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A comprehensive study on the socio-economic profile of dairy farmers of northern Bihar

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Abstract

The improvement of farmers' economic circumstances is greatly aided by dairy farming. The study was conducted to investigate the socio-economic profile of the dairy farmers of Northern Bihar. The current study examines several aspects of dairy farming as well as the current state of milk production, consumption, and sale. A total of 180 respondents with at least five years of experience in dairy farming and at least one animal in milk were interviewed using a semi-structured interview schedule to gather data about the socioeconomic status of dairy farmers. From the study, it was observed that most (40.56%) of the respondents belonged to the middle age group, and majority of them were male. Most (43.33%) of the respondents belonged to the medium family size and the majority (53.33%) of the respondents belonged to nuclear family. The majority (73.33%) of the respondents practiced agriculture as their primary occupation and majority (56.66%) of respondents were marginal farmers. Majority (68.00%) of the respondents had small herd size. Most (38.33%) of the respondents had medium mass media exposure, and the majority had medium extension contact.

Keywords: Socio-economic, dairy farmers, north Bihar, respondents, agriculture

Introduction

India is primarily an agricultural country, with animal husbandry serving as the foundation of the economy. Next to agriculture, the dairy industry not only boosts family nutrition standards and continuously generates cash, but it also partially lowers unemployment. (Kumar *et al.*, 2020) [4]. More than 80 percent of all agricultural workers are employed in the dairy sector. Dairy farming is currently a significant source of livelihood in India, giving farmers a steady stream of cash and eventually assisting in improving the socioeconomic situation of rural people. The socioeconomic makeup of the dairy producers reflects the way the local social dynamics shape the economic activities. As a result, it is seen as a crucial prerequisite for making decisions that eventually have an impact on the profitability of any economic organization. (Mohapatra, 2021) [6]. For low- and moderate-income households, dairy farming plays a significant role in both commercial and subsistence farming. As it offers more productivity and profit in a shorter period of time than other businesses, the dairy industry has considerable potential and scope for improving the socioeconomic position of small, marginal farmers and agricultural laborers. The Bihar dairy farmers rear lactating animals for the purpose of earning revenue that is supplementary to crop cultivation. If we look at the population growth tendencies in the state, milk and milk products must be used to provide both food security and nutritional security. (Singh *et al.*, 2021) [10]. The primary objective of this study is to analyse the key socioeconomic variables in the state of Bihar that have a significant impact on the compensation of dairy farmers and the expansion of the dairy industry as a whole.

Materials and Methods

The purpose of the study was to examine various aspects of dairy farming and the usage of milk output. North Bihar was chosen for the current study because of its low milk output and subpar dairy industry performance. North Bihar was purposively selected, and three districts from it, namely, Madhepura, Supaul, and Darbhanga, were selected through stratified random sampling. Two blocks were chosen at random from each district, one being closest to the district headquarters and the other being farthest from it, for a total of six blocks. Twelve villages overall were selected randomly, two from each block, and fifteen respondents from each village were selected randomly for a total sample size of 180 respondents.

For the study, dairy producers with at least five years of experience in dairy farming and at least one animal producing milk were chosen. A well-structured, pre-tested, and standardized interview schedule created for the intended purpose was used for data collection. Using appropriate statistical methods like frequency, percentage, and cumulative square root frequency, the acquired data were analysed. This data included information about the socioeconomic condition of dairy farmers in North Bihar.

Results and Discussions

Age

It's critical to know the respondents' ages in order to understand the potential human resources. From the study (Table 1), it was found that, most (40.56 %) of the respondents belonged to middle age group (35-50 years), followed by 32.67 percent of respondents who were in the old age group (Above 50 years) and 27.77 percent of respondents belonged to young age group (Less than 35 years). Similar findings were reported by Mahesh *et al.*, (2020) [5], who also reported that the majority of respondents belonged to the middle age group.

Sex

The study (Table 1) revealed that, in the study area, majority (80.56 %) of the respondents were male and 19.44 percent of the respondents were female. This was due to the fact that male respondents were always ready to be interviewed in the field investigations, although the care and maintenance of dairy animals are largely looked after by women.

Educational Qualification

Education is generally believed to have an effect on widening the mental horizon of the person and thereby, prepare or predispose them vis-a-vis respective to new ideas. According to the distribution of respondents (Table 1), it was observed that 20.55 percent of respondent were illiterate, followed by primary education (13.88 %), middle schooling (18.34 %), matriculation (17.23 %), intermediate (15.00 %) and lastly Graduation and above (15.00 %). Here it can be observed that respondents who did matriculation, intermediate, and who are graduates or above constitute 57.23 percent of the respondents.

Family Size

According to the distribution of respondents (Table 1), it was observed that most (43.33 %) of the respondents belonged to the medium family size (4 – 6 members), followed by small family size (less than 4 members), accounting for 30.00 percent and lastly large family size (>6 members), accounting for 26.67 percent of respondents. These findings are in agreement with the findings of Choudhary *et al.*, (2018) [2], as they also reported that the majority of the respondents belonged to medium family size.

Family Education Status

The study shows that most (40.56 %) of the respondents belonged to the medium family education status category, followed by the low family education status category, accounting for 33.89 percent and lastly, high family education status category, accounting for 25.55 percent.

Family Type

From Table 1, it was revealed that 53.33 percent of the respondents belonged to nuclear family, while 46.67 percent belonged to the joint family. This trend shows more affinity of the respondents towards nuclear family. These findings were in line with the findings of Sultana *et al.* (2019).

Experience in Dairy Farming (Years)

From the study (Table 1), it was found that most (42.22 %) of the respondents had high experience in dairy farming (Above 20 years), followed by medium category (11 to 20 years) accounting for 35.00 percent of respondents and lastly 22.78 percent of the respondents from low category (5 to 10 years) of dairy farming experience. These findings are in agreement with the findings of Singh *et al.*, (2021) [10], who also reported that the majority of the respondents had experience spanning more than 25 years.

Experience in crop farming (Years)

From Table 1, it was found that the most (41.11%) of the respondents had high experience in crop farming (Above 20 years), followed by medium category (11 to 20 years) accounting for 37.22 percent respondents, and lastly, low experience (5 to 10 years) accounting for 21.67 percent of respondents. The reason most of the respondents had high levels of experience in crop farming could be because crop farming has been their traditional source of livelihood.

Occupation

The occupations of the respondents were divided into Primary and Secondary occupations wherein the primary occupations, contributes to more than 50 percent of the annual income of the respondents.

Primary Occupation

From Table 1, it was observed that 73.33 percent of respondents practiced agriculture as their primary occupation, followed by business accounting for 10.56 percent, service accounting for 9.44 percent, dairy accounting for 3.89 percent respondents, lastly, 2.78 percent respondents practiced labour as their primary occupation. This trend could be due to the limited job opportunities in the area.

Secondary occupation

From Table 1, it was found that the majority (31.67 %) of respondents practiced dairy farming as their secondary occupation, followed by agriculture accounting for 27.78 percent, labour accounting for 25.00 percent, business accounting for 14.44 percent and lastly, 1.11 percent respondents practiced service as their secondary occupation. These findings were similar to the findings of Prasad *et al.* (2019) [8], who also reported that majority of the respondents practiced dairy as their secondary occupation.

Total Annual Income

From Table 1, it was observed that 62.77 percent respondents were in low annual income category (less than rupees 1,05,000), followed by 25.56 percent respondents lying in medium annual income category (rupees 1,05,000 to rupees 2,47,000), lastly, 11.67 percent respondents lying in high annual income category (more than rupees 2,47,000). The

majority of farmers falling into the low annual income category may be due to small land holdings, small herd size and lack of awareness about improved farming practices. Similar findings were reported by Prasad *et al.* (2017)^[7].

Land Holding (Hectare)

From Table 1, it was revealed that the majority (56.66 %) of respondents were marginal farmers (up to 1 hectare), followed by small farmers (1-2 Ha) accounting for 27.22 percent, followed by landless farmers accounting for 10.00 percent, followed by semi-medium farmers (2-4 Ha) accounting for 3.88 percent farmers, followed by medium farmers (4-10 Ha) accounting for 1.13 percent and lastly, large farmers (Above 10 ha) accounting for 1.11 percent. These findings are in concordance with the findings of Atreya *et al.* (2018)^[11].

Herd Size

From Table 1, it was found that 68.00 percent respondents were in the small herd size category (up to 3 animals), followed by medium herd size (4 to 6 animals), accounting for 20.67 percent and lastly, large herd size (Above 6 animals) accounting for 11.33 percent respondents. This trend could be due to the lower annual income of the respondents and dairy farming being the secondary source of income for most of the respondents. These findings are similar to the findings of Vekariya *et al.*, (2016)^[12] who also reported that the majority of the respondents had small herd sizes.

Holding of Cattle and Buffalo in the Respondent Households

From Table 2, it was evident that in the study area, most (40 %) of the dairy animals were indigenous cows, followed by buffalo accounting for 25 percent and lastly, crossbred cows accounting for 35 percent.

Mass Media Exposure

From Table 1, it was evident that 38.33 percent of respondents belonged to medium mass media exposure category (3.77 to 6.65), followed by the low mass media exposure category (less than 3.77) accounting for 31.11 percent and lastly, high mass media exposure category (Above 6.65) accounting for 30.56 percent.

Extension Contact

From Table 1, it was found that about 54.44 percent of respondents belonged to the medium extension contact category (up to 6.69), followed by the low extension contact category (6.70 to 8.51) accounting for about 27.78 percent and lastly, high extension contacts category (Above 8.52) accounting for about 17.78 percent. These findings are in agreement with the findings of Singh *et al.* (2018)^[11].

Innovation-adoption

From Table 1, it was observed that 79.44 percent respondents were in medium innovative category, followed by 4.45 percent respondents who belonged to the highly innovative category, and lastly, 16.11 percent respondents who belonged to less innovative category. This could be due to lower educational status, lower annual income, and use of traditional farming practices. These findings are consistent with the findings of Koli *et al.* (2020)^[3].

Milk Production (Litres/Day/Per Household)

From Table 1, it was observed that 49.44 percent respondents were in low milk production category (Up to 3.20 litres), followed by 33.89 percent respondents who were in medium milk production category (3.20 - 5.75 litres), lastly 16.67 percent respondents who belonged to less milk production category (Above 5.75 litres). The average milk production in the study area was 3.93 litres per day per household. These results could be due to the lower annual income of the farmers, and lack of awareness about the improved dairy farming practices. These findings are in agreement with the findings of Kumar *et al.*, (2020)^[4], as they also reported that about 56.70 percent of respondents had total milk production up to 5 litres/day followed by 6-10 litres/day (31.1%) and only 12.2 percent respondents had more than 10 litres/day of milk production.

Milk Consumption (Litres/day/per household)

From Table 1, it was observed that 52.78 percent respondents were in the low milk consumption category (less than 2.20 litres), followed by 28.33 percent respondents who belonged to the medium milk consumption category (2.20 - 3.39 litres), lastly 18.89 percent respondents who belonged to high milk consumption category (Above 3.39 litres). The average milk consumption of the study area was 2.59 litres per day per household. This could be due to lower milk production in the region.

Milk Sale (Litres/day)

From Table 1, it was found that 46.67 percent of the respondents did not sell milk, they used it for household consumption. Almost one fourth (24.44 %) of the respondents belonged to low milk sale category (less than 2.25 litres) followed by the medium milk sale category (2.25 to 3.50 litres) accounting for 18.33 percent and lastly, the high milk sale category (More than 3.50 litres) accounting for 10.56 percent. The average milk sale in the study area was 2.59 litres per day per household. The low milk sale in the study area could be due to low milk productivity and less marketing surplus.

Table 1: Socioeconomic profile of the dairy farmers of North Bihar

Variables	Categories	Frequency	Percentage
Age	Young (Up to35)	50	27.77
	Middle (35-50)	73	40.56
	Old (Above 50)	57	32.67
Sex	Male	145	80.56
	Female	35	19.44
Educational Qualifications	Illiterate	37	20.55
	Primary	25	13.88
	Middle	33	18.34
	Matriculation	31	17.23
	Intermediate	27	15.00
	Graduation & above	27	15.00
Family Education Status	Low (Up to 1.30)	61	33.89
	Medium (1.31 – 2.34)	73	40.56
	High (Above 2.34)	46	25.55
Family Size	Low (Up to 4)	54	30.00
	Medium (4 - 6)	78	43.33
	High (Above 6)	48	26.67
Family Type	Nuclear	96	53.33
	Joint	84	46.67
Experience in dairy farming (years)	Low (5-10)	41	22.78
	Medium (11-20)	63	35.00
	High (Above 20)	76	42.22
Experience in crop farming (years)	Low (5-10)	39	21.67
	Medium (11-20)	67	37.22
	High (Above 20)	76	41.11
Primary Occupation	Agriculture	132	73.33
	Dairy farming	7	3.89
	Service	17	9.44
	Business	19	10.56
	Labour	5	2.78
Secondary Occupation	Agriculture	50	27.78
	Dairy	57	31.67
	Service	2	1.11
	Business	26	14.44
	Labour	45	25.00
Total Annual Income (Rupees)	Low (Less than 1,05,000)	113	62.77
	Medium (1,05,000 – 2,47,000)	46	25.56
	High (Above 2,47,000)	21	11.67
Land Holding (Hectares)	Landless	18	10.00
	Marginal (Up to 1 ha)	102	56.66
	Small (1-2 Ha)	49	27.22
	Semi Medium (2-4 Ha)	7	3.88
	Medium (4-10 Ha)	2	1.13
	Large (>10ha)	2	1.11
Herd Size	Low (Up to 2)	122	68.00
	Medium (2 - 3)	38	20.67
	High (Above 3)	21	11.33
Mass Media Exposure	Low (Up to 3.77)	56	31.11
	Medium (3.77 - 6.65)	69	38.33
	High (Above 6.65)	55	30.56
Extension Contact	Low (Up to 6.69)	50	27.78
	Medium (6.70 – 8.51)	98	54.44
	High (Above 8.52)	32	17.78
Innovation-adoption	Highly Innovative (3)	8	04.45
	Medium Innovative (2)	143	79.44
	Less Innovative (1)	29	16.11
Milk Production (Litres/day/household)	Low (Up to 3.18)	89	49.44
	Medium (3.19 - 5.75)	61	33.89
	High (Above 5.76)	30	16.67
Milk Consumption (Litres/day/household)	Low (Up to 2.20)	95	52.78
	Medium (2.21 - 3.39)	51	28.33
	High (Above 3.39)	34	18.89
Milk Sale (Litres/day)	Household consumption	84	46.67
	Low (Less than 2.25)	44	24.44
	Medium (2.25 – 3.50)	33	18.33
	High (Above 3.50)	19	10.56

Table 2: Holding of Cattle and Buffalo in the Respondent Households

Type of Animals	No. of animals	Percentage
Indigenous cow	242	40
Crossbred cow	153	25
Buffalo	214	35

Conclusions

In conclusion, dairy farming is a significant source of revenue for small and marginal farmers in Northern Bihar. The majority of the respondents belonged to middle aged group (36 to 50 years), of which 81 percent were male respondents and 19 percent were female respondents. About 20.55 percent of the respondents were found to be illiterate, about 17.23 percent were educated up to matriculation, and about 15.00 percent were educated up to graduation and above. Nuclear families were found to be more prominent in the study area (53.33%). About 42.00 percent of the respondents had 11 to 20 years of experience in dairy farming, as well as 41.00 percent of the respondents had 11 to 20 years of experience in crop farming. Agriculture was found to be the primary occupation of the majority of the respondents (73.33 %) and dairy was the secondary occupation for 31.67 percent of the respondents. About 56.66 percent of the respondents were marginal farmers; having land holdings of less than 1 hectare, about 27.22 percent were small farmers and besides this, 10.00 percent of the respondent farmers were found to be landless. About 62.77 percent of the respondents belonged to low annual income category, and about 68.00 percent of the respondents had small herd size. About 49.44 percent of the respondents belonged low category of milk production; majority of the respondents had low milk; around 46.67 percent of the respondents did not sell the milk; they utilised it for household consumption; and around 24.44 percent had low milk sales.

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Conflict of Interest

None

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