had been nevertheless utilized much less than feed intake recommended by National Research Council (NRC). Both members and non-members less utilized much less than encouraged however the difference of utilized feed consumption was greater in non-member than members in each instances of buffalo and cow. It is additionally fascinating no longer that buffalo feed intake used to be greater than a cow. The findings of the study are conformity with the findings of Sirohi *et al.* (2007) and Meena (2008).

Zone-II

Average daily feed intake of buffalo and cow in Zone-II was depicted in the Table 2. The perusal of a table indicated that, overall feed and fodder fed was higher by member than the non-member in both the cases of buffalo and cow. The quantity of dry matter given to buffalo was 13.90 and 11.43 kg by member and non-members, respectively. For cow 11.04 and 9.85 kg per day of dry matter was given by members and non- members, respectively.

An analysis of the table explained that the members have applied high percentage of green fodder out of total dry matter but non-member had given dry fodder as high per cent of total dry matter, which indicated that member have fed better feed and fodder to milch animals than non-members. This may be attributable to the subsidies used by members for the procurement of feed and fodder and contribute to better awareness of fodder management than non-member and milk cooperative societies have also provided the DCS member training programme.

Even though the members fed relatively more quantity of feed and fodder than non-members, it was still less than the feed intake quantity recommended by National Research

Table 1: Average daily feed intakes of milch buffaloes and cows by members and non-members groups across herd size categories Zone-I (kg/day/animal).

Zone-I											
Buffalo											
Particulars	Members (n=120)				Non-members (n=120)				Recommended	Overall difference (members)*	Overall difference (non-members)*
	Small	Medium	Large	Overall	Small	Medium	Large	Overall			
Green fodder	6.22	7.62	8.33	7.46	4.23	4.34	6.62	5.06	9.10	-1.64	-4.04
Dry fodder	6.88	6.19	7.41	6.22	6.85	7.04	8.99	7.61	7.89	-1.67	-0.28
Concentrate	1.89	2.00	2.42	2.12	1.53	1.09	1.86	1.52	3.33	-1.21	-1.81
Total	14.99	15.81	18.16	15.80	12.61	12.47	17.47	14.19	19.45	-3.65	-5.26
Cow											
Green fodder	5.24	5.16	6.24	5.56	4.03	4.88	4.91	4.48	7.28	-1.72	-2.80
Dry fodder	4.63	4.51	5.99	5.05	4.53	5.86	6.51	5.33	5.62	-0.57	-0.29
Concentrate	1.56	1.91	2.75	2.11	1.79	1.90	2.25	1.91	2.66	-0.87	-0.75
Total	11.43	11.58	14.98	12.72	10.35	12.64	13.67	11.92	15.56	-2.84	-3.64

Note: Recommended feed intake was calculated for 600 kg of milch animal body weight. *Overall difference = Actual fed-Recommended. The Figure in the parenthesis indicating percentage to the total.

Table 2: Average daily feed intake of milch buffaloes and cows by members and non-members groups across herd size categories in Zone-II unit (kg/day/animal).

Particulars	Zone-II										
	Buffalo										
	Members (n=120)				Non-members (n=120)				Recommended	Overall difference (members)*	Overall difference (non-members)*
	Small	Medium	Large	Overall	Small	Medium	Large	Overall			
Green fodder	5.43	6.58	7.26	6.53 (46.98)	4.83	4.03	5.06	4.59 (40.16)	9.10	-2.57	-4.51
Dry fodder	5.58	5.77	5.93	5.78 (41.58)	6.12	5.31	5.30	5.70 (49.87)	7.02	-1.24	-1.32
Concentrate	1.53	1.23	2.03	1.59 (11.44)	1.07	1.11	1.43	1.14 (9.97)	3.33	-1.74	-2.19
Total	12.53	13.58	15.22	13.90 (100)	12.02	10.45	11.79	11.43 (100)	19.45	-5.98	-8.02
Cow											
Green fodder	4.21	5.33	5.76	5.20 (47.11)	4.17	4.59	4.91	4.44 (45.08)	7.28	-2.08	-2.84
Dry fodder	3.94	4.45	4.64	4.39 (39.76)	4.43	5.14	5.41	4.84 (49.14)	5.62	-1.23	-0.78
Concentrate	1.19	1.61	1.44	1.45 (13.13)	0.16	0.91	1.05	0.57 (5.78)	2.66	-1.21	-2.09
Total	9.34	11.39	11.84	11.04 (100)	8.76	10.64	11.37	9.85 (100)	15.56	-4.52	-5.71

Note: Recommended feed intake was calculated for 600 kg of milch animal body weight. *Overall difference = Actual fed-Recommended. The Figure in the parenthesis indicating percentage to the total.

Council (NRC). Both members and non-members group fed less than recommended but the difference was found to be higher in non- member than members in both the cases of buffalo and cow. It was also interesting to note that buffalo feed intake was higher than cow. The findings of the study are in line with findings of Sirohi *et al.* (2007) and Meena (2008).

CONCLUSION

From the results of this research study. It can be concluded that the DCS members have fed their livestock better than non-members. But, it's interesting to note that both categories of farmers are underutilisation of feed and fodder. there are many reasons for this like, non availability of feed and fodder in all seasons, don't have fodder management knowledge to the farmers and cost of concentrates were high, *etc*. Hence, Govt. and research policy makers should focus more on feed and fodder management programs through DCSs.

Conflict of interest

All authors declare that they have no conflict of interest.

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