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Exploring the before and after effect of socio-economic factors on the knowledge and adoption of entrepreneurial behavior of dairy farmers in Gaya district of Bihar

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Abstract

The dairy sector in Bihar plays a crucial role in the rural economy, providing livelihood opportunities and contributing significantly to the state's agricultural output. Understanding the entrepreneurial behavior of dairy farmers is essential for sustainable growth and development in the sector. The study employs a mixed-method approach, combining qualitative interviews and quantitative surveys to gather comprehensive data on various aspects of entrepreneurial behavior among dairy farmers. Key entrepreneurial behaviors examined include innovation adoption, risk-taking propensity, market orientation, and entrepreneurial orientation. The present study entitled "Exploring the before and after effect of Socio-Economic Factors on the Knowledge and Adoption of Entrepreneurial Behavior of Dairy Farmers in Gaya District of Bihar" was conducted in Gaya district of Bihar. A sample of 120 respondents were selected. Gaya sadar (chandauti) block was selected for the present investigation through random sampling method.10 villages were selected from identified block and from those 10 villages 12 respondents were selected from each village to make a total sample size of 120 respondents. Descriptive research design was followed for the present study. The study reveals that a majority of respondents have a low level of knowledge about dairy farming practices, with a low level of knowledge in breeding, feeding, healthcare, and miscellaneous management. The majority of respondents have medium knowledge about cow and buffalo breeds, but have limited knowledge about symptoms of heat, pregnancy tests, and feeding fodder and conc. The study also reveals that 53.33 percent had medium, 22.5 percent had high and 21.17 percent had low level of knowledge regarding dairy farming practices.

Keywords: Entrepreneurial behavior, knowledge, adoption, dairy and respondents

Introduction

India ranks first in milk production, accounting for 18.5% of world production, achieving an annual output of 146.3 million tonnes during 2018-17 as compared to 137.69 million tonnes during 2020-21 recording a growth of 6.26%. Whereas, the Food and Agriculture Organization (FAO) has reported a 3.1% increase in world milk production from 765 million tonnes in 2013 to 789 million tonnes in 2014 (Economic Survey, 2015). Consequently, per capita per day availability of milk in India has increased from 120 grams (g) in 1960 to 307 g in 2019-20, meeting the minimum nutritional requirement of 250 g as recommended by the Indian Council of Medical Research. At present India contributes 18.5 percent of the total global milk production. Out of this, 55 percent is contributed by buffalo milk (Economic survey, 2019). As per the estimates of Integrated Sample Survey (ISS) of major livestock products, the production of milk in Jammu and Kashmir state for the year 2012 was estimated at 16114.57 thousand metric tonnes. Presently the per capita availability of milk is about 302 grams per day. For raising the living standard of the vast majority of the backward regions, planning and implementation of entrepreneurial programmes are essential because of their over dependence of on agriculture for employment. Thus, entrepreneurship development in rural industries appears to be best possible alternatives to find employment avenues for the rural population. Dairy farming in J & K is practice with one or two indigenous buffaloes or cow milk has now emerged as the second largest agricultural commodity and that is why dairy as a business is becoming more and more popular among entrepreneurs and also among the educated unemployment people. The behaviour of individual as entrepreneur can be highlighted as a major contributing factor for entrepreneurship development.

The entrepreneurial behavior of dairy farmers in Gaya district of Bihar reflects a blend of traditional practices and emerging innovative approaches to dairy farming. These farmers demonstrate entrepreneurial traits such as risk-taking, proactive decision-making, and adaptability, which are crucial for the sustainability of their ventures. Despite facing challenges like limited access to advanced technologies, inadequate financial resources, and fluctuating market conditions, many dairy farmers in Gaya have shown resilience by adopting improved breeding techniques, better livestock management practices, and exploring new

marketing channels. Their entrepreneurial spirit is further fuelled by the increasing demand for dairy products, which motivates them to enhance productivity and efficiency. Community support, government schemes, and cooperative societies also play a vital role in encouraging entrepreneurial activities among these farmers. By leveraging local resources and knowledge, dairy farmers in Gaya are gradually transforming their small-scale operations into more profitable and sustainable businesses. This shift not only improves their economic status but also contributes to the overall development of the dairy sector in Bihar, making it an integral part of the region's rural economy. Continued focus on training, education, and access to resources will be key to further nurturing the entrepreneurial potential of dairy farmers in this district (Kulkarni, N. P. and Jahagirdar, K. A. 2019) [4].

Research Methodology

The methodology used to select the district, the blocks, the villages and the respondents was purposively cum random sampling. The Gaya district of Bihar was selected in order to avoid the inconvenience and time constraints on the investigator. All the blocks falling within the district of Gaya were selected, and the block of Gaya Sadar was selected based on the majority of respondents involved in cattle farming. A separate list of villages was prepared for the selected block, and five percent of the villages from the selected block with a high number of respondents cattle farming were randomly selected. From the villages, a list of all cattle farmers was prepared. From a list of 120 cattle farmers were randomly selected using proportionate random sampling. Before & after was followed for the present study. Primary data was collected through suitable designed schedule. Secondary data was collected from books/journal/report/records of district/blocks headquarters. Data from respondents were collected through survey methods via direct personal interview. Statistical tools were used to analyse the data and present the result. Data pertained to the agricultural year of 2022-2024.

Analytical Tools

1. Arithmetic Mean: $X = \Sigma x/N$
2. Mean Percent Score (MPS)

$$\text{Mean Percent Score ((MPS)} = \frac{\text{Total score obtained by respondents}}{\text{Maximum attainable score}} \times 100$$

3. Standard deviation (σ)

$$\text{S.D. } (\sigma) = \frac{\sum d^2}{n}$$

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

4. Correlation coefficient (r)

Results and Discussion

Table 1: Distribution of respondents according to their knowledge about entrepreneurial behavior of dairy farming.

S. No.	Practices	Extent of knowledge of dairy entrepreneurs					
		Full knowledge		Partial knowledge		No knowledge	
		F	%	F	%	F	%
A.	**Breeding**						
1.	Breeds of cow and buffalo	38	31.67	42	35.00	40	33.33
2.	Symptoms of animal in heat	35	29.17	39	32.50	46	38.33
3.	Right time of A.I.	67	55.84	35	29.16	18	15.00
4.	Pregnancy test	16	13.33	37	30.83	67	55.84
5.	Period of insemination after normal calving	54	45.00	24	20.00	42	35.00
6.	Selection of breeds	38	31.67	57	47.50	25	20.83
B.	**Feeding**						
1.	Additional conc. feed to pregnant cow/buffalo in the advanced stage of pregnancy	12	10.00	40	33.34	68	56.66
2.	Feeding of colostrums to newly born calf	32	26.66	50	41.67	38	31.67
3.	Practice to feed the newly born calf	18	15.00	75	62.50	27	22.50
4.	Practice of feeding fodder and conc.	09	07.50	26	21.66	85	70.84
C.	**Health care**						
1.	Diseases of dairy animal	31	25.84	70	58.33	19	15.83
2.	Time of vaccination against infectious diseases	42	35.00	33	27.50	45	37.50
3.	Symptoms of foot and mouth disease	58	48.33	36	30.00	26	21.66
4.	Symptoms of hemorrhagic septicemia	53	44.16	48	40.00	19	15.83
D.	**Miscellaneous management**						
1.	Clean milk production	09	07.50	15	12.50	96	80.00
2.	Maintaining cleanliness of cattle shed	47	39.17	31	25.83	42	35.00
3.	Dry period to be allowed for lactating pregnant animal	59	49.17	33	27.50	28	23.33
4.	Dehorning of newly born calf	54	45.00	24	20.00	42	35.00
5.	Maintaining records	31	25.84	70	58.33	19	15.83

Table 1: It has been observed under Distribution of respondents according to their knowledge about entrepreneurial behavior of dairy farming that in breeding category majority of respondents responded under 53.33 percent had medium, 22.5 percent had high and 21.17 percent had low level of knowledge regarding dairy farming practices. In Breeds of cow and buffalo and Selection of breeds, partial knowledge followed by no knowledge in Symptoms of animal in heat, Pregnancy test lastly full knowledge in Right time of A.I. and Period of insemination after normal calving. Under feeding category it has been recorded that respondents were having partial knowledge about Feeding of colostrums to newly born calf, Practice to feed the newly born calf and no knowledge of Additional conc. feed to pregnant cow/buffalo in the advanced stage of pregnancy and Practice of feeding fodder and conc. Under healthcare it has been observed that respondents were full knowledge in Symptoms of foot and mouth disease, Symptoms of hemorrhagic septicemia, partial knowledge in Diseases of dairy animal and no knowledge in Time of vaccination against infectious diseases. Under miscellaneous management it has been recorded that responded were having full knowledge in Maintaining cleanliness of cattle shed, Dry period to be allowed for lactating pregnant animal and Dehorning of newly born calf and partial knowledge in Maintaining records respectively.

Table 2: Distribution of respondents according to their level of knowledge about entrepreneurial behavior of dairy farming.

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Low (up to 23)	29	24.17
2.	Medium (24-26)	64	53.33
3.	High (27 & above)	27	22.50
	Total	120	100.00

Mean: 24.83, S.D: 2.00, Min: 19, Max: 28

Table 2: Reveals that 53.33 percent had medium, 22.5 percent had high and 21.17 percent had low level of knowledge regarding dairy farming practices.

Table 3: Distribution of respondents according to their adoption of entrepreneurial dairy farming practices.

S. No.	Practices	Extent of adoption of dairy entrepreneurs					
		Full adoption		Partial adoption		No adoption	
		F	%	F	%	F	%
A.	**Breeding**						
1.	Keeping watch on estrous cycle and heat symptoms of cow/buffalo	92	76.67	15	12.50	13	10.83
2.	Practicing A.I. at proper time of heat	17	14.16	48	40.00	55	45.84
3.	Practicing pregnancy diagnosis	85	70.84	18	15.00	17	14.16
B.	**Feeding**						
1.	Feeding colostrums to newly born calf within half an hour of birth	99	82.50	09	07.50	12	10.00
2.	Feeding conc. mixture on the basis of milk production	109	90.84	04	03.33	07	05.83
3.	Feeding colostrums to newly born calves up to 5 days of its birth	59	49.16	43	35.84	18	15.00
4.	Growing green fodder	67	55.83	42	35.00	11	09.17
C.	**Health care**						
1.	Practicing vaccination timely and regularly against the contagious diseases like HS, BQ & FMD	38	31.67	42	35.00	40	33.33
2.	Segregating the diseased animals suffering from contagious diseases	54	45.00	24	20.00	42	35.00
3.	Practicing deworming in calves for the prevention of parasitic diseases	38	31.67	57	47.50	25	20.83
4.	Treatment of umbilical cord to new born calf	32	26.66	50	41.67	38	31.67
D.	**Miscellaneous management**						
1.	Providing clean and fresh drinking water to the animals	53	44.16	48	40.00	19	15.83
2.	Practicing full hand method of milking	09	07.50	15	12.50	96	80.00
3.	Maintaining the cleanliness of animal shed	47	39.17	31	25.83	42	35.00
4.	Practicing dehorning in calves	59	49.16	43	35.84	18	15.00
E.	**Record maintaining**						
	(a) Income record	67	55.83	42	35.00	11	09.17
	(b) Milk production record	38	31.67	42	35.00	40	33.33
	(c) Animal health record	53	44.16	48	40.00	19	15.83
	(d) Expenditure record	42	35.00	33	27.50	45	37.50

Table 3: During the study it has been observed under respondents according to their adoption of entrepreneurial dairy farming practices that under breeding category it has been observed that under Keeping watch on estrous cycle and heat symptoms of cow/buffalo has received majority responds under full adoption that is 76.67 percent followed by Practicing pregnancy diagnosis under full adoption category that is 70.84 percent and lastly Practicing A.I. at proper time of heat response were observed in full adoption category that is 14.16 percent. Under feeding category it has been observed that majority of response were under full adoption in Feeding colostrums to newly born calf within half an hour of birth and Feeding conc. mixture on the basis of milk production and Feeding colostrums to newly born calves up to 5 days of its birth and Growing green fodder. Under Healthcare category it has been observed that in Practicing vaccination timely and regularly against the contagious diseases like HS, BQ & FMD majority of response were recorded that respondents have no adoption, followed by Segregating the diseased animals suffering from contagious diseases have full adoption followed by Practicing deworming in calves for the prevention of parasitic diseases Having partial adoption and Treatment of umbilical cord to new born calf have maximum response

recorded in partial adoption. Under Miscellaneous management it has been recorded that majority of respondents were adopted fully the Providing clean and fresh drinking water to the animals, Maintaining the cleanliness of animal shed, Practicing dehorning in calves respectively.

Table 4: Distribution of respondents according to their level of adoption about entrepreneurial behavior of dairy farming

S. No.	Categories	Respondents	
		Frequency	Percentage
1.	Low (up to 14)	33	27.50
2.	Medium (15 to 18)	59	49.17
3.	High (above 18)	28	23.33
	Total	120	100.00

Mean: 16.63, S.D: 2.02

Table 4, Reveals that 49.17 percent had medium, 27.50 percent had low and 23.33 percent had high level of adoption regarding dairy farming practices.

Table 5: Relationship between the independent variables and the adoption of respondents.

S. No	Independent variable	Correlation co-efficient value
1.	Age	0.174850705*
2.	Education	0.20730175*
3.	Occupation	0.86014923*
4.	Land holding	0.4362125*
5.	Annual income	0.019182832
6.	Family type	0.180703204
7.	Family size	0.033193261*
8.	Source of information	-0.0183344967
9.	Mass media exposure	0.134098139*
10.	Scientific orientation	0.053258444*
11.	Risk orientation	0.015312976
12.	Economic motivation	-0.04015849

*: Significant at 1 percent level, NS: Not significant

Table 5: Reveals that Annual income, Family type, Source of information, Risk orientation and Economic motivation were not significant with adoption of dairy management practices while age, education, occupation, land holding, Family size, mass media exposure and scientific orientation were significant at 1 percent level with adoption of dairy management practices.

Conclusion

It has been observed that agriculture in the region is not a traditional activity but rather contains the basic characteristics of business. Farmers share common characteristics such as risk taking, innovation and efficiency in seizing business opportunities. Secondly, this study highlights the important role of social economy in shaping the entrepreneurial behavior of farmers. Factors such as education status, access to credit facilities, size of land holdings and business connections have a significant impact on business performance. Furthermore, the findings highlight the importance of government policies and incentives to promote business in the dairy industry. Measures such as strengthening of cows, training in modern farming techniques and improved methods of milk collection and processing play an important role in increasing the energy of milk production for the farmer business ecosystem. In addition, this study also identified the challenges and constraints faced by dairy farmers in Gaya district, including access to technical services, low animal numbers, fluctuating milk prices and inadequate supply. Addressing these issues through intervention plans and policy measures is important to create an enabling environment for business growth in the dairy industry. Overall, the entrepreneurial behavior of dairy farmers in the Gaya region demonstrates the interplay between personal motivation, social economy and support at home. By understanding these changes, policy makers, agricultural extension organizations and other stakeholders can develop effective strategies to promote economic growth and development of the dairy industry in Bihar.

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