RESEARCH ARTICLE

Comparative Socio-Economic and Personal Characteristics of Specialized Dairy Farms of North and South Gujarat Regions

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Abstract

A study was carried out to compare the socio-economic and personal characteristics of commercial dairy farms/owners of north and south Gujarat. The data were collected from specialized dairy farms, each from the north and south Gujarat. Ten specialized dairy farms with a herd size of more than 40 heads were selected randomly from Sabarkantha and Banaskantha districts as a sample of north Gujarat agro-climatic region and 10 farms were selected from Surat, Bharuch and Navsari districts as a sample from south Gujarat agro-climatic zone. The data were collected from dairy farm owners by administering the questionnaire. The results showed that the majority (60%) of dairy farms had livestock along with agriculture as main source of income, whereas 40% respondents had only livestock enterprise as a main source of income. Only 15% of dairy farms had other non-agricultural activities or business together with livestock. The percentage of dairy farms that had other business together with livestock was slightly higher in south region. The study revealed that majority of the respondents (55%) were of the middle age group, 40% were graduates, and 75% had experience in dairy farming for 5-10 years. Regarding the benefits of subsidy, most of the respondents availed subsidy for various farm-related purposes. About 80% of the dairy farms had taken subsidy for livestock in the north region compared to only 30% of the dairy farms in south Gujarat.

Keywords: Personal characteristics, Socio-economic status, Specialized dairy farm, Subsidy.

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Introduction

Urbanization has increased day-by-day, particularly in Gujarat, leaving a very small population in rural areas. Due to lack of manpower in rural areas, mixed farming is greatly hampered. The swift toward urbanization has created more scope for milk and milk products in urban areas. Many consumers in big cities of Gujarat are ready to pay a premium rate for desi cow milk, organic milk, and products. As per FSSSI report, 70% of milk sold in the Indian market was adulterated (Anonymous, 2012). Many urban consumers preferred milk from credible and trustworthy suppliers. This urban demand attracts dairy farmers and entrepreneurs to start specialized dairy farms with a herd size of 30-50 animals on scientific lines (Anonymous, 2017). Many farm owners are well-educated and quite experienced and possess scientific knowledge on organic livestock farming. Some resourceful farmers have developed specialized innovative technologies, housing design, fodder utilization pattern, etc. which is unique to meet their own needs. Prevailing dairy farming practices, productivity, profitability, and marketing pattern may vary from region to region. Among 33 districts of Gujarat, from north Gujarat, Banaskantha and Sabarkantha districts and south Gujarat, Bharuch, Surat, and Navsari districts are known for milk production, specialized dairy farms adopting modern technologies, and established co-operative milk producers unions. The agro-climatic condition in both regions are quite different as north Gujarat has semi-arid to dry climate with less rainfall, whereas south Gujarat falls under medium to heavy rainfall zone. Specialized dairy farming in both regions needs to be understood, considering its importance. However, not much work has been carried out about comparative aspects of socio-economic and personal characteristics of dairy farmers from these regions, and the study was carried out.

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Materials And Methods

The total sample size of 20 specialized commercial dairy farms comprised randomly selected 10 each from North and South Gujarat based on breed and herd size. To study specialized farms in heavy to medium heavy rainfall zone, 10 specialized dairy farms were selected randomly from Surat, Bharuch and Navsari districts of south Gujarat. Similarly,

10 farms were selected randomly from Banaskantha and Sabarkantha districts of north Gujarat. The dairy farms, which contributed more than 50% of the total income to farmers, were considered as specialized dairy farms. A list was prepared to enlist all the specialized dairy farms with a herd size of at least 40 heads of either white cattle or buffalo. Sabarkantha districts were having more than 25 specialized farms, whereas Banaskantha has such five farms; hence, from the list, eight and two specialized dairy farms were selected from Sabarkantha and Banaskantha, respectively.

Similarly, there were 15, 13, and 3 farms were found in Surat, Bharuch, and Navsari, so, from south region five, four and one specialized dairy farms were selected from Surat, Navsari, and Bharuch, respectively. The information pertaining to socio-economic status, personal characteristics as well as different subsidies availed was collected by interviewing respondents by using questionnaire method. Collected data were edited, tabulated, analyzed using frequency and percentages, and compared by the Chi-square test following Snedecor and Cochran (1994).

Results And Discussion

The socio-economic characteristics of dairy farm owners observed in both regions are presented in Table 1. It deals with frequency and percentage of landholding, the main source of income and engagement of dairy farm owners in other businesses.

Landholding

Table 1 indicates that the majority of dairy farms (80%) possessed land between 5 and 8 acres. Among the respondents, mean landholding was more in north Gujarat than south Gujarat; however, statistically, it was not significant. The owners of northern Gujarat dairy farms had more landholding because nearly three-fourths (70%) of the dairy farm owners had livestock together with agriculture. The land value was very high around the study area in the south region, particularly near Surat city. These findings are in accordance with the findings of Patel *et al.* (2018), as in their study, 60% of commercial dairy farm owners in Gujarat had more than 4 acres of land. Kumar *et al.* (2017) reported that 56.60% of commercial dairy farms in Uttar Pradesh had 10 or more acres of land. The difference in landholding may be attributed to a different type of dairy farm and breeds/species of dairy animals kept in the two different regions of study.

Main Source of Income and other Business

Table 1 also shows that the majority of dairy farms (60%) had livestock along with agriculture as the main source of income, whereas 40% of respondents had only livestock enterprise as a main source of income. None of the dairy farms in both zones had agriculture alone as the main source of income. Only 15% of dairy farms had other non-agricultural activities or business to supplement the income from livestock. It was statistically similar in both agro-climatic regions. However, the percentage of dairy farms that had other business together with livestock were slightly higher in the south region, because more number of the dairy farms owners had business-oriented in south region as compared to north Gujarat. These results were more or less in agreement with the findings of Reshma *et al.* (2014) and Sivaji *et al.* (2018), who reported that only 8.33 and 4.17 per cents dairy farmers of Tumkur district, Karnataka state had livestock together with other business as their main source of income. Further, Table 1 depicts that the majority (85%) respondents did not have any other business. The difference with regard to the main source of income and other business between the two agro-climatic regions was non-significant.

Personal Characteristics of the Farmers

The data collected regarding various personal characteristics, *i.e.,* age, education, and experience of dairy owners, were analyzed and results are presented in Table 2. The percentage frequency distribution of the studied categorical data in the north and south Gujarat did not vary statistically. The age of respondents was an independent factor, as it creates differences in farming management systems and production methods, including the adoption of newer technologies. Table 2 also reveals that only 25% of the respondents were young (<35 years). However, the percentage of old aged (> 50 years) dairy farm owners were slightly higher in the south than north Gujarat. This result was in line with Upadhyay and Desai (2011), Chaurasiya *et al.* (2016), and Godara *et al.* (2018).

Table 1: Distribution of dairy farms of north and south Gujarat according to socio-economic characteristics

			North Gujarat (n_1 = 10)		*South Gujarat (n_2 = 10)*		*Overall (n = 20)*		*Chi-square p-value*
S. No.	*Particulars*	*Category*	*Frequency*	*%*	*Frequency*	*%*	*Frequency*	*%*	
1	Landholding	> 10 acres	2	20	0	00	2	10	0.32
		8-10 acre	1	10	1	10	2	10	
		5-8 acre	7	70	9	90	16	80	
2	Main source of income	Livestock alone	3	30	5	50	8	40	0.36
		Livestock + Agriculture	7	70	5	50	12	60	
3	Other business	Yes	1	10	2	20	3	15	0.53
		No	9	90	8	80	17	85	
Total			10	100	10	100	20	100	

Table 2: Distribution of dairy farmers according to their personal characteristics

		North Gujarat (n_1 = 10)		*South Gujarat (n_2 = 10)*		*Overall (n = 20)*		*Chi-square*
Particulars	*Category*	*Frequency*	*%*	*Frequency*	*%*	*Frequency*	*%*	*p-value*
Age (years)	Young (<35)	3	30	2	20	5	25	0.613
	Middle (35-50)	5	50	4	40	9	45	
	Old (>50)	2	20	4	40	6	30	
Education	Primary	0	0	1	10	1	5	0.601
	Secondary	4	40	2	20	6	30	
	Higher secondary	2	20	3	30	5	25	
	Graduate	4	40	4	40	8	40	
Experience	>10 years	3	30	2	20	5	25	0.606
	5-10 years	7	70	8	80	15	75	
	No experience	0	0	0	0	0	0	
Total		10	100	10	100	20	100	

However, it contradicts the findings of Vidya *et al.* (2009). Data indicated that the middle age group was relatively more willing to adopt innovations. A slightly higher number of old aged dairy farm owners in the south region indicated that with advanced management; the old generation could also become innovative in dairy farming.

Table 2 envisages that overall, significantly dairy farmers were educated up to primary (5%), secondary (30%), and higher secondary (25%). The graduates practicing dairy farming was 40.00% in both the regions, which contradicts the findings of Kumar (2009) and Chandrasekar *et al.* (2017), who reported only 13.33 and 5.00% of a dairy farmer, respectively, as graduates. Kumar *et al.* (2017) recorded 54% illiterates among commercial dairy farm owners in Meerut, Uttar Pradesh. Generally, education has an impact on scientific management of large and specialized dairy farms. Also, it helps to widen the knowledge and wisdom of an individual, which helps to develop innovative ideas. The present study indicated that owners of dairy farms were well-educated, which helps in the development of their farms.

Table 2 reflects that only one-fourth respondents (25%) were highly experienced (>10 years) while the remaining three-fourths (75%) had low experience (5-10 years). However, the difference was statistically non-significant. The results are similar to the findings of Nataraju (2012), who reported that 53% of dairy farm women had low level of experience in the Chikmagalur district of Karnataka.

Benefits of Subsidy

The government is running various programs to assist dairy farmers in promoting dairy farming. Many farmers benefitted from various schemes and subsidies from the government. The results obtained from the collected data regarding the benefit of subsidies received by dairy farm owners of both regions are presented in Table 3.

Overall, subsidies were availed by 50% of farmers for purchase of a tractor, 70% for shed, 75% for chaff cutter, 45% for a milking machine, 30% for a rubber mat, and 55% farmers for livestock (Table 3). The chi-square values suggest that there was no significant difference between two agro-climatic regions in availing subsidies for shed, chaff cutter, and rubber mat. The table also depicts that the majority of farms benefited by availing subsidy to purchase tractor in north Gujarat, whereas the trend was opposite in south Gujarat. It demonstrates that dairy farm owners across both regions had mostly purchased chaff cutters with the help of government subsidy, which suggests that they are aware of the importance of chaffing fodder. The benefits of subsidies taken by specialized farms were quite satisfactory. Rathva (2019) reported that 12.5, 20, 2.5, 5, and 12.5% commercial farms or urban and peri-urban areas were enjoyed subsidies for livestock shed, chaff cutter, milking machine, rubber mat and livestock. The purchase and use of milking machines were more in the north than south Gujarat. Farmers of south Gujarat kept mainly buffaloes, and the adoption of the

Table 3: Distribution of dairy farm owners based on the benefits of subsidies received

		North Gujarat (n1=10)		*South Gujarat (n2=10)*		*Overall (n=20)*		
S. No.	*Purpose of Subsidy*	*Frequency*	*%*	*Frequency*	*%*	*Frequency*	*%*	*Chi-square p/ t value*
1	Tractor	8	80	2	20	10	50	0.00*
2	Shed	8	80	6	60	14	70	0.32
3	Chaff cutter	8	80	7	70	15	75	0.60
4	Milking machine	7	70	2	20	9	45	0.02*
5	Rubber mat	4	40	2	20	6	30	0.32
6	Livestock	8	80	3	30	11	55	0.02*

*Significant

milking machine was comparatively less.

Further, an interesting fact to know that in south Gujarat, the numbers of laborers involved in dairy farms were higher as compared to north Gujarat, which envisages the scope of more labor involved in milking. Due to the manpower availability, farmers of north Gujarat do not practice machine milking in buffaloes. Modern dairy farms have to replace their less productive animals with high productivity animals based on the requirement for continuous herd improvement and production enhancement. Dairy farmers of both regions found to be replaced their stock significantly every year by purchasing animals by availing the benefit of Government subsidy. However, the percentage of respondents who received various subsidies were higher in north Gujarat as compared to south Gujarat. Similar to the present finding Rathva (2019) revealed that less than half commercial dairy farms at south Gujarat had not taken any kind of subsidy for support of their farms. As in the north region, most of the farmers sold their milk to dairy co-operatives and benefitted from ongoing NABARD schemes and various subsidies because of their better extension contact. Contrarily, lesser dairy farms in south Gujarat sold their milk to dairy co-operatives. Hence, they could not receive direct benefits because of their lesser extension contact and difficulty in knowing and following the procedure for availing such benefits from NABARD and other government schemes. They were less aware or not interested in subsidy is given by the government or dairy co-operatives. However, most of the dairy farms of north Gujarat and few farms of south Gujarat were aware about subsidy is given by the government and dairy co-operatives, as per the report of the Dairy Entrepreneurship Development Scheme (DEDS) of NABARD.

Conclusion

It can be concluded that 40% of studied specialized dairy farms had livestock enterprise as a main source of income. The percentage of dairy farm owners that had other businesses together with livestock was slightly higher in the south region. Most farm owners availed the benefit of subsidy for various farm-related purposes. Significantly more dairy farms of north Gujarat have taken subsidy.

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