

ASSESSMENT OF DAIRY FARMERS GROUPS AND COOPERATIVES OF BHUTAN

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ABSTRACT: The study assessed the performance of Dairy Farmers Groups (DFGs) and Dairy Farmers Cooperatives (DFCs) in Bhutan using secondary data obtained through “One Gewog Three Product” reporting system. The results indicated that the DFGs are mostly concentrated in the eastern region. It was recorded that there are 242 DFGs and DFCs with average member size of about 28 people in the country. The findings indicated that Milk Processing and Marketing (MPM) was found to be the most common working model adopted by the DFGs and DFCs. The raw milk collected by the DFGs and DFCs is either sold as liquid milk to and processed and marketed as butter and cottage cheese (*datshi*) in the local markets. The DFGs and DFCs on an average collected 58,436.22 litres of fresh milk annually. The members are paid an average farm gate price of Nu 36.85 per litre of milk. The study found that 88 % of the total functional (182 DFGs and 9 DFCs) were earning profits. In general, the study indicated that DFGs, were performing financially better off than DFCs. The number of group and cooperative, milk production and prices are increasing; but the number of members remained stagnant, and the sale, cash flow, gross income, and employment generation had decreased in the study areas. The study concludes that improving physical and financial turnover, basic infrastructure, capacity building on development of business plan and Bylaws, product diversification and policy support to the DFGs and DFCs through a coordinated support from different stakeholders is crucial to strengthen and sustain these farmers’ institutions.

Keywords: Cooperatives; group; income, milk processing; prices.

1. INTRODUCTION

Dairy farming plays an integral role and is an indispensable part of the agricultural production system in Bhutan. The government has provided enabling policy support to accelerate dairy development in the country. As such over the last few decades, the dairy sector made major advances often in response to adoption of improved farming practices and rearing high yielding animals.

The annual milk production, butter and cheese increased to 57546 MT, 2126 MT and 4090.5 MT respectively in 2019 from the same at 29625 MT, 1207.5 MT and 2300.4 MT in 2012, an increase of 94%, 76% and 78 % respectively (DoL 2012; DoL 2019). Dairy farming in Bhutan is a smallholder system with operations at individual household level (Choden et al. 2017; Dendup et al. 2018). This presents cost effectiveness issues in up scaling production given the prevailing marketing constraints.

The government undertook important development interventions towards a sustainable rural development by mobilizing smallholder dairy farmers into groups. This was intended to transform subsistence farming into more market-led operation through collective action. Farmers’ group development formally started in the country after enactment of the Cooperatives (amendment) Act of Bhutan 2009 although few informal groups existed since early 1990s. In Bhutan, the Farmers Groups (FGs) and (Co-ops) Cooperatives can be categorized into four broad categories: agriculture, livestock, forestry based and non-Renewable Natural Resources (RNR). FGs and Co-ops generally depend on support from the state and the various Civil Society Organizations mainly in the form of seed money, equipment, infrastructure, training, market exploration, and so on. Interventions made have positive impacts on the FGs and Co-ops, particularly in income generation and employment creation (Martwanna & Sonam 2011). Currently, there are 596 farmers groups and

86 cooperatives out of which 221 are Dairy Farmers' Groups (DFGs) and 11 are Dairy Farmers' Cooperatives (DFCs) with 6498 members spread across the country (DAMC 2014; NDRDC 2019). With the institutionalization of groups and cooperatives, the farmers were more organized to produce marketable volumes of dairy products.

Despite the operation of dairy groups and cooperatives in the country for many years, there is limited empirical study on the performance assessment of these groups. Thus, the important roles played by the dairy groups and cooperatives, the benefits these institutions provide the smallholder dairy farmers, are not clearly understood. In such cases these institutions may receive less attention and their advancement is overlooked (Bayan 2018). A study conducted by the Department of Agricultural Marketing and Cooperative (DAMC) in 2014 was quite general and does not sufficiently cover dairy farmers groups and cooperatives. Hence, this study is undertaken to make a thorough assessment of physical (dairy products collection, processing and marketing) and financial (money ploughed back to members and gross income of the groups and cooperatives) earned through supply and/sale of milk and milk products in all functional dairy groups and cooperatives. Furthermore, this study was also designed to get insights into the operational modalities, issues and constraints of the dairy groups and cooperatives, as well as, define the present status of different groups and cooperatives and recommend measures for their advancement.

2. MATERIALS AND METHODS

This study utilizes secondary data on DFGs and DFCs performance submitted on quarterly basis to

NDRDC through "One Gewog Three Product " (OGTP) reporting system. This study made a detailed assessment of all functional DFG and DFC for the latest fiscal year (2019-2020). Additionally, this study performed trend analysis on the data from the past three years; 2017-18, 2018-19 and 2019-2020. The data covers 242 DFGs and DFCs of the country (Table1).

Table 1: Region wise total number of DFG & DFC for three fiscal years in the country

Region	Year		
	2017-18	2018-19	2019-20
Western	61	62	66
West Central	38	38	43
East Central	31	32	33
Eastern	94	94	100
Total	224	226	242

3. RESULTS AND DISCUSSION

3.1 Type of farmer institutions and their profile

There were total of 242 DFGs and DFCs recorded in the country as of June 2020. Out of these, only 182 DFGs and 9 DFCs (i.e., 79% were found functional and the remaining 21% were either observed in the initial startup process or nonfunctional. Subedi (2013) and Wangmo et al. (2021) reported varying status of farmers organization operation as functioning well, semi-functional and different growth stages. The distribution of DFGs and DFCs was recorded highest in the eastern region; followed by western, west central and east central (Table 2). Higher number of DFGs and DFCs in eastern region was attributed to existence of the Regional Agricultural Marketing and Cooperative (RAMCO), Mongar. Subedi (2013) and DAMC (2014) reported that the RAMCO as mandated under the cooperative act

Table 2: Region wise distribution of DFGs and DFCs with its members in 2019-2020

Variables	Western	West Central	East central	Eastern	Overall
Number of DFGs	57	36	13	76	182
Average members in DFGs	26.29	30.78	31.08	29.03	28.65
Number of DFCs			4	5	9
Average members in DFCs			21	28.2	25
Total number of functional DFCs & DFCs	58	36	17	81	191
Total average members in DFGs & DFCs	26.29	30.78	28.71	28.98	28.48

was able to provide close and adequate support services in the formation of more DFGs and DFCs. The overall average membership size recorded in this study was 28 people (M=28.48) per group revealing that the dairy farmer organizations is small in Bhutan. DAMC (2014) reported average membership size of 22 members per farmers group. The topography and scattered population with rural households far flung from each other and from the road, in a village setting could have contributed to it.

3.2 Working modalities of DFGs and DFCs and its prevalence

The DFGs and DFCs across the country, in operation with a business plan (NDRDC 2019), were found to be operating in four different models: 1. Milk Collection and Marketing (MCM);

2. Milk Processing and Marketing (MPM); 3. Supply of Milk to Dairy Entrepreneurs (SMDE) and 4. Processed Products Marketing (PPM) as given in schematic diagram (Figure 1.)

3.2.1 Milk collection and marketing model

In this model, members supply raw milk to respective Milk Collection Centers (MCCs) and are directly transported to urban centres and sold as liquid milk without pasteurization. Unsold milk is converted into products primarily butter and cheese and marketed. Around 34% of the total DFGs and DFCs in the country were involved in this model and concentrated in western (50%) and eastern (40.6%) regions (Table 3).

3.2.2 Milk processing and marketing model

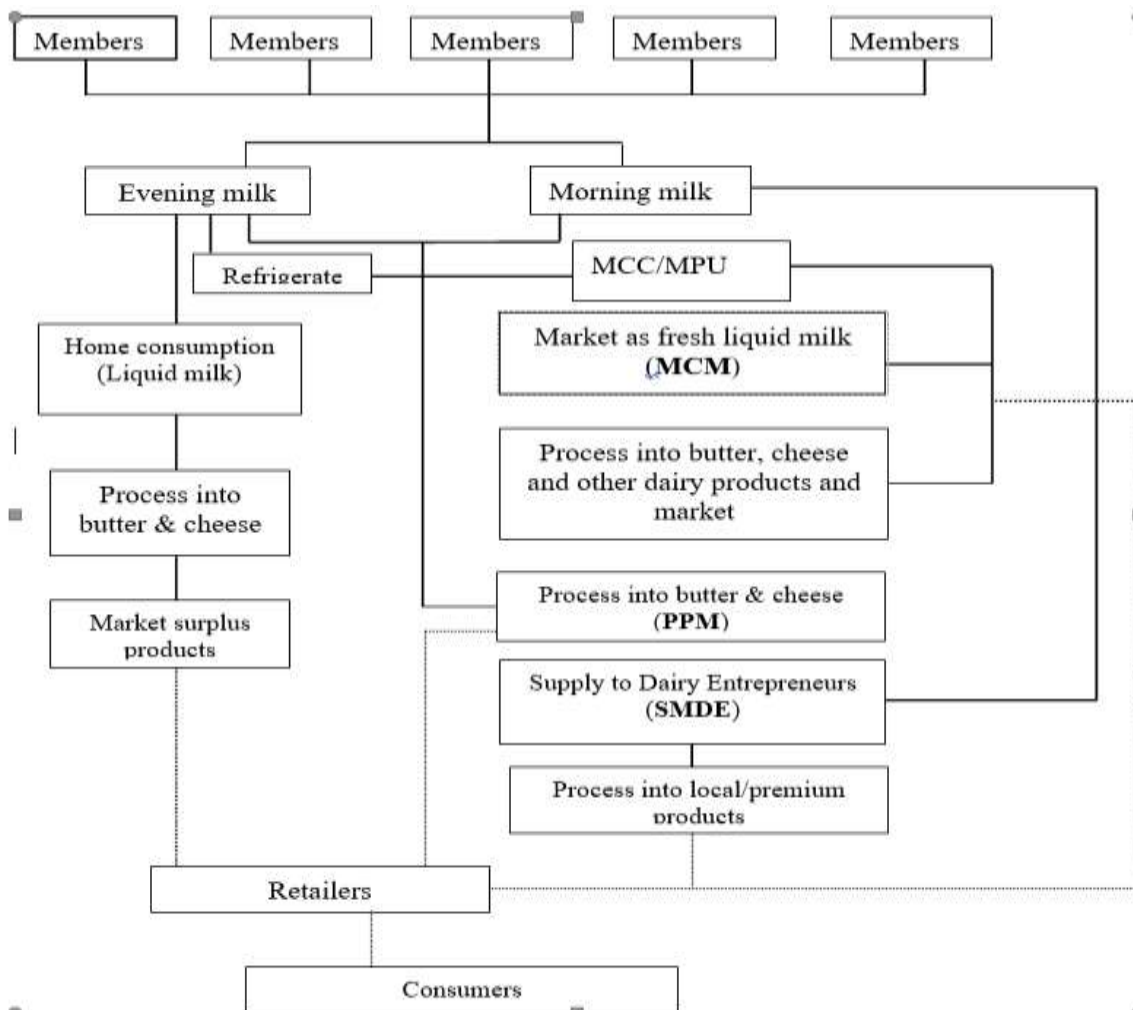


Figure 1: Schematic diagram showing flow of milk in different operation models

In this model, members supply raw milk to respective MCCs which is then transported to Milk Processing Units (MPUs) and processed into products and some portions are sold as pasteurized milk. More than 45% (87 numbers of DFGs and DFCs) are engaged in this model, making it the most popular model. Over half of the DFGs and DFCs operating in this model were in eastern region and smaller proportions were found in all the regions (Table 3).

3.2.3 Processed products marketing model

In this model, individual member produces products mainly butter and cheese at home and supply to the traders who then collect and market in urban centres. This model is not so common (15.7%) in the country, but found in all the regions and more prevalent in west central (46.7%) and western (36.7%) regions (Table 3). It was observed that the model is commonly seen in places with limited access to the market or less urban settings (e.g., Gasa Dzongkhag in west central) and in areas where migration of cattle is commonly practiced (Trashigang and Samtse Dzongkhags in eastern and western regions). Trashigang and Samtse had the highest households practicing livestock migration in 2020 (RNR-SD 2021). In such areas, selling of products was more feasible due to its longer shelf life than fresh milk.

3.2.4 Supply milk to dairy entrepreneurs

In this model, members supply raw milk to middleman/dairy entrepreneurs which in turn is processed and marketed. All operations starting from milk collection to marketing are done by the entrepreneurs as are the expenses, risk, loss and benefit. This type of model is the least (5.2%) popular and found only in western (80%) and eastern (20%) regions (Table 3). The result indicated that such a model is found where there is an assured and constant market to absorb the milk.

For instance, in eastern region some DFGs and DFCs supply the milk to Kofuko International Limited (KIL) started initially as a joint venture Foreign Direct Investment (FDI) company located at Chenary, Trashigang. Similarly, some DFGs and DFCs supply milk to dairy entrepreneurs of Thimphu and Haa town in the western region.

3.3 Milk collection and sale along with prices for DFCs & DFGs

Mean milk collection and sale along with price of the DFGs and DFCs across the country are presented in Table 4. In 2019-2020, overall average milk collection (N=159) of DFGs and DFCs was 58,436.22 litres that translates to an average of 4,869.69 litres monthly and 162.32 litres daily per DFGs and DFCs. Overall average milk contribution per member (N=159) and cow productivity (N=118) were 7.17 and 6.46 litres per day, respectively. Average Farm Gate Price (FGP) paid to the members per litre of milk was Nu 36.85. From the total milk collected, over 68% or an average of 40,255.67 litres was sold (N=110) fetching an average Market Price (MP) of Nu 45.54 per litre. Average annual milk collection and sale (59,201.07 and 40,998.33) of DFGs was higher than DFCs (45,688.58 and 27,630.46) (Table 4).

It was observed that the DFGs and DFCs members were earning a profit margin of Nu 10 per litre of milk against the cost of milk production of Nu. 26.85 reported by Choden et al. (2021) indicating dairy farming activities of DFGs and DFCs are profitable. Both overall FGP and MP of raw milk in this study were much higher than reported FGP of Nu. 26.03 and MP Nu. 32.01 per litre by Wangdi et al. (2014). Nonetheless, current milk prices in the open market are much higher (as high as Nu. 70 per litre in some urban centres) than the FGP received by the members. Bayan (2018) reported similar findings and stated that farmers'

Table 3: Region wise distribution of DFGs and DFCs according to mode of operation (%)

Variables	West	West Central	East Central	Eastern	Overall
Milk collection and marketing	50.0	9.4	0.0	40.6	33.5
Milk processing and marketing	6.9	18.4	17.2	57.5	45.3
Supply raw milk	80.0	0.0	0.0	20.0	5.2
Processed products marketing	36.7	46.7	6.7	10.0	15.7

institution members receive lower prices as compared to open market, but it is compensated by the benefits such as training, feed supply to members at their doorstep, quality seed and so on, supported by farmers' institutions. The findings indicated that DFGs was performing better than DFCs in terms of annual average turnover volume of milk collection and sale. Per cow productivity of 6 litres per day in this study was consistent with findings of Kumar et al (2013). However, individual members' daily contribution was just half of what was reported by this researcher. The pricing of the milk in this study is mainly determined by the market force and power of negotiation between the buyer and seller. Wangdi et al (2014) also reported that there is no standard legal milk pricing scheme in place in Bhutan.

3.4 Butter & cheese collection and sale with prices of DFG and DFC

Butter and cheese were either collected from the members or produced in the MPUs of the respective DFGs and DFCs depending upon the mode of operation. In 2019-2020, the overall average butter and cheese collection/production of DFGs and DFCs was 1214.30 kg and 1711.92 kg, respectively. Overall average FGP per kg of butter and cottage cheese were Nu. 316.99 and 269.28, respectively. Butter and cheese were sold at an

average rate of Nu. 333.07 and 292.83 per kg, respectively (Table 4). Average annual butter collection (1237.78 kg) and sale (1218.46 kg) of DFGs was higher than that of DFCs (683.58 kg). The average annual cottage cheese collection (1757.74kg) and sale (1692.73 kg) of DFGs was higher than that of DFCs (657.93 kg). The FGP (Nu. 317.12) and MP (Nu 333.92) of butter DFGS were higher than that of DFCs (Nu 314) while both FGP (268.96) and MP (Nu 292.27) of cheese in DFGs was lower than that of DFCs (Nu 305.20/kg) (Table 4).

The findings showed the DFGs and DFCs were receiving an average profit margin of Nu. 16.08 and Nu. 23.55 per kilogram of butter and cheese, respectively. Overall MP of butter and cheese in this study were much higher than reported Nu. 285.6 and 270 per kilogram of butter and cheese respectively by Wangdi et al. (2014).

3.5 Other dairy products production and sale with price of DFG and DFC

The volume of production and sale with market prices of each type of other dairy products are presented in Table 5. The result indicated that only a small number of DFGs were dealing in production and sale of other dairy products such as Yoghurts and Ice cream etc. This may be attributed

Table 4: Mean milk and major dairy products production and sale with prices by type of farmers' institution in 2019-2020

Variables	DFG		DFC		Overall	
	N	Mean	N	Mean	N	Mean
Milk collection/ production (l)	150	59201.07	9	45688.58	159	58436.22
Member contribution (l/day/member)	150	7.24	9	6.07	159	7.17
Cow productivity (l/day/cow)	113	6.47	5	6.19	118	6.46
FGP (Nu/l)	119	37.03	8	34.25	127	36.85
Milk sale (l)	103	40600.21	6	27630.46	108	40255.67
MP (Nu/l)	104	45.53	6	48.33	110	45.54
Butter collection/production(kg)	113	1237.78	5	683.58	118	1214.30
FGP (Nu/kg)	113	317.12	5	314.00	118	316.99
Butter sale (kg)	113	1218.46	5	683.58	118	1195.80
MP (Nu/kg)	113	333.92	5	314.00	118	333.07
Cheese collection /production (kg)	115	1757.74	5	657.93	120	1711.92
FGP (Nu/kg)	94	268.96	5	305.20	99	270.79
Cheese sale	115	1692.73	5	657.93	120	1649.62
MP (Nu/kg)	109	292.27	5	305.20	114	292.83

N denotes number of DFGs & DFCs

to the requirement of specialized equipment and expertise for operation and production of these products. Lack of fund, inadequate technical know-how and unavailability of skilled technicians may be a limiting factor for wider uptake for other dairy products by the DFGs and DFCs. Earlier studies have found that dairy products were limited to butter and cheese, suggesting poor product diversification in dairy business (Wangchuk et al. 2019). Good quality of raw milk is a prerequisite for any type of product diversification but Penjor & Gyeltshen (2018) observed microbial load of milk in their study exceeding the EU and US standards. Hence, beside the equipment and expertise, there is a need to emphasize on clean milk production not only for enhancing product diversification but also for safe human consumption.

3.6 Cash flow to the members of DFG & DFC

In 2019-2020, the overall average cash ploughed back to members from supply of milk and/or its products to the respective DFGs and DFCs (N=191) was Nu 146,1595.05 that translates to an average daily Nu 140.6 per member which is 65.4% of national workforce daily wage. Annual average cash flow to members of DFGs (Nu 1,488,248.61) was higher as compared to Nu 922,600.71 of DFCs (Table 6), indicating DFGs members were earning more money than DFCs members.

This finding also indicate that the members were earning good income by participating in DFGs and DFCs. Earlier studies also reported in a similar line that members of farmers' institutions received more benefits (Thapa et al. 2020) and steady farm income as compared to general dairy farmers (Lamsal 2010; Bayan 2018).

3.7 Gross income of DFG and DFC

In 2019-2020, the overall average gross income (N=191) of DFGs and DFCs through sale of milk and/ or its products was Nu. 1,650,442.91 that accounts to a monthly average of Nu 55,014.76 per DFGs and DFCs. Average annual gross income of DFGs (Nu. 1,677,166.83) was higher than that of DFCs (Nu 1,110,025.97), indicating DFGs was performing better than DFCs. Around 88% of the

gross income of DFGs and DFCs was positive while 11.7% were negative (Table 6).

Findings from this study indicate in general that the majority DFGs and DFCs were earning a substantial income, and only a handful were non-profitable and facing difficulties in meeting the regular operating expenses. The current findings were consistent with Subedi (2013), wherein it was reported while some FG and Co-ops have shown good operations over the years and derived substantial economic benefits to its members (mainly dairy and poultry), others have not, owing to issues such as lack of accountability and transparency, poor group management and poor record keeping. Resolving such issues in the first place is warranted for sustainability and successful operation of the FG and Co-ops in the country.

3.8 Employment generation of DFG & DFC

Beyond farm level, processing and marketing of milk and other dairy products of the DFG and DFC offers employment for the various actors in the milk supply chain. These include transporters, shops/kiosks operators, processors and sales. In 2019-2020 overall average number of people employed in the milk supply chain of the DFG and DFC (N=57) was around 2 people (M=2.37) ranging from 1-15 depending on type and scale of enterprise. For every 69.43 litres of milk flow daily, one job was created. DFG generated more employment (M=2.4) than DFC (M=1.5) (Table 6).

The findings suggest that the volume of milk that is traded via various intermediaries determines the number of jobs created, the higher the volume of milk, the higher the number of employments created. Hence, it is suggestive that increasing the quantities of milk turnover by the DFGs and DFCs has the potential to create more employment opportunities in rural areas with potential to help alleviate poverty and mitigate rural-urban migration.

3.9 Trends in DFG and DFC Performance

For any given enterprise, growth over the period is important for successful operation and longevity the business (Bayan 2018). The data over the period of three years (2017-18 to 2019-20)

considering 2017-2018 as baseline, showed different trends with both increase and decrease in percentage points of different variables. The number of functional DFGs and DFCs increased by 3.01 % and 11.7 % respectively in FY 2018-19 and 2019-20. Similarly, average milk collection increased by 10.97% and 6.52%, FGP by 7.56% and 4.45% and MP by 3.93% and 5.66% in 2018-19 and 2019-20 respectively. However, average member size remained almost stagnant. Product collection/production and sale, cash flow, gross income and employment generation had negative

growth mostly in 2019-2020.

Among the years, DFGs and DFCs made good progress in 2018-2019, with higher positive percentage points in almost all variables compared to the previous or latter years indicating yearly variation in performance of the DFGs and DFCs (Figure 2). The numbers of functional DFGs and DFCs have increased which could be attributable to efforts made in achieving Annual Performance Agreement (civil service performance management tool) of the respective Dzongkhag livestock sectors, which has positively contributed in

Table 5: Other dairy products production and sale with prices by type of farmers' institution in 2019-2020

Products	DFG		DFC		Overall	
	N	Mean	N	Mean	N	Mean
Yoghurt production (100 ml cup)	6	3603.5	1	5555	7	3882.29
Yoghurt sale (100 ml cup)	6	3603.5	1	5555	7	3882.29
MP (Nu/cup)	6	20	1	10	7	18.57
Yoghurt production (200 ml cup)	4	12909	2	8418.5	6	11412.17
Yoghurt sale (200 ml cup)	4	12909	2	8418.5	6	11412.17
MP (Nu/cup)	4	30	2	30	6	30
Butter milk production (l)	13	4212.12	1	1508.5	14	4046.86
Butter milk sale (l)	13	4212.12	1	1508.5	14	4046.86
MP (Nu/l)	13	29.62	1	30.0	14	29.64
Curd production (l)	4	3581.5	-	-	4	3581.5
Curd sales (l)	4	3581.5	-	-	4	3581.5
MP (Nu/l)	4	55	-	-	4	55
Paneer production (kg)	3	336	-	-	3	336
Paneer sale	3	336	-	-	3	336
MP (Nu/kg)	3	433.33	-	-	3	433.33
Hard chugo production (kg)	1	68.5	-	-	1	68.5
Hard chugo sale (kg)	1	68.5	-	-	1	68.5
MP (Nu/kg)	1	550	-	-	1	550
Soft chugo production (kg)	1	141.6	-	-	1	141.6
Soft chugo sale (kg)	1	141.6	-	-	1	141.6
MP (Nu/kg)	1	450	-	-	1	450
Gauda cheese production (kg)	1	152.44	-	-	1	152.44
Gauda cheese sale (kg)	1	152.44	-	-	1	152.44
MP (Nu/kg)	1	480.00	-	-	1	480

N denotes number of DFGs & DFCs

Table 6: Mean cash flow to members and gross income of DFGs and DFCs in 2019-2020

Variable	DFGs		DFCs		Overall	
	N	Mean	N	Mean	N	Mean
Cash flow to members (Nu)	182	1488248.62	9	922600.71	191	1461595.05
Gross income of DFGs and DFCs (Nu)	182	1677166.83	9	1110025.97	191	1650442.91
Proportion of gross income status of DFGs and DFCs						
Positive gross income of DFGs and DFCs (%)	138	88.7	5	83.3	143	88.3
Negative gross income of DFGs and DFCs (%)	18	11.3	1	16.7	19	11.7
Employment (No of people)	55	2.40	2	1.5	57	2.37

N denotes number of DFGs and DFCs

formation of a number of DFGs and DFCs. It is because in Bhutan, FG & Cooperative formations were generally top-down and target driven (Subedi 2013; Wangmo et al. 2021).

The change in policy approach towards rural development has raised the level of farmers' awareness on the value of collective action which might have resulted in an increased number of FG and Co-ops in the country (Martwanna & Sonam 2011). Along with more DFGs and DFCs average milk collection and prices have also gradually increased, indicating a healthy trend and good potential in the milk business. According to Kumar et al. (2013) dairy cooperatives offer a platform for increased milk contribution from cooperative

FG & Co-ops exhibited not only economic benefits but have the potential to optimize Gross National Happiness (GNH) by improving member/farmers' happiness and organizational growth for a happy nation (Dendup et al. 2018). Nonetheless, membership size was stagnant; volume of products traded were not growing, cash flow to members and income of the DFGs and DFCs saw a negative growth. This could be due to different growth stages and capacity of the DFGs and DFCs. Wangmo et al. (2021) reported that while most FGs were operational with regular activities, some were redundant due to poorly developed by-laws, weak management and negligible benefits to the members. Insignificant changes in group members after establishment probably suggest that dairy

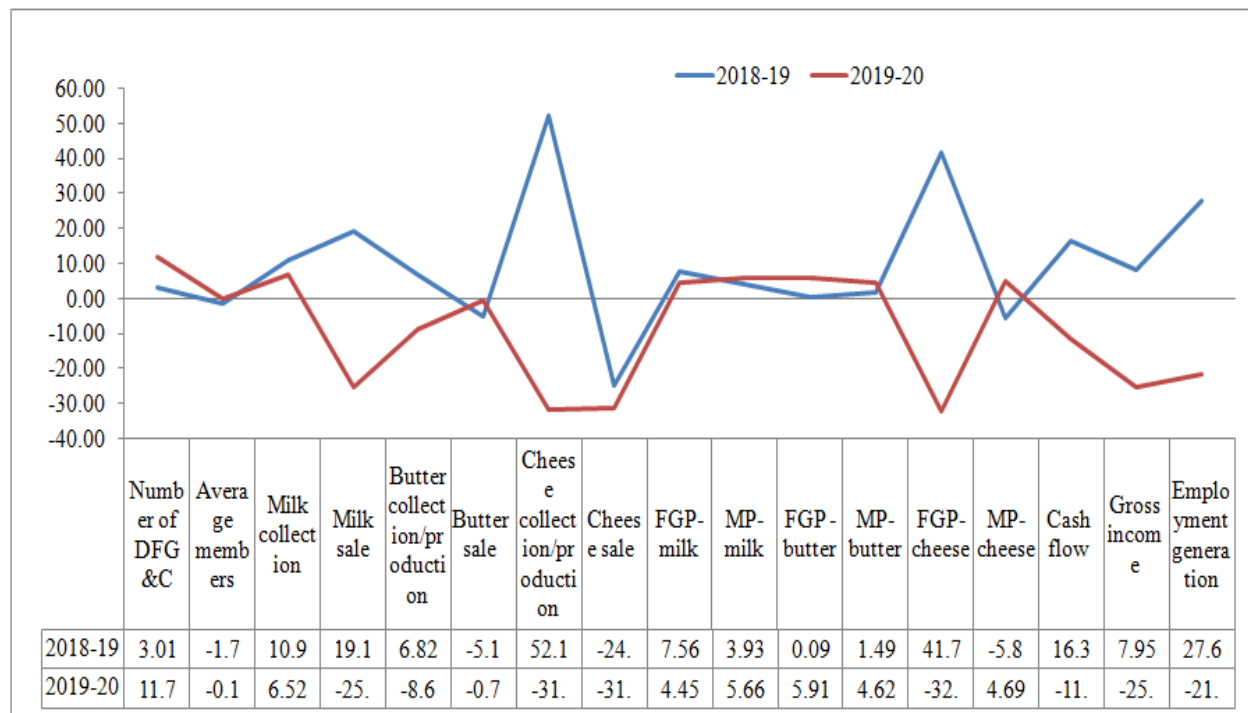


Figure 2: Trends in DFGs and DFCs in percentage points of different variables

members. Amongst the FGs and Coops in eastern region, dairy was ranked top performer, followed by poultry (Subedi 2013). Receiving recognition during the International Day of Co-operatives celebrations as “Best Farmers’ Group Performer” by Norbugang Zambala dairy group of Pema Gatshel (DoL 2019) and Gogona Dairy Group Technician Ms Chimi Dema FAO’s prestigious “Model Agriculturalists” award during 2019 (DoL 2019) was an indication of outstanding achievement by the DFGs and DFCs. Successful

groups have not evolved or made appreciable progress over several years. It also suggests dairy groups being less proactive and not attractive to attract new members (Wangchuk et al. 2019). As suggested in earlier studies, the stakeholders should strive to provide extra support for survival and growth of these FG and Co-op through institutional strengthening, timely and effective intervention and proper coordination between agencies responsible for advancement of FGs and Coops.

3.10. Issues with dairy farmers' institution

3.10.1 Registration status

Registration of farmers organizations in the country are under the purview of DAMC. Registered farmers organizations are more likely to reap benefits such as subsidies on cost-sharing basis, Sales Tax and Custom Duty exemption, tax holidays etc., (Fiscal Incentives Act of Bhutan 2017) than non-registered ones. Of the total DFGs and DFCs, 51.12% were found registered while the rest were either not yet registered or in the process of registration at the time of reporting period (Table 7).

The formalities for getting registered are specified in the Guidelines for registration of Farmer Groups and Cooperatives, 2010. However, despite such policy guidance documents in place formal registration of the DFGs and DFCs are generally weak. Although there is no known definite constraint for registration, some field officials indicate that DFGs and DFCs are not able to fulfill the requirements such as business proposal and bylaws. Extension officials of the respective jurisdiction assist in registration, nonetheless, lack of capacity within the group/cooperative to make business proposals and bylaws are believed to be the reason behind prolonged registration with DAMC.

3.10.2 Classification and naming the farmer institution

The profile of the dairy farmers groups and cooperatives shows, out of the functional 191 DFGs and DFCs, 90.5% were classified/named as DFGs and 9.5% as DFCs, both established at village level with the same organizational and management structure. Therefore, there was no

Table 7: Region wise registration status of the DFGs and DFCs in the country

Variables	Registered (%)	Not registered (%)
West	50.7	49.3
West Central	25.6	74.4
East Central	68.8	31.3
Eastern	57.1	42.9
Overall	51.2	48.8

clear delineation between group and cooperative, either by membership strength or by scale of enterprise or by hierarchical level of establishment. Similarly, Subedi (2013) also reported that majority of members had inadequate in-depth knowledge on differences between FGs and Coops and its associated advantages. Definition of FG and Coops in CAB, 2009 is also unclear to differentiate between groups and cooperatives. As such, there is a need to revisit the Cooperative (amendment) Act of Bhutan (CAB), 2009 to provide a clear legal framework for drawing any guiding principles in relation to farmers' institutions of the country. The use of local terms such as "Detshen", "Tshogpa" alternatively in naming the farmers' institutions was observed which created confusion and inconsistencies. "Tshogpa" is primarily in use for the political parties and FG is supposed to use only "Detshen" in its name as outlined in CAB, 2009. Hence, concerned stakeholders may need revisiting and renaming and due diligence has to be given in future while forming and naming new farmer institutions.

3.10.3 Progress reporting status and unit of measurement

In 2019-2020, majority (84.3%) of the DFGs and DFCs have properly reported the progress and the remaining (15.7%) have reported either inadequately or inappropriately (Table 8).

Table 8: Region wise reporting status of the DFGs and DFCs in the country

Variables	Properly Reported (%)	Not properly report (%)
West	92.8	7.2
West Central	86	14
East Central	56.3	43.8
Eastern	86.7	13.3
Overall	84.3	15.7

The progress of DFGs and DFCs are reported using the standard OGTP reporting format. The same format has to be used throughout the reporting system (Gewog to Dzongkhag to Regional to National). However, some regional offices (Regional Livestock Development Centre) have reported the progress not aligning with the format. Similarly, while most DFGs and DFCs have used kilogram as a unit of measurement for

cottage cheese, few have reported in ball without indication of weight, causing difficulty in data compilation that compromises the data quality thus it is more likely to inhibit presentation of actual performance scenarios. The cottage cheese is usually marketed in balls of different sizes, shapes and weight as reported by Wangdi et al (2014) but in organized farmers' institutions it is expected to use standard measurement units to have fair marketing practices. This is an indication of weak monitoring and evaluation systems. Subedi (2013) reported there was neither a concrete system instituted nor sufficient involvement of the gewog administration for regulation and monitoring. Thus, the researcher was of the view to have a separate focal person probably in the Gewog mandated with FGs and Coops development, regulation and monitoring. DAMC (2014) also acknowledged the same and mentioned that annual Monitoring and Evaluation (M&E) has to be institutionalized. Hence, more emphasis and due attention is required to materialize those recommendations.

4. CONCLUSIONS & RECOMMENDATION

Eastern Bhutan continues to be the dairy hub with maximum DFGs/DFCs operational. DFCs/DFGs across the country are venturing into milk processing and marketing as the most common model, followed by milk collection and marketing. However, memberships of DFGs/DFCs have remained stagnant, but over the years, improved performance of DFGs/DFCs indicated by increased volume of milk collected/sold; better prices obtained suggest that there has been steady transition towards better operation and management of this farmers' institution. Overall average milk contribution of 7 liters per member, and productivity of 6.5 litres of milk/cow/day is satisfactory under the Bhutanese smallholder production system. However, the productivity per animal needs to be enhanced over time with consistent research and extension interventions so that each member contributes more to the groups or cooperatives. With average FGP of Nu 36.85/litre of milk, each member gets 37% price premium over the cost of production. However, in absence of appropriate pricing system for agricultural produces in the country, pricing of the commodities including milk and milk products is

determined by the market force and negotiation power between the buyer and seller. Hence, to ensure that dairy products of acceptable standard is available at a fair price, mechanism including provision of required facilities to determine milk and milk products quality needs to be set up so as to institute quality-based milk pricing system in the near future. The DFGs/DFCs together have provided employment opportunities, with one person employed for every 69.43 liters of milk sold. Thus, promotion of dairy business in groups/cooperative mode will go a long way in creating jobs in the rural areas, thereby mitigating rural to urban migration. Most DFGs are performing better than DFCs in term of cash flow and gross income indicating that DFCs did not fulfill the intended purpose to run as a lucrative dairy business entity. While majority of DFGs/DFCs are functioning well, issues such as inadequate coordination between stakeholders, furthering occupational skills of DFG/DFC members and improvement of managerial role of office bearers/management committee needs to be resolved. Moreover, there is a need to work closely with DAMC to revisit the CAB, 2009 in order to come up with a clear legal framework for drawing the guiding principles to strengthen farmers' institutions like DGFs and DFCs in the country. Besides, enabling policy support backed by appropriate legal framework for DFGs/DFCs to progress towards an organized dairy cooperatives union and federation needs to be charted out to ensure sustained market led operation of the co-operative business. This can be achieved by backstopping the field offices through a coordinated support from local government and other line agencies.

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