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Insights into the socio-economic dynamics of dairy farmers in Haryana

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Abstract
Dairy farming stands as a cornerstone of agricultural practices in Haryana, India, shaping the socio-economic landscape through its widespread adoption and profound impact on rural livelihoods. Socio-economic analysis helps in identifying opportunities for growth and development within the dairy sector. Based on this consideration, the study was conducted with a sample size of 120 dairy farmers in Haryana to explore the unique socio-economic factors influencing dairy farming practices and livelihoods. A majority of respondents were middle aged with mean age of about 45 years. Most of the respondents were having medium to high level of formal education. Most of them were members of nuclear families and having medium sized families. Similarly, a large majority were having agriculture (cultivation) as occupation with small or marginal land holdings. Respondents, in general, preferred to have small to medium herd of dairy animals. The respondents scored generally higher in case of risk orientation. Further, they exhibited medium level of aspiration. A large majority of respondents were having medium level of cosmopoliteness and scores obtained by respondents in case of scientific orientation were fairly high. Further innovation proneness scores indicating their favourable attitude towards innovations.

Keywords: Dairy farmers, socio-economic, rural livelihood, Haryana

Introduction
Livestock is generally considered a key asset for rural livelihoods (Malik *et al*., 2015) [16]. It contributes about 28.4 percent in the agricultural gross domestic product in India and also provides gainful employment all-round the year to 16.44 million people. India is the global leader in milk production since 1998 and has the largest bovine population in the world (Government of India, 2020) [11]. Haryana plays an important role in the livestock map of the country, accounting for 2.1% of India's total livestock capacity and produces 116.29 lakh tonne of milk, that is 5.26 percent of the country's total milk production (Anonymous, 2023) [2].
The Haryana dairy market is expected to reach Rs 1,650.1 crore by 2032, growing at a CAGR of 11.8% during 2024-2032 (Anonymous, 2024) [3]. In addition, the demand of livestock products is increasing day by day due to population explosion and income growth and urbanization (Cheng *et al*., 2022) [6]. Therefore, the ever-increasing +demand for livestock products has put a lot of pressure on dairy farming to increase productivity. Further due to diminishing land holdings and increasing population base, dairy farming is increasingly becoming a vital pillar of livelihoods for rural communities in Haryana. Therefore analysis of the socio-economic profile of dairy farmers in Haryana with provide essential insights into its economic significance, employment generation potential, and impact on rural livelihoods. Moreover assessing the socio-economic profile will be helpful in identifying sustainability challenges and resilience factors within Haryana's dairy farming sector.

Materials and Methods
Current investigation was carried out in aryana state. Haryana which is situated between 270 29' to 200 55' N latitude and 730 27' 8" to 770 26' 5" E longitude. The Haryana state has a population of approximately 2.54 crores with a density of 573 inhabitants per square kilometer. The sex ratio is on lower side with 879 females for every 1000 males, with a literacy rate of 75.55 percent (Anonymous, 2011) [1].

Three districts (Sonip at, Rohtak and Jhajjar) were selected on the basis of ecological zones.. From each district two blocks were were selected randomly. Then out of each block one village was selected by lottery method. A list of farmers involved in dairy farming in each village was prepared. From each village 20 respondents were then randomly selected using simple lottery method constituting a sample size of 120.

Fourteen independent variables age, educational qualification, family type, family size, caste, occupation, lands holding (acres), herd size, risk orientation, information seeking behaviour, level of aspiration, Localiteness-cosmopoliteness, innovation proneness and scientific orientation were selected and operationalized (Table 1) after a thorough review of available literature to find out socio-economic profile dairy farmers. The data was suitably analyzed using different statistical techniques.

Table 1: Operationalisation of independent variables

Sr. No.	Variable	Operationalisation
1.	Age	Chronological age of respondents
2.	Education	Scale developed by Pareek and Trivedi (1964) [21]
3.	Family size	Schedule was developed
4.	Family type	Schedule was developed
5.	Land holding	Scale developed by Pareek and Trivedi (1964) [21]
6.	Caste	Scale developed by Pareek and Trivedi (1964) [21]
7.	Occupation	Scale developed by Pareek and Trivedi (1964) [21]
8.	Herd size	Schedule was developed
9.	Risk orientation	Scale developed by Supe (1969) [35] with suitable modifications
10.	Innovation Proneness	Scale developed by Moulik (1965) [19] with slight modifications
11.	Localiteness-cosmopoliteness	Scale developed by Singh (1964) [33]
12.	Scientific orientationw	Scale developed by Singha (1991) [34]
13.	Level of aspiration	Scale developed by Muthayya (1971) [20] with suitable modifications
14.	Information seeking behaviour	Pareek and Rao (1992) [22], with suitable modifications

Result and Discussion

A brief account of background profiles of respondents of the study is presented in the Table 2. The results obtained from the present investigation as well as relevant discussion have been summarized under the following heads :

Table 2: Table depicting background profile of the respondents

Sr. No.	Variable	Possible Range	Observed Range	Mean	Standard Deviation
1.	Age (years)	-	18-75	45.80	12.28
2.	Educational qualification	0-6	0-6	3.91	1.73
3.	Family size	-	2- 13	5.86	2.34
4.	Family type	1-2	1-2	1.15	0.36
5.	Caste	1-6	1-6	5.05	1.86
6.	Occupation	1-6	1-6	4.76	1.15
7.	Land Holding (acres)	0-6	0-4	1.37	0.88
8.	Herd size	-	1-32	4.83	5.11
9.	Risk Orientation	6-30	12-27	21.7	3.78
10.	Information seeking behaviour	0-45	1-32	15.52	8.11
11.	Level of aspiration	0-8	0-8	4.53	2.17
12.	Localiteness-cosmopoliteness	6-18	6-18	13	1.86
13.	Scientific orientation	8-40	15-40	32.27	8.69
14.	Innovation proneness	9-18	9-18	14.01	1.67

Age

Evidently, a large majority of respondents were middle aged with mean age of about 45 years (Table3). The observed range of age was 18-75 years indicating that the dairy farmers of all age groups were fairly represented in the study. A majority of dairy farmers were in the middle age group (58.33%) followed by old age (31.67%) and then young (10%) age group. Almost similar findings were also observed by Raval and Chandawat (2011) [27] and Rachna *et al.,* (2017) [26] in their studies in different parts of India.

Educational qualification

Education in a society is a primary requirement for its socio-economic development. Formal education is important for dairy farmers as it provides them with wide exposure to new technologies and equips them to face difficulties and challenges in a better way. In general, the awareness and knowledge level of the farmers is best reflected through their educational attainment. It was observed that respondents were having medium to high level of formal education with the likelihood that a majority of them were educated upto middle level (Table 2). Surprisingly, only 13% of them were illiterate. Nearly half (51%) of them were having high level of education followed by medium level of education. A majority of them (45.8%) were having high and secondary level of education followed by middle (23.3%), primary (10.8%) and graduate and above (5.8%). Only small percentage of them were illiterate (Table 3).

Table 3: Classification of respondents on the basis of antecedents

Age group	Frequency (%)
Young (upto 30 years)	12 (10)
Middle (31-55 years)	70 (58.33)
Old (>55 years)	38 (31.67)
Education level	
Illiterate (0)	16 (13.33)
Medium (1-4)	42(35)
High (5-6)	62 (51.67)
Size of family	
Small (upto 4)	38 (31.67)
Medium (5-8)	65 (54.17)
Large (>8)	17 (14.17)
Family type	
Joint (1)	18(15)
Nuclear (2)	102(85)
Caste	
Scheduled caste	15 (12.5)
Lower caste	9 (7.5)
Prestige caste	3 (2.5)
Dominant caste / agricultural caste	93 (77.5)
Occupation	
Labour	6 (5)
Caste occupation	2 (1.7)
Business	2 (1.7)
Independent Profession	19 (15.8)
Cultivation (Agriculture)	67 (55.8)
Service	24 (20)
Land holding	
Low (0-1)	59 (49.17)
Medium (2-3)	60 (50)
High (4-6)	1 (0.83)
Herd Size	
Small (upto 2)	41 (34.17)
Medium (3-5)	51 (42.5)
Large (>5)	25 (20.83)
Risk orientation	
Low(12-18)	24 (20)
Medium (19-24)	62 (51.67)
High (25-27)	34 (28.33)
Information seeking behaviour	
1-10 (low)	40 (33.33)
11-21 (medium)	52(43.33)
7-9 (high)	28 (23.33)
Level of aspiration	
0-2(low)	19 (15.83)
2-5 (medium)	61 (50.83)
6-8 (high)	40 (33.33)
Localiteness-cosmopoliteness	
6-10 (low)	8 (6.7)
11-14 (medium)	89(74.17)
15-18 (high)	23 (19.2)
Scientific orientation	
15-20 (low)	22(18.33)
21-30 (medium)	19(15.83)
31-40 (high)	79 (65.83)
Innovation proneness	
9-11 (low)	9 (7.5)
11-14 (medium)	67 (55.83)
15-18 (high)	44 (36.67)

Size of family

Animal husbandry is basically a labour intensive activity in rural India. Mostly, family labour is engaged in this enterprise. A perusal of the data (Table 3) indicates that majority (54.17%) of the respondents were having medium family size followed by small (31.67%) and then large (14.17%) family size. Similar finding have earlier been reported. For example Sathyanarayan *et al.,* (2010)[31]showed that 53.85 percent of the farmers belonged to medium family size category followed by small (40%) and then large family size (6.16%). Also the results of the present study are similar to the findings of Meena *et al.* (2012) [18], Prasad (2013) and Sarita (2017) [30].

Type of family
In the present study a majority of the respondents were members of nuclear families (Table 3). Only 15% respondents belong to joint families. It appears that the prevalent joint family system is giving way to the idea of nuclear family. A variety of factors like urbanization, migration, education, imitation of western values and declining fertility rates may be responsible for this new trend, according to sociologists. Similar findings were observed by Malik et al., (2016) [17], Sabapara et al., (2014) [29] who reported that majority of farmers belonged to nuclear type families and Mali and Ligade, (2015) [15] also found that 88.67 percent livestock farmers were having the nuclear family.

Caste
A majority of the respondents belonged to agricultural or dominant caste followed by scheduled caste, lower caste and prestige caste (Table 3). Perhaps the dairy farmers of all castes were fairly represented in present study. However, there are variations in the findings related with the caste of the dairy animal owners in various parts of Haryana and India due to the overall demographic structure of the regions. Similar findings were reported by Kumar (1999) [14] and Sarita (2017) [30].

Occupation
It was noticed that a majority of respondents were having agriculture as occupation followed by service, independent profession, labour, caste occupation and business (Table 3). But above data clearly reflect that the respondents were engaged in various types of occupation i.e. labour, caste occupation, agriculture, business, independent profession and service. Most of them were having agriculture as major or subsidiary occupation. Prasad et al., (2019) [24] and Gopi et al., (2017) [9] also reported similar findings.

Land holding
Nearly half of respondents were having medium land holding of 1 to 10 acres., followed by low and high land holding (Table 3). Only one respondent out of 120 was having land holding of more than 10 acres The reason for possession of small sized land may be due to subdivision of land because of separation of the families. These findings are in accordance with the findings of Rathod et al., (2011) [28], Sharma et al., (2012) [32] and Malik et al., (2016) [17].

Herd size
In the present study, respondents, in general, preferred to have small to medium herd of dairy animals herd with a mean value of 4.83 (Table 2). A majority of the respondents were having medium herd size of 3 to 5 animals, followed by small herd size of one or two animals and large herd size of more than 5 animals (Table 3). Rathod et al., (2011), Rachna et al., (2017) [26] and Malik et al., (2016) [17] also compiled similar results.

Risk orientation
A large majority of respondents were classified in the medium category in terms of risk orientation, followed by low and high. So the respondents in general preferred to take medium to high level of risk orientation with the mean value being 21.7 (Table2). indicating that they were averse to risk taking. The findings regarding risk orientation is in accordance with that of Dahiya et al., (2004) [7], Thorat (2005) [36], Bhatt (2006) [5] and Rabari (2006) [25].

Information seeking behaviour
A perusal of the data reflects that the respondents were having medium level of information seeking behaviour with a mean value of 15.52 (Table 2). A majority of the respondents were having medium level of information seeking behaviour followed by low and high(Table 3). Similar findings have earlier been reported by Suresh (2004), Kacharo (2007) [12] and Kavithaa et al. (2014) [13].

Level of aspiration
A majority of respondents were having medium level of aspiration with a mean value of 4.53 followed by high and low (Table 2 and 3). So respondents exhibited medium to high level of aspiration indicating that farmers do nurture an urge for betterment of standard of life. Although it remains inconclusive to suggest that farmers will rely on dairy farming for enhanced income, yet the chances are fair that they will do so in the absence of other economic opportunities in rural areas.

Localiteness-cosmopoliteness
A large majority of respondents were having medium level of cosmopoliteness followed by high and low (Table 3). The scores clearly reflect respondents can probably obtain information from both inside and outside of village. Baindha (2011) [4] in his study reported that 65.85 percent of the respondents had medium level of cosmopoliteness followed by low (21.95%) and high (12.19%) level of cosmopoliteness.

Scientific orientation
The scores obtained by respondents in case of scientific orientation were fairly high with a mean value of 32.27 (Table 2).On the whole a majority of respondents were having high scientific orientation followed by low and medium (Table 3). results clearly indicate that an overwhelming majority of respondents were having medium to high level of scientific orientation. This finding is in conformity with the findings of Gour (2002) [10], Patel (2005) [23], Bhatt (2006) [5] and Durgga (2009) [8].

Innovation proneness
A large number of respondents were having medium level of innovation proneness with the mean value being 14.01 as depicted in Table 2 and followed by high and low (Table 3). The finding regarding innovation proneness is in accordance with that of Durgga (2009) [8] who reported that nearly two-third (65 percent) of the dairy farmers had medium innovation proneness.

Conclusion
Conclusively, A majority of respondents were middle aged, having medium to high level of formal education, having medium sized families. Mostly were having agriculture (cultivation) as occupation with small or marginal land holdings. Respondents, in general, preferred to have small to medium herd of dairy animals. The respondents scored generally higher in case of risk orientation and scientific orientation. Further, they exhibited medium level of scores in terms of aspiration, cosmopoliteness. So understanding of socio- economic dynamics of dairy farmers will be instrumental in formulating policies, promoting sustainable practices, and enhancing the socio-economic well-being of dairy farmers in the state.

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