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Socio-Economic Profile, Motivational Sources and Reason behind Joining the Farmer Producer Companies by the Dairy Farmers in India

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Authors' contributions

This work was carried out in collaboration among all authors. Author SK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors GS and PK managed the analyses of the study. Author DKM managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Collective action approaches play a significant role in solving marketing problems like providing the remunerative price of the product, eliminates the intermediaries from the agriculture value chain, and enhance the direct marketing between farmers and consumers. In these references, a new collective action approach being popularised in India i.e., farmer producer company. So, it is important to study the socio-economic characteristics of dairy farmers, motivational factors, and the reasons behind joining the FPCs. Hence a study was conducted from January 2020 at the three states i.e. Rajasthan, Uttar Pradesh, and Madhya Pradesh of India to investigate the socio-economic profile, motivational factors, and the reasons behind joining the FPCs among farmers. Primary data was collected through a semi-structured interview schedule using a sample of 360 farmers selected from twelve dairy-based FPCs of three states. Data were analyzed through frequency, range, and percentage. It was found that most farmers were middle-aged, possess small landholding, educated up to graduate level. The most important reason behind taking the

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membership of FPCs was to enhance the family income through FPCs, better price realization by FPCs, and quick payment settlement. Due to the above reasons, most of the farmers want to join FPCs in study areas. The result of the present study helps to enhance the membership of farmer Producer Company through formulating a suitable strategy that should attract the farmer to joining the farmer producer company. This also helps to identify the motivation sources and their credibility among farmers for convincing them for joining FPCs. It was also found that the participation of farmers in dairy-based farmer producer companies is largely dependent on the socio-economic characteristics of the dairy farmers.

Keywords: Farmer producer company; collective action approaches; cooperative; dairy farmers.

1. INTRODUCTION

In India, more than 80 percent of the dairy farmers are small and marginal having 2-3 animals and contributing around 70 percent of the country's total milk production [1]. The major issues related to these small and marginal farmers are; high transaction costs and vulnerability to risks in dairy production. The reason behind these issues includes the lower scale of operation, lack of information, poor communication linkages with the wider markets and consequent exploitation by intermediaries in procuring inputs and marketing fresh produce, access to and cost of credit, low quantities of marketable surplus, scarcity of capital, lack of market access, low bargaining power because of low quantities, lack of knowledge of marketing their products, market imperfections, and poor infrastructure. The major problem with small and marginal dairy farmers is that these farmers do not involve in activities beyond production such as processing, value addition, and marketing of products by themselves. Due to these issues, farmers are exploited by the intermediaries and have less share in consumer price even less than these middlemen. FPCs are collectivization of producers, especially low and marginal farmers, into a producer organization and came out as one of the most efficient pathways to address these challenges of the agriculture sector. A farmer producer company gives a robust framework for small producers to organize themselves for effective linkage with markets. It gives bargaining power to the small farmers, enables cost-effective delivery of extension services, and empowers the members to influence the policies that affect their livelihoods. FPCs help to overcome the constraints imposed by the small size of individual farms, members of FPCs can leverage collective strength and bargaining power to access financial and non-financial inputs, services, and appropriate technologies, the leads to a reduction in transaction costs, tap high-value markets and

enter into partnerships with private entities on more equitable terms [2]. Major activities of FPCs are the supply of inputs such as seed, fertilizer, and machinery, market linkages, training & networking, and financial & technical advice. In this context, the collectivization of small farmers has become even more important [3]. Research shows that smallholders would be able to substantially increase their incomes from agriculture and allied activities if they participate in markets. As a result, the focus of development has shifted from the enhancement of production to market connectivity [4]. Small farmer organizations such as co-operatives and FPCs are expected to enhance incomes, reduce costs of input purchase along with transaction costs, create opportunities for involvement in value addition, enhance bargaining power [5-7], and provide access to formal credit [8]. Many studies on FPCs found that this collective action approach has a significant impact on enhancing the socio-economic conditions of farmers and solving the agricultural problem faced by farmers [9]. In this case, a study plays an important role to find out the socio-economic profile, motivational factors, and reasons behind joining the FPCs by the farmers at the ground level. So, an attempt was made to study the socio-economic profile, motivational factors, and reasons behind joining the FPCs by the dairy-based farmers in India.

2. MATERIALS AND METHODS

The study has been conducted in three states i.e., Uttar Pradesh, Rajasthan, and Madhya Pradesh. The selection of states was done based on the criteria made for the study i.e., the state which has the highest milk production as well as the highest number of dairy-based farmer producer companies in the total number of farmer producer companies of the state. These three states i.e., Uttar Pradesh, Rajasthan, and Madhya Pradesh fulfil both criteria and holds the highest position in both criteria given in Table 1

(SFAC, 2019), [10], (Govil 2020). Based on that criteria, Rajasthan, Madhya Pradesh, and Uttar Pradesh states were purposively selected for this study considering their prominence in all criteria of milk production as well as the highest number of dairy-based FPCs. These states are contributing 36.4 percent of the total milk production in India. The sampling was done from these states based on the criteria i.e. A FPC must be having at least three-year-old and have 100 members at the time of the investigation. A total of 12 FPCs have been selected, 4 from each state (based on the availability of a sample that fulfills the above criteria). Through the proportionate random sampling, 30 respondents were select from each FPCs thus a total of 360 member farmers from 12 FPCs had been selected for final data collection. An interview schedule was developed for the collection of primary data of farmers as well as observation and focused group discussion methods were also used for getting detailed information of farmer producer companies. The collected data were analyzed through appropriate statistical tools such as; mean, range, frequency, and percentage.

Table 1. Current status of milk Producer Company registered by states (active companies only)

S.NO.	States	Number of FPCs
1	Maharashtra	35
2	Rajasthan	28
3	Madhya Pradesh	28
4	Uttar Pradesh	26
5	Tamil Nadu	15
6	Haryana	13
7	Bihar	12
8	Others states	53

3. RESULTS AND DISCUSSION

3.1 Socio-Economic Profiles of the Shareholders (Farmers) of FPCs

Age: The findings from Table 2 indicate that 57.22 percent of the respondents belong to the middle-aged category followed by 26.12 percent and 16.66 percent of the respondents belonged to the young and old age category; respectively. The result concluded that middle-aged farmers' producers are majorly joining and running companies. The findings have contradicted the studies that reported that the young farmers are more joining and running FPCs. However, the youth needs to be attracted to join and running the FPCs. The results are in line with Jose and

Meena [11], and Pooja [12] who also reported that most of the members belonged to the middle age categories in study areas.

Education: Table 2 indicates that one fourth (26.66%) of the respondents had a secondary level of education followed by 25.75 percent with a primary level of education, 18.33 percent with middle level of education, 13.88 percent with illiterate, 11.66 percent with higher secondary level, and 4.44 percent had graduation or above level of education. The results explained that practical education and skills are more important than formal education for the management and successfully running of FPCs. These results are in line with the finding of E Jose [11], Mukherjee [2], and Panchani Pooja [12].

Occupation: The perusal of Table 2 reveals that the majority (77.77%) of the respondents had dairy as their primary occupation followed by 14.72 percent had dairy as a secondary occupation (agriculture + dairy) and 7.51 percent had other occupations (agricultural + dairy + working in FPCs as an employee) with agriculture as a primary occupation in study areas. The results are in line with the finding of Elizabeth Jose [11] and Panchani Pooja [12], Sunil Kumar [13], and Himmat Singh [14] who also reported that dairy farming is the primary occupation among farmers followed by agriculture.

Experience in dairying: It can be inferred from Table 2 that 51.94 percent of the respondents had a medium level of dairy farming experience (5-10 years) followed by 26.94 percent with a low level of dairy farming experience (<5 years) and 21.12 percent with a high level of dairy farming experience (>10 years) in study areas. The findings are rational, as respondents develop skills in dairy farming and gain more experience in animal rearing practices over the years. Rahman [15], Sunil Kumar [13], and Khode [16] also reported that the majority of the respondents had medium to a high level of experience in dairy farming.

FPCs membership experience: Table 2 revealed that 54.16 percent of the respondents had a medium level of FPCs membership experience (5-10 years) followed by 34.72 percent with a low level of FPCs membership experience (<5 years) and 11.12 percent with a high level of FPCs membership experience (>10 years) in study areas. It was due to the reason that most of the selected FPCs were 3-6 years old so the highest proportion of respondents are

having a medium level of FPCs membership experience. These results are in line with the findings of Mukherjee [9].

Extension contact: Extension contact of the farmer generally depends on the availability of the extension personnel in their locality. Table 2 revealed that 39.44 percent of the respondents had a medium level of extension contact, followed by 27.33 percent and 33.33 percent with low and high levels of extension contact. FPCs enhance the backward and forward linkages of farmers so members of FPCs had a medium to a high level of extension contact in the study area. Mukherjee [9], Sunil Kumar [13], Parmar [17], Nishi [8], Smitha [18], and Meena [19] also observed that majority of the respondents had a medium level of extension contact.

Mass media exposure: The perusal of Table 2 reveals that mass media exposure of most of the respondents in the study area were medium (53.88%), followed by 26.66 percent with high exposure category and 19.46 percent were having a low level of exposure towards mass media. The reasons behind this are most of the farmers are using social media platforms like Facebook and WhatsApp. The FPCs also have their WhatsApp group through which they share most of the information among members. The above results are in agreement with the study conducted by Mukherjee [9], Sunil Kumar [13], Parmar [17], Nidhi [20], Smitha [18], and Rahman [15] who reported a medium level of mass media exposure among the respondents.

Motivational factors for joining FPCs: The data presented in Table 2 indicates that 35.56 percent of the respondents got motivated through NGOs for joining of FPCs followed by 26.38 percent by government officials, 21.39 percent through other members of FPC, while 16.67 percent got motivated through relatives for joining of FPCs in the study areas. These results explained that the NGOs were a major motivational agency for motivating farmers to join and the formation of FPCs in rural areas [21].

Reasons for joining FPCs: The reasons behind joining the FPO by members have been ranked and the results are presented in Table 4. Enhancement of family income by FPCs emerged as the most important (88.88%) reason for becoming a member of the FPCs and it was ranked first by respondents. The second important reason (83.88%) was better price realization by FPCs, followed by (77.22%) quick payments of their products as the third reason while providing input at a lower cost compared to

the market (61.11%) was ranked fourth by the respondents. The findings of the study are in agreement with Elizabeth [11], Nidhi [20], and Mukherjee [2].

Landholding: The findings from Table 4 indicate that 22.78 percent of the respondents were small farmers followed by 20.00 percent medium, 16.67 percent were marginal, 16.11 percent were semi-medium, 14.72 were landless and 9.72 were large farmers in study areas. The proportion of small, medium, marginal, and landless farmers was more in FPCs because FPCs had given special focus on small, medium, marginal, and landless farmers. According to the FPCs Act, around 50 percent of the members should be small, marginal, and landless farmers. Another reason is that small, marginal, and landless farmers have dairy farming as a primary source for their livelihood security and income generation but it is a secondary occupation for the large farmers. So, most of the respondents were small, marginal, and landless farmers. The results of the study are in agreement with the findings of Mukherjee [9], Karpagam [22], and Panchani Pooja [20].

Herd size: The perusal of Table 4 reveals that 42.22 percent had the medium size of herd (14.03 animals/household) followed by 30.27 percent had the small size of the animals' herd (Up to 7.91 animals/household) and 27.51 percent of the respondents had the large size of the animals' herd (20.15 animals/household) in study areas. It can be observed from the results that the majority of the respondents have medium to large herd sizes. It was due to the reason that most of the members of FPCs were small and marginal farmers and they had dairy farming as their primary occupation for income generation. The results are in line with the findings of Elizabeth Jose [11], Sunil Kumar [13], Himmat Singh [14], and Meena [19].

Milk production: Table 4 revealed that 48.88 percent of the farmers are in the medium category of milk production (8.64-17.71 L) followed by 30.27 percent with low and 20.85 percent with a high level of milk production categories; respectively. It might be since more numbers of the farmers were found in a medium level of herd size category that may lead to a medium level of milk production among respondents. The present findings are in agreement with Meena [19] and Nishi [20] as they also reported that half of the respondents belong to the medium level of milk production category.

Table 2. Socio-Personal profiles of FPCs member farmers

S. No.	Socio-Personal variables	Category	Respondents (n=360)		
			Frequency (Percentage)	Mean	SD
1.	Age	Young (18-35)	94 (26.12)	38.64	12.08
		Middle (36-50)	206 (57.22)		
		Old (>50)	60 (16.66)		
2.	Education	Female	128 (35.6)	NA	NA
		Illiterate	50 (13.88)		
		Primary	90 (25.73)		
		Middle	66 (18.33)		
		Secondary	96 (26.66)		
		Higher secondary	42 (11.66)		
		Graduate, above	16 (4.44)		
3.	Occupation	Primary	280 (77.77)	NA	NA
		Secondary	53 (14.72)		
		Others	27 (7.51)		
4.	Experiences in dairying	Low (<5)	97 (26.94)	NA	NA
		Medium (5-10)	187 (51.94)		
		High (>10)	76 (21.12)		
5.	FPCs membership experiences	Low (<5)	125 (34.72)	NA	NA
		Medium (5-10)	195 (54.16)		
		High (>10)	40 (11.12)		
6.	Extension contacts*	Low (Up to 17.3)	98 (27.23)	24.50	5.90
		Medium (17.4-27.5)	142 (39.44)		
		High (>27.5)	120 (33.33)		
7.	Mass medium exposure*	Low (Up to 19.3)	70 (19.46)	20.27	2.92
		Medium (19.3-23.27)	194 (53.88)		
		High (>23.27)	96 (26.66)		
		Medium (2-5)	39 (10.84)		
8.	Motivational sources for joining FPCs	High (>5)	0	NA	NA
		Government officials	95 (26.38)		
		NGOs	128 (35.56)		
		Another member of FPCs	77 (21.39)		
		Relative/neighbour	60 (16.67)		
Others	0				

*Multiple responses were taken

Table 3. Reasons for joining FPCs

Reasons for joining FPCs*			
S. No.	Particular	Frequency (%)	Rank
i.	To start new enterprise	70 (19.44)	13
ii.	To enhances the value of production	97 (26.94)	9
iii.	To buy input at a lower cost	220 (61.11)	4
iv.	To use common input services	119 (33.05)	5
v.	To make value-added product	102 (28.33)	8
vi.	Link to bank credit and use group asset	92 (25.55)	10
vii.	Manage natural resources	68 (18.88)	14
viii.	To use common marketing facilities	145 (40.27)	6
ix.	Assess marketing information	87 (24.16)	11
x.	Increasing bargaining capacity	128 (35.55)	7
xi.	Enhance the family income	320 (88.88)	1
xii.	Better price realization	302 (83.88)	2
xiii.	Storage facility	79 (21.94)	12
xiv.	Quick payment settlement	278 (77.22)	3

*Multiple responses were taken

Table 4. Socio-economic profiles of FPCs member farmers

S. No.	Socio-economic variables	Category	Respondents (n=360)		
			Frequency (Percentage)	Mean	SD
1.	Landholding pattern	Landless	53 (14.72)	NA	NA
		Marginal	60 (16.67)		
		Small	82 (22.78)		
		Semi-medium	58 (16.11)		
		Medium	72 (20.00)		
		Large	35 (9.72)		
2.	Herd Size	Small (Up to 9.1)	109 (30.27)	14.03	6.12
		Medium (9.12-16.3)	152 (42.22)		
		Large (>16.4)	99 (27.51)		
3.	Milk production	Low (up to 10.6 L)	109 (30.27)	17.71	9.08
		Medium (10.7L-20.7 L)	176 (48.88)		
		High (>20.7 L)	75 (20.85)		
		Medium (3.2-5.3L)	168 (46.67)		
		Large (>5.3 L)	82 (22.78)		
		Medium (8.16-17.45 L)	178 (49.44)		

S. No.	Socio-economic variables	Category	Respondents (n=360)		
			Frequency (Percentage)	Mean	SD
4.	Milk disposal pattern*	Large (>17.45 L)	74 (20.56)	NA	NA
		Cooperative	0		
		Private dairy	0		
		Middle	0		
		Direct to consumer	46 (12.77)		
		FPCs	360 (100)		
5.	Annual Income from dairy	Others	0	44132.64	15502.52
		Low (Up to 35 K)	106 (29.44)		
		Medium (36-56 K)	177 (49.17)		
		High (> 56 K)	77 (21.39)		
6.	Total annual income (Dairy + Agri.)	Low (Up to 97 K)	113 (31.38)	132153.55	37545.00
		Medium (98 K-1.79 lakh)	149 (41.39)		
		High (>1.79 lakh)	98 (27.23)		
		Low (Up to 5 km)	135 (37.5)		
7.	Distances from FPCs	Medium (5-10 km)	181 (50.27)	NA	NA
		High (>10 km)	44 (12.23)		
		Yes	107 (29.72)		
8.	Credit accessed for dairying from FPCs/other sources	No	253 (70.28)	NA	NA

*Multiple responses were taken

Milk marketing channel: Table 4 indicates that cent percent of the respondents are selling milk to their respective Farmer Producer Company or milk outlets suggested by the producers' company. Among them, 12.77 percent of respondents are selling milk directly to the customers in the locality and none of the respondents sell their milk other than FPCs. The findings of the study are in agreement with the findings of Meena [19], Nishi [20], Mukherjee [19], and Jose [11].

Annual income from dairy: Analysis of annual income revealed that 49.17 percent of the respondents belonged to the medium category of annual income from dairy farming, followed by 29.44 percent low level and 21.39 percent fall under the high category of annual income from dairy farming. This could be because the majority of the respondents possess a medium herd size and most of them are practicing a mixed farming system that is, generally crop farming along with dairying. The findings are in similar lines with Shruti [23], Himmat Singh [14], Sunil Kumar [13], and Nishi [20].

Total annual income: Regarding Annual income, 41.39 percent of the respondents belonged to the medium category of total annual income, followed by 27.23 percent high level and 31.38 percent fell under the low category of total annual income. The finding of the study is in agreement with Shruti [23], Mukherjee [2], Pooja [21] Nayanbhai [12], and Nishi [20] as they also stated that the majority of respondents were at the medium level of annual income.

Distances from FPC/market: Results presented in Table 4 inferred that half of the respondents (50.27%) had low distance (<5 km) from FPCs/ agricultural market followed by 37.5 percent had medium distance (5-10 km) and 12.23 percent had high distances from FPCs/ agricultural market (>10 km). These results of the study are in line with the findings of Mukherjee [9] who also reported that most of the respondents had a low level of distance from agricultural markets/FPCs in study areas.

Credit accessed for dairying from FPCs/another source: The perusal of Table 4 reveals that the majority (70.28%) of the respondents said that they did not have credit access facilities from FPCs or any other sources for dairy farming followed by 29.72 percent who agreed that they have credit access facilities from FPCs and any other sources for dairy farming. It was due to the reason that some

FPCs in study areas provide micro-credit facilities to their members for dairy farming like animal purchasing, animal shed construction, etc.

4. CONCLUSIONS

Socio-economic profile of dairy farmers, motivational factors, and reasons behind joining the FPCs becomes an important indicator in the establishment and development of dairy-based farmer producer company at the grass-root level. From the fact and findings, it can be concluded that the majority of farmers were middle-aged, small landholders, medium level of education, and possess dairy farming as their main occupation in the study area. Most of the respondents had a high level of experience regarding dairy farming. Most of the farmers had a high level of motivation regarding joining FPCs and they were motivated by NGOs and officials from government departments. The significant reason behind joining FPCs was to enhance their family income through FPCs with better price realization by FPCs, and quick payment settlement. It was also found that the participation of farmers in dairy-based farmer producer companies was largely dependent on the socio-economic characteristic of the dairy farmers. Therefore, it becomes more important to study the socio-economic profile of the dairy farmers before establishing and developing the dairy-based farmer producer company.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by the personal efforts of the authors.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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