# Entrepreneurial behaviour of dairy farmers in Mayurbhanj district of Odisha

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*Odisha University of Agriculture and Technology*
*in partial fulfillment of the requirement for the degree of*
*Master of Science in Agriculture*
*(Extension Education)*

*By*

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# CERTIFICATE-I

This is to certify that the thesis entitled **"Entrepreneurial behaviour of dairy farmers in Mayurbhanj district of Odisha"** submitted in partial fulfillment of requirements for the award of the degree of **MASTER OF SCIENCE IN AGRICULTURE (EXTENSION EDUCATION)** to the Odisha University of Agriculture and Technology, Bhubaneswar is a faithful record of bonafide and original research work carried out by **LIPSITA MOHANTY, Adm. No. 211221708** under my guidance and supervision. No part of this thesis has been submitted for any other degree of diploma.

It is further certified that the assistance and help received by her from various sources during the course of investigation has been duly acknowledged.

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# CERTIFICATE-II

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Lipsita Mohanty

**(Lipsita Mohanty)**

Bhubaneswar

Dated: 02/11/2023

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# SYMBOLS AND ABBREVIATIONS

| Symbols | Abbreviations |
|---|---|
| % | Percentage |
| = | equal to |
| & | and |
| Fig | figure |
| etc. | et cetera |
| *et al.* | and others |
| N | Total number of samples |
| f | Frequency |
| Sl. No. | Serial number |
| i.e. | that is |
| GDP | Gross Domestic Product |
| Rs. | Rupees |
| SD | Standard Deviation |
| A.I. | Artificial Insemination |
| No. | Number |
| DADH | Department of Animal Husbandry & Dairying |

# ABSTRACT

The present study entitled, **"Entrepreneurial behaviour of dairy farmers in Mayurbhanj district of Odisha"**, with the objectives to assess the socio-economic profile of dairy farmers, to measure the entrepreneurial behaviour of dairy farmers, to analyse the relationship between socio-economic characteristics and entrepreneurial behaviour of dairy farmers and to delineate the constraints faced by the dairy farmers was carried out in three purposively selected blocks of Mayurbhanj district. A sample of 90 dairy farmers from 15 villages was selected using random sampling method. Collection of the data was done with the help of a well-structured interview schedule and data was analysed using suitable statistical methods. Twelve independent variables were categorized and studied in relation to a dependent variable i.e., entrepreneurial behaviour of dairy farmers. The study revealed that majority of the dairy farmers belonged to middle age (48.89%), were educated up to middle school level (35.56%), had small land holdings (38.89%) and considered agriculture & dairy as their main occupation (58.89%). Majority of the dairy farmers had medium family size (46.67%), annual income (55.56%), livestock possession (48.89%), dairy farming experience (45.56%), milk production (46.67%), extension contact (53.33%), media exposure (61.11%) and social participation (62.22%). Study of entrepreneurial behaviour indicated that majority of the dairy farmers depicted medium level of innovativeness (57.78%), achievement motivation (52.22%), decision-making ability (61.11%), risk orientation (68.89%), coordinating ability (75.56%), planning ability (67.78%), information seeking behaviour (74.44%), cosmopoliteness (78.89%) and self-confidence (80.00%). Correlation between socio-economic characteristics and entrepreneurial behaviour of dairy farmers revealed that age, family size and dairy farming experience had negative and significant relationship whereas education, annual income, livestock possession, milk production and extension contact had positive and significant relationship with entrepreneurial behaviour. Further, landholding, occupation, media exposure and social participation had non-significant relationship with entrepreneurial behaviour. In case of constraints in management of dairy enterprise, majority of farmers (90.00%) expressed unavailability of green fodder throughout the year as major constraint. In case of informational constraints, majority of farmers (76.67%) expressed lack of knowledge in marketing strategies as major constraint. In case of financial constraints, majority of farmers (88.89%) expressed high cost of cattle feed & concentrate mixture as the major constraint. In case of marketing constraints, majority of farmers (76.67%) expressed exploitation by middle man/milkman as the major constraint.

# INTRODUCTION

India is an agriculture-dominated country. Animal Husbandry is an integral part of Indian agriculture that provides livelihood for more than half of the rural population. Dairy farming, a form of Animal husbandry, is defined as the raising and managing of dairy animals, such as cows, to produce milk and other milk products processed from milk like cheese, yoghurt and butter. Dairy farming is an integral part of the rural economy having the highest potential of generating income and employment through high productivity of milch animals.

## 1.1 Scenario of dairy farming in India

India ranks first in total livestock population in the world. As per the 20$^{th}$ Livestock Census held in 2019, the total livestock population in India was 536.76 million, which includes 193.46 million cows and 109.85 million buffaloes, i.e., the largest cattle population in the world (DAHD, 2019). India is also the largest producer of milk in the world contributing around 23.67% of total milk production globally. In India, about 50% of the milk is consumed on-farm. Dairy is the single largest agricultural commodity that contributes 5% of the Indian national economy and engages more than 8 crore farmers directly (Economic Survey, 2022). This shows that the Indian dairy sector has enormous capacity to bring rapid economic growth, particularly for the benefit of the weaker section and the rural people.

## 1.2 Scenario of dairy farming in Odisha

Agriculture and allied activities form important source of livelihood for a large population of Odisha. Odisha contributes 3.4% of the total livestock population in India. The total livestock population in Odisha is around 182 lakhs as per the 20$^{th}$ livestock census, 2019. Cattle contribute about 55%, i.e., the largest share of the livestock population in Odisha. The total milk production in Odisha is around 2402 thousand MT in 2022-23. There has been a rise in the per capita availability of milk from 114 gm/day in 2012-13 to 135 gm/day in 2022-23 (Odisha Economic Survey, 2022-23). Odisha has a highlighted background of human demographics, production and livestock population, inputs to enhance productivity like the health and nutrition of the breeding cows, training of the breeders and public investments. The economy of Odisha generally depends on agriculture and livestock plays an important role in magnifying it.

### 1.3 Entrepreneurship in Dairy Enterprise

Dairy farming provides self-employment opportunities for the unemployed rural youth of our country. Entrepreneurship in dairy farming is gaining momentum as it is one of the rapidly growing industries, which is providing various opportunities for new entrepreneurs. “Entrepreneurship” is defined as the pursuit of opportunities or the transformation of challenging circumstances into business prospects. Similarly, the term "Entrepreneurial" means the process of being comfortable with the idea of taking risks and developing the capacity to do so while making investments or operating a firm to generate a good profit. When someone decides to establish their own business, the first and most important thing they must do is to invest more innovative and helpful ideas than additional funds. The captivating power of a business module does not lie in the capital invested but in the capability of bringing out profitable ways to have maximum output with minimum input.

Entrepreneurs are the owners of the business, who contribute the capital and bear the risk in their business. Entrepreneurs can assess business opportunities, collect the necessary resources and initiate appropriate action to ensure success. Entrepreneurship Development is the process of encouraging and improving entrepreneurial skills and knowledge through training programmes. Various Entrepreneurial development schemes are employed to motivate and assist aspiring entrepreneurs to set up their small-scale business units and thereby become self-employed and contribute significantly to the development of the country.

Entrepreneurial motivation refers to the inner drive, desires, and reasons that inspire individuals to start, develop, and sustain their businesses and ventures. Entrepreneurial motivation results in entrepreneurial behaviour, which includes implementing new ideas qualitatively and effectively, being persistent and consistent, identifying the possibilities and initiating the conducive phenomena. The entrepreneurial behaviour of farmers must include a ray of hope, a series of successful attempts, the use of feedback and beneficiaries promoted by the government, the ability to make decisions to carry out several innovative ideas, motivation to achieve, economic motivation, seeking information, better experiences in respective fields, educational and awareness support, and knowledge of both traditional and scientific methods. Other

elements that influence farmers' entrepreneurial behaviour include social, cultural, religious, political, and economic norms.

At present, Dairy farming is a growing and modernizing business in India. Milk production and its sale are the key livestock activities to generate income daily for a resource-poor farmer. In this context, the entrepreneur is one of the most important inputs for the development of the dairy sector, which is also important for the economic development of the country. Some factors affecting the entrepreneurial behaviour of dairy farmers may also affect the total milk production. So, looking at this, the present study on "Entrepreneurial behaviour of dairy farmers of Mayurbhanj district of Odisha" was taken with the following objectives.

### 1.4 Objectives of the study

1. To assess the socio-economic profile of the dairy farmers in the study area
2. To measure the entrepreneurial behaviour of the respondents in dairy farming
3. To analyze the relationship between the socio-economic profile of respondents with their entrepreneurial behaviour
4. To delineate the constraints faced by the dairy farmers in the study area

### 1.5 Scope of the study

Dairy enterprise ensures not only economic support but also nutritional security to the country. Sustainable and financially viable dairy farming, that will provide employment and income through entrepreneurship, is the need of the hour.

The findings of the study will provide an overall picture of the factors affecting the entrepreneurial behaviour of dairy farmers in terms of their planning ability, risk orientation, decision-making ability, etc. The findings of the study could be utilized for planning future strategies and programs that can help boost up milk production of dairy farmers. The study will also help extension personnels to organise suitable extension programs to make dairy enterprises more profitable based on assessed entrepreneurial behaviour. The study will also provide important criteria for evaluating the constraints of the dairy farmers while performing various dairy farming activities. Thus, this study may be of great importance not only to the extension workers but also to scientists, planners, policymakers, administrators, etc. towards fulfilling the objective of increasing the total milk production in the country and also towards encouraging entrepreneurship in dairy enterprise.

### 1.6 Limitations of the study

- The present study is confined to only one district as the study's locale due to limited resources, time and other facilities commonly faced by a single student researcher.
- Further, due to the limitation of area, the study may not be generalized.
- The sample size for the study of dairy farmers was restricted to 90 respondents, which might not represent the whole district.
- The findings of the study are based on the verbally expressed opinions and responses of the respondents, as a result, the objective of the study would be restricted to their capacity to recall and their honesty in providing information.

# REVIEW OF LITERATURE

The Review of Literature chapter plays a crucial role in research where it aims to organize and provide the findings of the past research studies, which are necessary to develop a better understanding of the present study. Keeping in view the objectives of the study, the review is presented under the following sub-headings:

**2.1** Socio-economic profile of dairy farmers

**2.2** Entrepreneurial behaviour of dairy farmers

**2.3** Relationship between socio-economic profile and entrepreneurial behaviour of dairy farmers

**2.4** Constraints faced by dairy farmers

## 2.1 Socio-economic profile of dairy farmers

### 2.1.1 Age

Prasad *et al.* (2017) conducted a study on Socio-economic profile and constraints faced by dairy farmers of Wayanad District, India and observed that half (50 %) of the farmers belonged to the middle (20-40 years) age group, 22 percent of the farmers belonged to adult (40-60 years) age, 16 percent belonged to senior (above 60 years) age and 12 percent belonged to young (15-20 years) age.

### 2.1.2 Education

Singh *et al.* (2021) conducted A Study on Socio-economic Profile of the Dairy Farmers in Central Plain Zone of Uttar Pradesh and found that majority of the respondents (25.15%) had middle level of schooling, followed by 21.52 per cent of the respondents who had secondary level of schooling. Furthermore, it was found that 16.67 per cent and 14.24 per cent of the respondents had secondary level of education and primary level of education respectively. More than one-tenth of the respondents (11.21%) had educational level graduation and above. 7.88 per cent and 3.33 per cent of the respondents were belonged to functionally literate and illiterate category respectively.

### 2.1.3 Family size

Kholiya and Bharadwaj (2020) conducted a study on Entrepreneurial behaviour of dairy farm women in Nainital district of Uttarakhand and observed that 69.17 per

cent dairy farm women had medium family size, followed by large (18.33%) and small (12.5%) family size.

### 2.1.4 Land holding

Shivagangavva (2022) conducted a study on Socio-Economic Profile of the Dairy Farmers: A Study in Rural Urban Interface of Bengaluru and observed that the proportion of landless farmers was more (85.42%) followed by marginal (9.17 %) and small (4.17%) and medium (1.25 %) category farmers.

### 2.1.5 Occupation

Shivagangavva (2022) in his study observed that among the dairy sample households, 95, 90 and 84% of urban, transition and rural households respectively had dairy as main occupation and remaining 5 per cent, 10 per cent and 16 per cent had agriculture as main occupation in North transect of Bengaluru, while in South transect the dairy sample households, 90, 92 and 70% of urban, transition and rural households respectively had dairy as main occupation and remaining had agriculture as main occupation.

### 2.1.6 Annual income

Koli *et al.* (2019) conducted a study on Personal, socio-economic, communication and psychological characteristics of dairy farmers and observed that 73.50 per cent of the dairy farmers had high annual income i.e., above 2,00,000 followed by 20.50 per cent dairy farmers who had medium level of annual income (1,50,001 to 2,00,000) and 6.00 per cent dairy farmers had low annual income (below 1,50,000).

### 2.1.7 Livestock possession (Herd size)

Singh *et al.* (2021) conducted A Study on Socio-economic Profile of the Dairy Farmers in Central Plain Zone of Uttar Pradesh and found that about 48.79 per cent of the respondents were in medium herd size category i.e., 3 to 4, followed by 38.48 per cent fall under small category of herd size (< 3) and only 12.73 per cent fall in large category of herd size (>4).

### 2.1.8 Dairy farming experience

Singh *et al.* (2021) conducted A Study on Socio-economic Profile of the Dairy Farmers in Central Plain Zone of Uttar Pradesh and found that majority (47.27%) of the respondents had more than 25 years of experience in dairy farming followed by 28.79 per cent and 23.94 per cent of the respondents had 17 to 25 years and less than 17 years of experience in dairy farming.

### 2.1.9 Milk production

Mahesh *et al.* (2020) conducted a study on Socio-economic profile analysis of dairy farmers of Yadgir district of Kalyana Karnataka region and observed that in regards to milk production per day, most of the farmers (44.00%) belonged to low category of milk production (less than 5 litres), 39.00 percent of them belong medium milk production (5-10 litres) and only 17.00 percent belong to high category of milk production (more than 10 litres per day).

### 2.1.10 Extension contact

Koli *et al.* (2019) conducted a study on Personal, socio-economic, communication and psychological characteristics of dairy farmers and observed that majority (64.50 per cent) of the dairy farmers had medium extension contact, whereas, 20.00 per cent and 15.50 per cent of the dairy farmers had low and high extension contact respectively.

### 2.1.11 Media exposure

Mahesh *et al.* (2020) conducted a study on Socio-economic profile analysis of dairy farmers of Yadgir district of Kalyana Karnataka region and observed that majority (60.00%) of the respondents belonged to medium mass media participation. Whereas, 24.00 per cent and 16.00 per cent of the respondents belonged to low and high mass media participation respectively.

### 2.1.12 Social participation

Mithun *et al.* (2022) conducted a study on Socio-economic characteristics of dairy farmers sourcing information from digital and traditional media in Andhra Pradesh and found that majority of the respondents (89.17%) had a medium level of social participation, followed by a high (10.83%) and low levels.

## 2.2 Entrepreneurial behaviour of the respondents in dairy farming

### 2.2.1 Innovativeness

Reddy *et al.* (2021) conducted a study on Entrepreneurial Behaviour of Dairy Farmers and observed that Majority (59.40%) of dairy farmers had medium level of innovativeness while 21.8 and 18.8 per cent of dairy farmers had high and low levels of innovativeness, respectively.

### 2.2.2 Achievement Motivation

Kumar and Goyal (2021) conducted a study on Entrepreneurial behaviour of dairy farmers in Udaipur district of Rajasthan and observed that majority (68.33%) of the dairy farmers had medium level of achievement motivation, while relatively much smaller number of respondents had low (16.67%) and high (15%) level of achievement motivation in the study area.

Gayathri *et al.* (2023) conducted a study on Entrepreneurial behaviour of dairy farmers under Dairy Business School model and observed that less than half (46.67%) farmers are having medium level of achievement motivation followed by low (31.11%) and high (22.22%) levels.

### 2.2.3 Decision making ability

Patel *et al.* (2014) conducted a study on Entrepreneurial Behaviour of Dairy farmers and observed that more than half (55.00%) of the dairy farmers were found to have medium level of decision-making ability, followed by low (26.25%) and high (18.75%) level of decision-making ability.

### 2.2.4 Risk orientation

Kumar and Goyal (2021) conducted a study on Entrepreneurial behaviour of dairy farmers in Udaipur district of Rajasthan and observed that more than two-third of the respondents (67.5%) had medium level of risk orientation followed by 16.67 and 15.83 per cent had high and low level of risk orientation, respectively.

### 2.2.5 Coordinating ability

Kholiya and Bharadwaj (2020) conducted a study on Entrepreneurial behaviour of dairy farm women in Nainital district of Uttarakhand and observed that majority of the dairy farm women (67.5%) had medium level of coordinating ability, followed by

16.67 percent who had low level of coordinating ability and 15.83 per cent had high level of coordination ability.

### 2.2.6 Planning ability

Shankar *et al.* (2019) conducted A Study on Entrepreneurial Behaviour of Dairy Farmers in (Prayagraj) Allahabad Region of Uttar Pradesh observed that a vast majority 82.5 per cent of respondents had moderate planning ability followed by 9.17 per cent of respondents belonging to the poor level of planning ability followed by 8.33 per cent of respondents who had good level of planning ability.

### 2.2.7 Information seeking behaviour

Kholiya and Bharadwaj (2020) conducted a study on Entrepreneurial behaviour of dairy farm women in Nainital district of Uttarakhand and observed that majority of the dairy farm women (73.33%) had medium level of information seeking behaviour, followed by 19.67 per cent who had high level of information seeking behaviour and only 7.5 per cent had low level of information seeking behaviour.

### 2.2.8 Cosmopoliteness

Shankar *et al.* (2019) conducted A Study on Entrepreneurial Behaviour of Dairy Farmers in (Prayagraj) Allahabad Region of Uttar Pradesh observed that majority (72.50%) of dairy farmers had medium level of cosmopoliteness, followed by low (15.83%) and high (11.67%) level of cosmopoliteness.

Gayathri *et al.* (2023) conducted a study on Entrepreneurial behaviour of dairy farmers under Dairy Business School model and observed that half (56.67%) of the farmers had medium level of cosmopoliteness, followed by more than one fourth of farmers in low level and 16.67 per cent in high level respectively.

### 2.2.9 Self confidence

Reddy *et al.* (2021) conducted a study on Entrepreneurial Behaviour of Dairy Farmers and observed that Higher proportion (41.20%) of the respondents possessed low level of self-confidence, whereas 34.4 and 24.4 per cent of respondents had medium and high level of self-confidence, respectively.

## 2.3 Relationship between the socio-economic profile and entrepreneurial behaviour of dairy farmers

Patel *et al.* (2014) conducted a study on Entrepreneurial Behaviour of Dairy farmers and observed that age had no relationship with entrepreneurial behaviour of dairy farmers.

Raina *et al.* (2016) conducted a study on Entrepreneurial behaviour of dairy farmers and observed that the education of dairy farmers showed positive and significant relationship with their entrepreneurial behaviour.

Kholiya and Bharadwaj (2020) conducted a study on Entrepreneurial behaviour of dairy farm women in Nainital district of Uttarakhand and observed that family size, herd size, milk production was highly correlated with entrepreneurial behaviour of dairy farm women.

Pisure *et al.* (2015) conducted a study on Relationship between personal, socio-ecomonmic and psychological characteristics of dairy farmers with their entrepreneurial behaviour and observed that Land holding of the respondents had shown positive and highly significant relationship with entrepreneurial behaviour of dairy farmers.

Gamit *et al.* (2015) conducted a study on Entrepreneurial behaviour of dairy farmers in Surat district of South Gujarat and found that Occupation of dairy farmers did not show any significant relationship with their entrepreneurial behaviour.

Kholiya and Bharadwaj (2020) conducted a study on Entrepreneurial behaviour of dairy farm women in Nainital district of Uttarakhand and observed that annual income showed positive and significant relationship with entrepreneurial behaviour of dairy farm women.

Shaikh *et al.* (2014) conducted a study on Relationship between personal, socio-economic, communicational and psychological characteristics of dairy farmers with their entrepreneurial behaviour and observed that herd size of dairy farmers had shown positive and non-significant relationship with their entrepreneurial behaviour.

Gamit *et al.* (2015) conducted a study on Entrepreneurial behaviour of dairy farmers in Surat district of South Gujarat and found that Dairy farming experience showed positive and significant relationship with the entrepreneurial behaviour of the respondents.

Gupta *et al.* (2020) conducted a study on Entrepreneurial Behaviour of Tribal Dairy Farmers in Balrampur District of Northern Hill Region of Chhattisgarh and observed that total milk production had the highest total effect on entrepreneurial behaviour of dairy farmers.

Shaikh *et al.* (2014) conducted a study on Relationship between personal, socio-economic, communicational and psychological characteristics of dairy farmers with their entrepreneurial behaviour and observed that extension contact has positive and significant correlation with their entrepreneurial behaviour at 0.05 level of probability.

Pisure *et al.* (2015) conducted a study on Relationship between personal, socio-economic and psychological characteristics of dairy farmers with their entrepreneurial behaviour and observed that Market orientation of the respondents had shown positive and highly significant relationship with entrepreneurial behaviour of dairy farmers.

**2.4 Constraints faced by the dairy farmers**

Singh *et al.* (2015) conducted a study on constraints faced by farmers in adoption of dairy as entrepreneurship and observed that Inadequate facilities of artificial insemination centre (71.1%), high price of concentrate mixture (84.4%), lack of capital for housing (66.7%), low economic gains (80.0%) and non-availability of adequate veterinary services (77.8%) were major stumbling block in adoption of the improved breeding, feeding, housing, milking and health care practices, respectively.

Prasad *et al.* (2017) conducted a study on Socio-economic profile and constraints faced by dairy farmers of Wayanad District, India and observed that the major constraints faced by dairy farmers was low price offered for milk, frequent disease outbreaks, mastitis, availability of fodder while four per cent of the farmers were satisfied with their present farming situation.

Rajpoot *et al.* (2018) conducted a study on Constraints Faced by Dairy Farmers while Adopting Animal Management Practices in Dhar District of Madhya Pradesh, India and observed that a low price of milk and milk products, lack of technical knowledge to manage the dairy, lack of storage facility of milk, high cost of construction and lack of Veterinary facility in village are the most important constraints perceived by the dairy farmers in adoption of dairy enterprises.

Rajadurai *et al.* (2018) conducted a study on Constraints Faced by the Dairy Farmers in Puducherry and observed that all the dairy farmers were facing constraints of high cost of concentrates and shortage in green fodder, followed by non-availability of grazing land (77.7 per cent) and 46.3 per cent of the dairy farmers reporting fluctuation in concentrate feed cost.

Harisha *et al.* (2019) conducted a study on Dairy Production Constraints in Kolar and Chikkaballapur Districts of Karnataka and observed that Unavailability of green fodder throughout the year, high cost of feed and fodder, poor conception rate through artificial insemination and poor knowledge about feeding and healthcare were the major constraints perceived by the dairy farmers.

Adhikari *et al.* (2020) conducted a study on Constraints faced by dairy farmers in hill region of Uttarakhand and observed that unavailability of green fodder round the year, low productivity of animal, non-remunerative prices of milk were major three constraints faced by dairy farmers.

Bhawar *et al.* (2020) conducted a study on Constraints faced by the dairy farmers in production and marketing of milk in northern dry zone of Karnataka and observed that the distant location of milk collection centre (96%), low price of milk (92.50%), inadequate availability of regular market (91.25%), spoilage of milk due to poor hygiene and storage problem while carrying milk to procurement centre (83.33%) were the major constraints in marketing of milk.

Kavithaa *et al.* (2020) conducted a study on constraints in dairy farming: a critical analysis among the dairy farmers of Tamil Nadu and observed that Lack of availability of labour (87.65), lack of insurance facility (76.45) and distance to dairy co-operative societies were the top three constraints under infrastructural constraints.

Gamit *et al.* (2021) conducted a study on Constraint faced by dairy farmers in different state of India: An overview and observed that lack of proper knowledge regarding scientific management of dairy animals, inadequate knowledge about balanced feeding with lack in good quality feed and fodder availability, unavailability of high genetic merit indigenous bulls, poor conception rate through AI and lack of sufficient veterinary services were major constraints to cope up with.

Kumar *et al.* (2021) conducted a study on Constraints Faced by Dairy Owners in Adoption of Marketing and Scientific Dairy Practices in Haryana and observed that lack of credit facility for the purchase of feed and fodder, lack of subsidy for construction of scientific housing, lack of veterinary medical store, non-availability of quality breeding bulls through village Panchayats and lack of minimum support price for milk were found most serious constraints.

Raj and Ramachandra (2022) conducted a study on Garrett scoring technique for assessing the constraints faced by dairy farmers of Madhepura district, Bihar and observed that major economic constraints were higher cost of cattle feed, easy availability of veterinary facilities, high cost of the improved animal, while major marketing constraints were low price of milk, lack of suitable transportation, delay in getting milk price.

Patel and Sabapara (2023) conducted a study on Constraints faced by dairy farmers for adoption of improved dairy husbandry practices in Valsad district of Gujarat and observed that High cost of veterinary medicine (82.50%), lack of awareness of deworming of milch animals (63.75%) and lack of awareness about importance of vaccination (60.83%) were major constraints in adoption of improved health care practices.

# MATERIALS AND METHODS

The chapter deals with the materials and methods used in the study, which are presented in the following sections:

**3.1** Research design

**3.2** Sampling procedure

**3.3** Variables and their Measurement

**3.4** Operationalization, categorization, and quantification of variables

**3.5** Constraints

**3.6** Tools for data collection and data processing

**3.7** Statistical analysis

### 3.1 Research design

For the present study, Ex-post facto research design was used. In this design, a cause is first identified and then its effects are traced out. There is no scope to manipulate the independent variables, as they have already occurred.

### 3.2 Sampling procedure

Purposive sampling and random sampling methods were used for the study.

#### 3.2.1 Locale of study

##### 3.2.1.1 Selection of district

The present study was conducted in the Mayurbhanj district of Odisha, selected purposively because previously no such study was conducted in this area and the investigator is able to cover this area within time limits as she stays in this district.

##### 3.2.1.2 Selection of blocks

Mayurbhanj district has 26 blocks out of which 3 blocks, i.e., Saraskana, Betnoti, and Badasahi are selected purposively based on the maximum number of dairy populations as per the $20^{th}$ livestock census (2019).

##### 3.2.1.3 Selection of villages

Out of the selected three blocks, five villages from each block having maximum dairy populations were selected. Thus, a total of 15 villages were selected.

##### 3.2.1.4 Selection of respondents

Out of fifteen selected villages, six respondents form each village were selected by using simple random sampling technique with a condition that the respondents have minimum two cows. Thus, a total of 90 respondents were selected for the study.

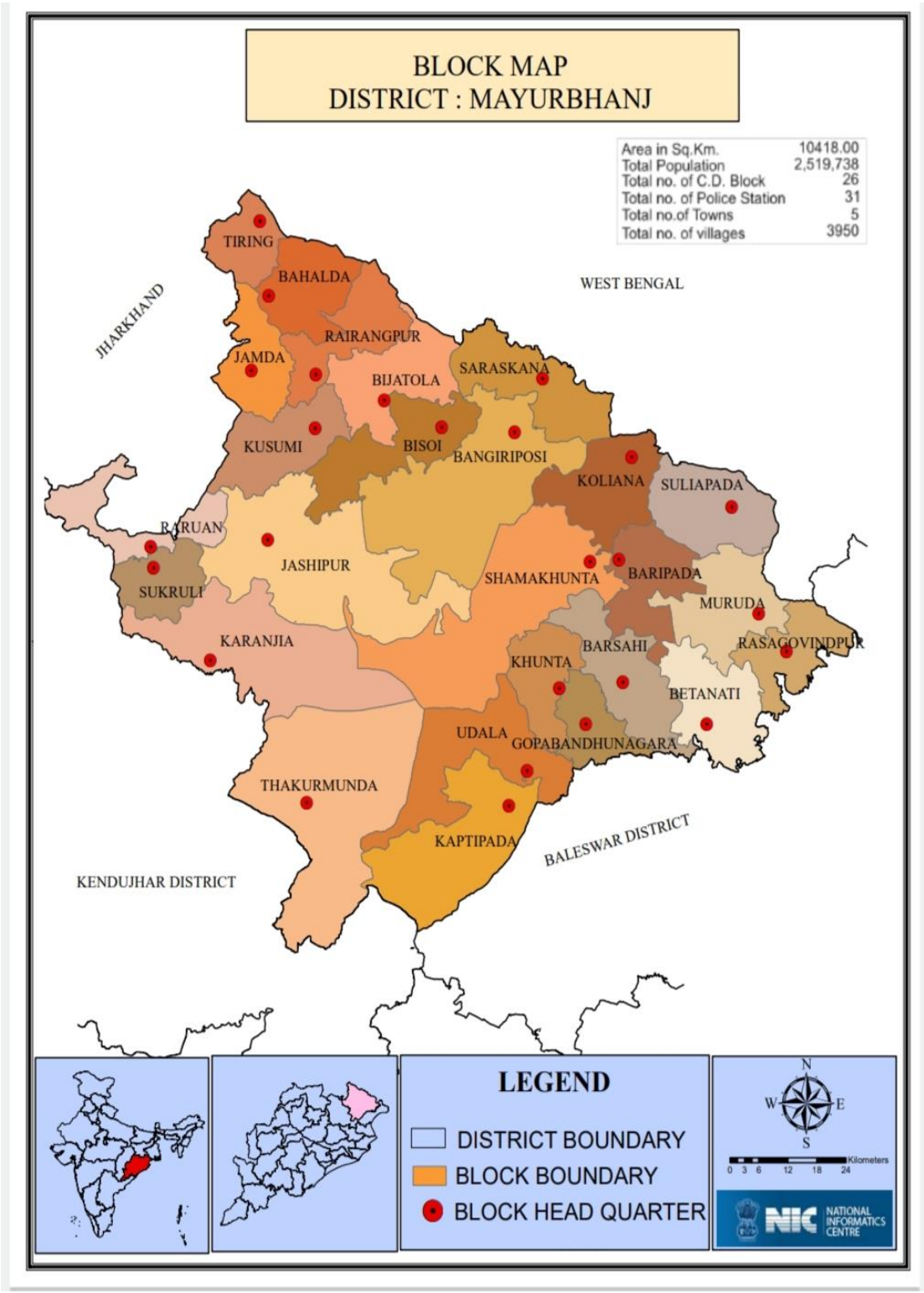


**Figure 3.1 Map of the study area**

**Table 3.1: List of villages selected for the study**

| District | Block | Village | No. Of Respondents |
|---|---|---|---|
| Mayurbhanj | Saraskana | Badsul | 06 |
| | | Silphodi | 06 |
| | | Sirsa | 06 |
| | | Dighia | 06 |
| | | Sankucha | 06 |
| | Betnoti | Chhachinapada | 06 |
| | | Nadpur | 06 |
| | | Manatapal | 06 |
| | | Badachhuruni | 06 |
| | | Gabapal | 06 |
| | Badasahi | Mangovindpur | 06 |
| | | Gambharia | 06 |
| | | Bartana | 06 |
| | | Kuliana | 06 |
| | | Belpal | 06 |
| **Total** | **3** | **15** | **90** |

### 3.3 Variables and their Measurement

The variables studied were age, education, family size, land holding, occupation, annual income, livestock possession, dairy farming experience, milk production, extension contact, media exposure, and social participation as the independent variables, and, entrepreneurial behavior of dairy farmers as the dependent variable.

**Table 3.2: Variables under study and their empirical measurements**

| Sl. No. | Variable | Empirical Measurement |
|---|---|---|
| **A. Independent Variables** | | |
| 1. | Age | Scale developed by Trivedi (1963) |
| 2. | Education | Schedule developed for the study |
| 3. | Family size | Scale developed by Samarpitha *et al.* (2016) |
| 4. | Land holding | Categorization of farmers according to Agriculture Census (2015-16), MoA&FW, G.O.I. |
| 5. | Occupation | Schedule developed for the study |
| 6. | Annual income | Schedule developed for the study |
| 7. | Livestock possession (Herd size) | Schedule developed for the study |
| 8. | Dairy farming experience | Schedule developed for the study |
| 9. | Milk production | Schedule developed for the study |
| 10. | Extension contacts | Scale developed by Sawant (1999) with some modifications |
| 11. | Media exposure | Scale developed by Nirban (2004) with some modifications |
| 12. | Social participation | Schedule developed for the study |
| **B. Dependent Variables** | | |
| 1. | Entrepreneurial behaviour | Scale developed by Chaudari *et al.* (2007) with some modifications |

### 3.4 Operationalization, categorization, and quantification of variables

#### 3.4.1 Independent variables

Operational definitions, scoring, and categorization procedure of variables under study have been described below for independent variables and dependent variables:

##### 3.4.1.1 Age

It refers to the chronological age of the respondents in completed years at the time of the interview. Based on age, the respondents were classified into three groups and scores were assigned as follows:

**Table3.3: Score assigned to different ages**

| Sl. No. | Categories | Age (in years) | Score |
|---|---|---|---|
| 1 | Young | Up to 35 | 1 |
| 2 | Middle | 36 to 50 | 2 |
| 3 | Old | Above 50 | 3 |

##### 3.4.1.2 Education

Education is referred to as the number of years of formal schooling undergone by the respondents. Scores were assigned to different educational status as follows:

**Table 3.4: Score assigned to educational qualification**

| Sl. No. | Educational status | Score |
|---|---|---|
| 1. | Illiterate (No schooling) | 0 |
| 2. | Functionally literate (can read & write) | 1 |
| 3. | Primary school (Up to $4^{th}$ std.) | 2 |
| 4. | Middle school ($5^{th}$ to $7^{th}$ std.) | 3 |
| 5. | High School ($8^{th}$ to $10^{th}$ std.) | 4 |
| 6. | College level ($11^{th}$ and above) | 5 |

##### 3.4.1.3 Family size

Family size refers to the total number of members living together in the family of the respondents. Based on family size, the respondents were classified into three categories and scores were assigned as follows:

**Table3.5: Score assigned to different family sizes**

| Sl. No. | Categories | No. of family members | Score |
|---|---|---|---|
| 1 | Small | Up to 4 | 1 |
| 2 | Medium | 5 to 8 | 2 |
| 3 | Large | Above 8 | 3 |

### 3.4.1.4 Land Holding

Land holding refers to the total acres of land owned by an individual respondent. On basis of land holding, the respondents were classified as:

**Table 3.6: Score assigned to different land holdings**

| Sl. No. | Categories | Land owned (in acres) | Score |
|---|---|---|---|
| 1 | Landless | 0 | 0 |
| 2 | Marginal | 0.1 to 1 | 1 |
| 3 | Small | 1.1 to 2 | 2 |
| 4 | Semi-medium | 2.1 to 4 | 3 |
| 5 | Medium | 4.1 to 10 | 4 |
| 6 | Large | Above 10 | 5 |

### 3.4.1.5 Occupation

This was operationalized as the activities in which the respondent and his/her family are regularly engaged and get more than 50 per cent of their income out of it. On the basis of different occupation, the respondents were categorised into three categories and scores were assigned as follows:

**Table 3.7: Score assigned to occupation**

| Sl. No. | Categories | Score |
|---|---|---|
| 1 | Dairy | 1 |
| 2 | Dairy + Agriculture | 2 |
| 3 | Dairy + Agriculture + others | 3 |

### 3.4.1.6 Annual income

It refers to the total earnings of the family (in rupees) from all sources in a year. Based on annual income, respondents were categorized into three categories as follows:

**Table 3.8: Score assigned to annual income**

| Sl. No. | Categories | Income (in Rs.) | Score |
|---|---|---|---|
| 1 | Low | Up to 2,00,000 | 1 |
| 2 | Medium | 2,00,001 to 4,00,000 | 2 |
| 3 | High | Above 4,00,001 | 3 |

### 3.4.1.7 Livestock Possession (Herd size)

It refers to the total number of cows possessed by the respondent. On basis of herd size, the respondents were categorized and scores were assigned as follows:

**Table 3.9: Score assigned to livestock possession**

| Sl. No. | Categories | No. of cows | Score |
|---|---|---|---|
| 1 | Low | Up to 2 | 1 |
| 2 | Medium | 3 to 5 | 2 |
| 3 | High | Above 5 | 3 |

### 3.4.1.8 Dairy farming experience

It refers to the total number of completed years in dairy farming by the respondent. On basis of dairy farming experience, the respondents were classified as:

**Table 3.10: Score assigned to dairy farming experience**

| Sl. No. | Categories | No. of years | Score |
|---|---|---|---|
| 1 | Low | Up to 15 | 1 |
| 2 | Medium | 16 to 25 | 2 |
| 3 | High | Above 25 | 3 |

### 3.4.1.9 Milk Production

Milk production is operationalized as the average quantity of milk produced in litres in a day by the dairy animals possessed by the respondent. The respondents were categorized into three categories and scores were assigned as follows:

**Table 3.11: Score assigned to milk production**

| Sl. No. | Categories | Milk production (in lit/day) | Score |
|---|---|---|---|
| 1 | Low | Up to 10 | 1 |
| 2 | Medium | 11 to 25 | 2 |
| 3 | High | Above 25 | 3 |

### 3.4.1.10 Extension contacts

It refers to the degree to which a farmer had maintained contact and the frequency of contact with the extension personnel. It consists of six extension personnels. The score of 2, 1, and 0 were assigned for the responses 'regularly', 'occasionally', and 'never' respectively. The total score range was 0 to 12.

**Table 3.12: Categorization based on extension contact**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

### 3.4.1.11 Media exposure

It refers to various media i.e., newspaper, radio, television, social media and internet that farmers utilize for getting information and the degree of contact with it. It consists of five media sources. The score of 2, 1, and 0 were assigned for the responses 'regularly', 'occasionally', and 'never' respectively. The total score range was 0 to 10.

**Table 3.13: Categorization based on media exposure**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

### 3.4.1.12 Social participation

It was operationally defined as the active participation and involvement of respondents in various formal and informal organizations. A numerical score of 1 was assigned for membership in a formal organization, and 2 for office bearer in an informal organization. Similarly for formal organization, a score of 3 was assigned for the membership and 4 for office bearer in the formal organization.

**Table 3.14: Categorization based on social participation**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

### 3.4.2 Dependent variables

#### 3.4.2.1 Entrepreneurial behaviour

The scale developed by Chaudari *et al.* (2007) was used to measure the entrepreneurial behaviour of dairy farmers. The nine components included in the scale are as follows:

##### 3.4.2.1.1 Innovativeness

It is defined as the degree to which an individual adopts new ideas relatively earlier than others in his social system. It consisted of six practices in respect of dairy management which were common to all dairy farmers included in the sample. If the dairy farmer had adopted the practices for five years or more than five years, he would get five points, one point for each year. The score ranged from 0 to 30.

**Table 3.15: Categorization based on innovativeness**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

##### 3.4.2.1.2 Achievement motivation

It is operationally defined as the desire for the excellence of dairy farmer to attain some of his personal accomplishments. It consists of five statements. Each statement had two options out of which, one was concerned with achievement. Thus, the total score for each dairy farmer on his achievement would range from 0 to 5.

**Table 3.16: Categorization based on achievement motivation**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

##### 3.4.2.1.3 Decision-making ability

It is operationally defined as the ability of a respondent to select the most efficient means among the available alternatives for achieving maximum economic profit. The instrument had eight decision criteria. The response categories for each item were ‘not considered’, ‘considered after consultation with others’, and ‘considered independently’ and are scored as 0, 1, and 2 respectively. Thus, the total possible score of each respondent on his decision-making ability was 0 to 16.

**Table 3.17: Categorization based on decision making ability**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

**3.4.2.1.4 Risk Orientation**

It is operationally defined as the degree to which a respondent is oriented towards risk and uncertainty in facing problems in a dairy enterprise. The instrument consisted of six statements and responses obtained on a three-point continuum viz.., 'agree', 'undecided', and disagree'. A weightage of 2, 1, and 0 respectively was assigned to the response categories in the case of positive statements, and scoring was reversed for negative statements. Statement numbers 1, 3,5, and 6 were positive, while 2 and 4 were negative statements. The total score range was 0 to 12.

**Table 3.18: Categorization based on risk orientation**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

**3.4.2.1.5 Co-ordinating ability**

Coordinating ability refers to the skill or capacity of a dairy farmer to organize and harmonize various elements, tasks, or people to work together effectively towards maintaining dairy enterprise. It consisted of total five questions. The score of 2, 1, and 0 were assigned for the responses 'well in advance', 'at nick of time', and 'never', respectively. The total score was obtained by summing up the score recorded. The score range was 0 to 10.

**Table 3.19: Categorization based on co-ordinating ability**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

### 3.4.2.1.6 Planning ability

Planning ability refers to the capacity of a dairy farmer to set goals, develop strategies, and organize tasks in a systematic way to achieve profits. It consisted of five statements. It was measured on a two-point continuum as 'followed' and 'not followed' by assigning scores 1 and 0, respectively. The score range was 0 to 5.

**Table 3.20: Categorization based on planning ability**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

### 3.4.2.1.7 Information seeking behavior

It is operationally defined as the degree of frequency of contacts of the respondent with various information sources. It was classified on the basis of type of sources as formal, informal, and media sources.

The contacts with formal sources were measured on a four-point continuum viz., 'once in a fortnight', 'once in a month', 'whenever problem arises', and 'never' by assigning a score of 3, 2, 1, and 0 respectively, whereas the informal and media sources were measured on three-point continuum viz., 'regularly', 'occasionally' and 'never' by assigning the scores of 2, 1, and 0, respectively. The total score was computed for each respondent by summing the scores recorded. The score range was 0 to 32.

**Table 3.21: Categorization based on information seeking behaviour**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

### 3.4.2.1.8 Cosmopoliteness

Cosmopoliteness refers to a respondent's quality or characteristic of being cosmopolitan, i.e., having a global perspective, being open to and knowledgeable about different cultures, and feeling comfortable in diverse social and cultural settings.

The instrument consisted of six statements and responses was obtained on a three-point continuum viz., 'agree', 'undecided', and 'disagree' by assigning a weightage of 2, 1, and 0, respectively for positive statements while, it was reversed for negative

statements. There were six statements out of these, the statement number 1, 3, and 5 were negative statements, whereas 2, 4, and 6 were positive statements. The score range was 0 to 12.

**Table 3.22: Categorization based on cosmopoliteness**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

### 3.4.2.1.9 Self-confidence

Self-confidence indicates the extent of a feeling of respondents' own ability and resourcefulness in carrying out any activity in the dairy enterprise that a respondent desires to undertake. It consisted of six questions. The responses were obtained on a dichotomous continuum i.e., in 'yes' and 'no' form by assigning the scores of 1 and 0, respectively for positive questions and it was reversed for negative questions. The question number 3 and 5 were positive questions and 1, 2, 4, and 6 were negative questions. The total score range was 0 to 6.

**Table 3.23: Categorization based on self-confidence**

| Sl. No. | Categories | Criteria |
|---|---|---|
| 1 | Low | <Mean – SD |
| 2 | Medium | Between mean ± SD |
| 3 | High | >Mean + SD |

## 3.5 Constraints

In the present study, constraints have been operationally defined as the problems encountered by the respondents in dairy farming.

Constraints found during the study were structured and further classified into different categories i.e., constraints in management of dairy enterprise, informational constraints, marketing constraints, and financial constraints. Responses were collected from respondents and frequency for constraints was calculated. Percentage of frequencies for each of the constraints was obtained and ranking was done on the basis of maximum percentage.

### 3.6 Tools for data collection and data processing

#### 3.6.1 Pilot Study

A pilot study was conducted in the study area before the research design was finalized to evaluate the feasibility, reliability, and validity of the proposed study design.

#### 3.6.2 Designing of interview schedule

In the present study, the device used for data collection was well-structured interview schedule. The interview schedule was developed to gather information on independent variables, dependent variables, and constraints faced by the dairy farmers. Part-A of the interview schedule consisted of the Socio-economic profile of the respondents. Part-B includes questions related to the entrepreneurial behaviour of dairy farmers. Part-C consisted of constraints faced by dairy farmers.

#### 3.6.3 Pretesting of the interview schedule

The interview schedule was pretested with over 10 respondents not included in the sample. The necessary modifications were made in light of offered suggestions to make the interview schedule more useful, appropriate, attractive, informative and effective.

#### 3.6.4 Data collection

The researcher personally collected the data by interviewing the respondents through a well-structured interview schedule. The data was collected during the leisure time of the respondents. Each respondent was met personally so that the investigator could get first-hand information. The response of each respondent was recorded in the interview schedule separately. The respondents were at ease and expressed their opinions freely, frankly, and fairly as a friendly atmosphere was maintained during the interview. Complete effort was made to check and cross-check the data collected from all the respondents.

#### 3.6.5 Compilation and working of data

After the collection of data from the dairy farmers, scores were given to responses collected from respondents and then accordingly tabulated, classified, and quantified. Suitable statistical tools were used for the analysis of data and findings that emerged out of the data were interpreted based on the objectives and accordingly discussed and necessary inferences, and conclusions were drawn.

### 3.7 Statistical Analysis

The statistical methods used in the study were frequency, percentage, mean and standard deviation for the purpose of categorization, and the significance of relationship between independent and dependent variables was tested with the help of co-efficient of correlation.

#### 3.7.1 Frequency

Frequency is the number of times the value occurs in the data. Frequency distribution was used to quantify the independent and dependent variables.

#### 3.7.2 Percentage

Percentage is calculated by taking the frequency in the category divided by the total number of respondents and multiplying it by 100. It was used to make comparisons of different groups whenever required.

#### 3.7.3 Mean

The arithmetic mean ($\bar{X}$) of a variable is obtained by dividing the sum of all the values of a series of observations by the total number of observations. Thus, if there are *n* observations of a variable *x* having values $x_1, x_2, \ldots\ldots x_n$, then,

$$\text{Arithmetic mean } (\bar{X}) = \frac{x_1+x_2+\cdots+x_n}{n} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

It was used to classify the respondents.

#### 3.7.4 Standard deviation

Standard Deviation is the root mean square deviation from the arithmetic mean. Let $\bar{x}$ be the arithmetic mean of *n* values, then ($x_i$-$\bar{x}$) is the deviation of the variable value from *x* (1,2……..*n*). Then,

$$\text{Standard deviation } \sigma = \sqrt{\frac{\sum_{i=1}^{n}(x_i-\bar{x})}{n}}$$

It was used to classify the respondent farmers into three categories as follows:

- Low: $< \bar{x}-\sigma$
- Medium: $\bar{x}\pm\sigma$
- High: $>\bar{x}-\sigma$

#### 3.7.5 Coefficient of correlation

This was used to calculate the 'r' value which facilitated knowing the relationship between dependent and independent variables.

Karl Pearson's correlation coefficient was employed to assess the relationship between the variables. The coefficient assumes that

- There is a linear relationship between the two variables.
- The two variables are causally related which means that one of the variables is independent and the other one is dependent and
- A large number of independent causes are operating in both variables so as to produce a normal distribution.

Karl Pearson's coefficient of correlation can be worked out:

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

Where,

r = coefficient of correlation

$x_i$ = $i^{th}$ value of x variables

$\bar{x}$ = mean of x variables

$y_i$ = $i^{th}$ value of y variables

$\bar{y}$ = mean of y variables

# RESULTS AND DISCUSSION

After analyzing the information, the findings are presented under the following headings and discussed in the succeeding pages, in light of the objectives of the study:

**4.1** Socio-economic profile of dairy farmers

**4.2** Entrepreneurial behaviour of dairy farmers

**4.3** Relationship between the socio-economic profile of dairy farmers and their entrepreneurial behaviour

**4.4** Constraints faced by dairy farmers

## 4.1 Socio-economic profile of dairy farmers

### 4.1.1 Age

The distribution of respondents according to their age is presented in table 4.1.

**Table 4.1: Distribution of respondents according to age**

| Sl.no. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Young | 13 | 14.44 |
| 2 | Middle | 44 | 48.89 |
| 3 | Old | 33 | 36.67 |
| | **Total** | **90** | **100** |

Based on the findings of Table 4.1, it was observed that the majority of the farmers (48.89%) belonged to the middle age group, followed by old age (36.67%) and young age (14.44%). This could be attributed to the fact that middle-aged farmers have more experience than their younger counterparts and might have developed the skills necessary to make their dairy business sustainable.

### 4.1.2 Education

The distribution of respondents according to their education level at the time of investigation is presented in table 4.2.

**Table 4.2: Distribution of respondents according to education**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Illiterate | 2 | 2.22 |
| 2 | Functionally literate | 6 | 6.67 |
| 3 | Primary school | 11 | 12.22 |
| 4 | Middle school | 32 | 35.56 |
| 5 | High school | 30 | 33.33 |
| 6 | College | 9 | 10.00 |
| | **Total** | **90** | **100** |

Based on the findings in Table 4.2, it was observed that the majority of dairy farmers had education up to middle school level (35.56%), followed by high school (33.33%), primary school (12.22%), college level (10.00%), functionally literate (6.67%), and illiterate (2.22%). This could be attributed to the fact that most villages only have schools up to high school level. Hence, the lack of well-equipped educational facilities and financial resources in these areas may be responsible for the poor formal education of the dairy farmers.

### 4.1.3 Family size

The distribution of respondents according to their family size is presented in table 4.3.

**Table 4.3: Distribution of respondents according to family size**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Small | 17 | 18.89 |
| 2 | Medium | 42 | 46.67 |
| 3 | Large | 31 | 34.44 |
| | **Total** | **90** | **100** |

Table 4.3 revealed that majority of the dairy farmers (46.67 per cent) had medium family size, followed by large (34.44%) and small (18.89%) family size. This might be because middle aged respondents prefer nuclear families. Further, awareness and education might have helped them to maintain medium family size.

### 4.1.4 Land holding

The distribution of respondents according to their land holding is presented in table 4.4.

**Table 4.4: Distribution of respondents according to land holding**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Landless | 2 | 2.22 |
| 2 | Marginal | 10 | 11.11 |
| 3 | Small | 35 | 38.89 |
| 4 | Semi-medium | 27 | 30.00 |
| 5 | Medium | 11 | 12.22 |
| 6 | Large | 5 | 5.56 |
| | **Total** | **90** | **100** |

Based on Table 4.4, it was discovered that the majority of dairy farmers have small land holdings (38.89%), followed by semi-medium (30.00%), medium (12.22%), marginal (11.11%), large (5.56%) landholdings, and 2.22% being landless farmers. This could be due to the division of family property, resulting in the fragmentation of ancestral land.

### 4.1.5 Occupation

The distribution of respondents according to their occupation is presented in table 4.5.

**Table 4.5: Distribution of respondents according to occupation**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Dairy | 16 | 17.78 |
| 2 | Dairy + Agriculture | 53 | 58.89 |
| 3 | Dairy + Agriculture + others | 21 | 23.33 |
| | **Total** | **90** | **100** |

Table 4.5 indicates that the majority (58.89%) of dairy farmers have dairy and agriculture as their primary occupation. 23.33% of dairy farmers are involved in dairy farming, agriculture, and other professions, while 17.78% of dairy farmers are exclusively involved in dairy farming. The probable reason for this is that dairy and

agriculture are interdependent and contribute their respective by-products to each other's input, making it a more sustainable practice.

### 4.1.6 Annual income

The distribution of respondents according to the annual income is presented in table 4.6.

**Table 4.6: Distribution of respondents according to annual income**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 11 | 12.22 |
| 2 | Medium | 50 | 55.56 |
| 3 | High | 29 | 32.22 |
| | **Total** | **90** | **100** |

Based on the findings of Table 4.6, over half of the dairy farmers (55.56%) have a medium annual income, followed by high (32.22%) and low (12.22%) annual income. The most likely reason for this could be that the majority of the respondents were engaged in two or more occupations and were also receiving a constant income from their dairy business.

### 4.1.7 Livestock possession (Herd size)

The distribution of respondents according to their livestock possession (Herd size) is presented in table 4.7.

**Table 4.7: Distribution of respondents according to livestock possession**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 35 | 38.89 |
| 2 | Medium | 44 | 48.89 |
| 3 | High | 11 | 12.22 |
| | **Total** | **90** | **100** |

Based on the findings of Table 4.7, it was observed that majority of the farmers (48.89%) had a moderate level of livestock possession, followed by 38.89% who had

low livestock possession, and only 12.22% who had high livestock possession. This could be attributed to the fact that majority of the respondents had small land holdings and medium level of income, which might have prevented them from purchasing a greater number of cows.

### 4.1.8 Dairy farming experience

The distribution of respondents according to their dairy farming experience is presented in table 4.8.

**Table 4.8: Distribution of respondents according to dairy farming experience**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 40 | 44.44 |
| 2 | Medium | 41 | 45.56 |
| 3 | High | 9 | 10.00 |
| | **Total** | **90** | **100** |

Based on the findings of Table 4.8, most of the farmers (45.56%) had medium-level experience in dairy farming, followed by low experience (44.44%) and high experience (10.00%). This could be because majority of the dairy farmers were middle-aged and they might have started dairy farming when they did not get any other job.

### 4.1.9 Milk production

The distribution of respondents according to milk production is presented in table 4.9.

**Table 4.9: Distribution of respondents according to milk production**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 30 | 33.33 |
| 2 | Medium | 42 | 46.67 |
| 3 | High | 18 | 20.00 |
| | **Total** | **90** | **100** |

Based on the findings of Table 4.9, it can be observed that 46.67% of dairy farmers have a medium milk production level, while 33.33% and 20.00% have low and high milk production levels, respectively. This can be attributed to the fact that milk

production is directly proportional to the number of cows possessed by a farmer. Since most of the dairy farmers had medium livestock possession, they were able to achieve a medium milk production level.

### 4.1.10 Extension contact

The distribution of respondents according to their extension contacts is presented in table 4.10.

**Table 4.10: Distribution of respondents according to extension contact**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 27 | 30.00 |
| 2 | Medium | 48 | 53.33 |
| 3 | High | 15 | 16.67 |
| | **Total** | **90** | **100** |

**Mean 5.21** **SD 1.99**

Based on the findings of Table 4.10, 53.33% of dairy farmers had a medium level of extension contact, while 30.00% had low extension contact and 16.67% had high extension contact. This could be due to the regular awareness programs conducted by concerned officers, as well as direct contact with progressive dairy farmers and extension functionaries.

### 4.1.11 Media exposure

The distribution of respondents according to their Media exposure is presented in table 4.11.

**Table 4.11: Distribution of respondents according to media exposure**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 17 | 18.89 |
| 2 | Medium | 55 | 61.11 |
| 3 | High | 18 | 20.00 |
| | **Total** | **90** | **100** |

**Mean 5.03** **SD 1.66**

Based on the findings of Table 4.11, 61.11% of dairy farmers had medium media exposure, followed by 20.00% with high exposure and 18.89% with low exposure. This

is likely due to majority of respondents belonging to the middle age group and having secondary education, making them more interested in using mass media and social media to acquire information about dairy farming.

### 4.1.12 Social participation

The distribution of respondents according to their social participation is presented in table 4.12.

**Table 4.12: Distribution of respondents according to social participation**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 21 | 23.33 |
| 2 | Medium | 56 | 62.22 |
| 3 | High | 13 | 14.44 |
| | **Total** | **90** | **100** |
| **Mean 2.24** | | | **SD 1.12** |

Based on the findings of Table 4.12, 62.22% of the farmers belonged to the medium level of social participation, while 23.33% and 14.44% belonged to the low and high level of social participation, respectively. This could be due to the fact that most of the dairy farmers were in the middle age group, and they may have neglected social activities due to lack of interest.

## 4.2 Entrepreneurial behaviour of dairy farmers

### 4.2.1 Innovativeness

The distribution of respondents according to innovativeness is presented in table 4.13.

**Table 4.13: Distribution of respondents according to innovativeness**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 20 | 22.22 |
| 2 | Medium | 52 | 57.78 |
| 3 | High | 18 | 20.00 |
| | **Total** | **90** | **100** |
| **Mean 17.01** | | | **SD 5.97** |

Table 4.13 revealed that majority of dairy farmers (57.78%) had a medium level of innovativeness, while 22.22% had low innovativeness and 20.00% had high innovativeness. The medium level of innovativeness among the dairy farmers could be attributed to their medium annual income, which enabled them to adopt new dairy technology effectively.

### 4.2.2 Achievement motivation

The distribution of respondents according to their achievement motivation is presented in table 4.14.

**Table 4.14: Distribution of respondents according to achievement motivation**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 15 | 16.67 |
| 2 | Medium | 47 | 52.22 |
| 3 | High | 28 | 31.11 |
| | **Total** | **90** | **100** |

**Mean 3.67** **SD 1.14**

Table 4.14 shows that 52.22% of dairy farmers had a medium level of achievement motivation, followed by 31.11% with high and 16.67% with low levels of achievement motivation. The probable reason might be their enthusiasm and zeal to become financially stable. Medium level of education and medium annual income may have encouraged them to set high goals.

### 4.2.3 Decision making ability

The distribution of respondents according to their decision-making ability is presented in table 4.15.

**Table 4.15: Distribution of respondents according to decision making ability**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 18 | 20.00 |
| 2 | Medium | 55 | 61.11 |
| 3 | High | 17 | 18.89 |
| | **Total** | **90** | **100** |

**Mean 10.59** **SD 2.35**

Table 4.15 shows that 61.11% of dairy farmers had a medium level of decision-making ability, while 20.00% and 18.89% had low and high levels of decision-making ability respectively. The possible reason might be their middle school education level, medium dairy farming experience and their confidence in choosing the best alternative available while taking decisions regarding crisis management in dairy farming.

### 4.2.4 Risk orientation

The distribution of respondents according to risk orientation is presented in table 4.16.

**Table 4.16: Distribution of respondents according to risk orientation**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 10 | 11.11 |
| 2 | Medium | 62 | 68.89 |
| 3 | High | 18 | 20.00 |
| | **Total** | **90** | **100** |

**Mean 6.91** **SD 1.95**

Table 4.16 shows that more than half (68.89%) of the dairy farmers have medium risk orientation followed by high (20.00%) and low (11.11%) risk orientation. The logical reason behind having medium risk orientation by dairy farmers might be due to their small size of land holding and medium dairy farming experience.

### 4.2.5 Co-ordinating ability

The distribution of respondents according to their coordinating ability is presented in table 4.17.

**Table 4.17: Distribution of respondents according to co-ordinating ability**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 10 | 11.11 |
| 2 | Medium | 68 | 75.56 |
| 3 | High | 12 | 13.33 |
| | **Total** | **90** | **100** |

**Mean 7.01** **SD 2.06**

Table 4.17 shows that around three-fourth (75.56%) of the dairy farmers have medium co-ordinating ability followed by high (13.33%) and low (11.11%) co-

ordinating ability. The probable reason might be due to their medium dairy farming experience, education and interest that had helped them to coordinate the different activities of dairy farming over the time.

### 4.2.6 Planning ability

The distribution of respondents according to planning ability is presented in table 4.18.

**Table 4.18: Distribution of respondents according to planning ability**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 13 | 14.44 |
| 2 | Medium | 61 | 67.78 |
| 3 | High | 16 | 17.78 |
| | **Total** | **90** | **100** |

**Mean 2.60** **SD 1.04**

In Table 4.18, it is evident that most farmers (67.78%) have medium planning ability, followed by high (17.78%) and low (14.44%) planning ability. This could be attributed to the fact that successful dairy farming requires proper planning in areas such as health & disease control, milk production and storage, transportation & marketing.

### 4.2.7 Information seeking behaviour

The distribution of respondents according to their information seeking behaviour is presented in table 4.19.

**Table 4.19: Distribution of respondents according to information seeking behaviour**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 8 | 8.89 |
| 2 | Medium | 67 | 74.44 |
| 3 | High | 15 | 16.67 |
| | **Total** | **90** | **100** |

**Mean 21.28** **SD 3.49**

The data from Table 4.19 indicated that majority 74.44% of the dairy farmers had medium level of information seeking ability followed by 16.67% had low level and only 8.89% had high level of information seeking ability. The possible reason might be

medium education level and medium media exposure for up-to-date information to manage dairy enterprise.

### 4.2.8 Cosmopoliteness

The distribution of respondents according to cosmopoliteness is presented in table 4.20.

**Table 4.20: Distribution of respondents according to cosmopoliteness**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 13 | 14.44 |
| 2 | Medium | 71 | 78.89 |
| 3 | High | 6 | 6.67 |
| | **Total** | **90** | **100** |

**Mean 9.84** **SD 1.20**

The data from Table 4.20 indicated that majority 78.89% of the dairy farmers had medium level of cosmopoliteness followed by 14.44% had low level and only 6.67% had high level of cosmpoliteness. The probable reason might be due to medium extension contact and medium social participation of the respondents.

### 4.2.9 Self confidence

The distribution of respondents according to self-confidence is presented in table 4.21.

**Table 4.21: Distribution of respondents according to self confidence**

| Sl. No. | Categories | Frequency | Percentage |
|---|---|---|---|
| 1 | Low | 6 | 6.67 |
| 2 | Medium | 72 | 80.00 |
| 3 | High | 12 | 13.33 |
| | **Total** | **90** | **100** |

**Mean 3.60** **SD 0.83**

The data from Table 4.21 indicated that majority 80.00% of the dairy farmers had medium level of self confidence followed by 13.33% had high level and only 6.67% had low level of self confidence. The probable reasons for having medium level of self confidence might be due to their medium education level, medium level of experience and that a majority of them were small farmers. These reasons might have affected their confidence to some extent.

### 4.3 Relationship between the socio-economic profile of dairy farmers and their entrepreneurial behaviour

Coefficient of correlation (r value) was calculated to know the relationship between independent variables such as age, education, family size, land holding, occupation, annual income, livestock possession, dairy farming experience, milk production, extension contact, media exposure, and social participation with entrepreneurial behaviour.

**Table 4.22: Relationship between the socio-economic profile of dairy farmers and their entrepreneurial behaviour**

| Sl. No. | Independent variables | 'r' value |
|---|---|---|
| 1 | Age | -.768** |
| 2 | Education | .792** |
| 3 | Family size | -.214* |
| 4 | Land holding | .044 |
| 5 | Occupation | .144 |
| 6 | Annual income | .576** |
| 7 | Livestock possession (Herd size) | .414** |
| 8 | Dairy farming experience | -.352** |
| 9 | Milk production | .521** |
| 10 | Extension contacts | .258* |
| 11 | Media exposure | .040 |
| 12 | Social participation | .095 |

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

#### 4.3.1 Age and Entrepreneurial behaviour

Table 4.22 revealed that age had negative and significant relationship with entrepreneurial behaviour. The probable reason might be that younger dairy farmers had more innovativeness and achievement motivation. They were faster in decision making and were more willing to take the risks for better results in dairy farming as compared to older farmers.

### 4.3.2 Education and Entrepreneurial behaviour

Table 4.22 revealed that education had positive and significant relationship with entrepreneurial behaviour. The probable reason might be that as the dairy farmers receive more formal schooling, their interest and motivation to learn new technologies also increases.

### 4.3.3 Family size and Entrepreneurial behaviour

Table 4.22 revealed that there is a negative and significant correlation between family size and entrepreneurial behaviour. This could be because as the size of the family increases, the income of the respondent is used to support the family's expenses instead of investing in new technologies.

### 4.3.4 Land holding and Entrepreneurial behaviour

Table 4.22 revealed that land holding had positive and non-significant relationship with entrepreneurial behaviour. This might be because most of the respondents prefer performing dairy farming outside their house rather than on a farm.

### 4.3.5 Occupation and Entrepreneurial behaviour

Table 4.22 revealed that occupation had positive and non-significant relationship with entrepreneurial behaviour. The probable reason might be that the dairy farmers engage in different combinations of activities for their occupation and dairy farming serves as an additional source of income,

### 4.3.6 Annual income and Entrepreneurial behaviour

Table 4.22 revealed that there is a positive and significant correlation between annual income and entrepreneurial behaviour. This could be because individuals with higher incomes are more likely to adopt innovations. The dairy farmers may have been motivated by sustained income from their enterprise to engage in positive entrepreneurial behaviour and pursue dairying for a higher income.

### 4.3.7 Livestock possession and Entrepreneurial behaviour

Table 4.22 revealed that livestock possession had positive and significant relationship with entrepreneurial behaviour. This might be due to the fact that as the

number of dairy animals increases, the milk yield and income from the dairy enterprise also increases. Therefore, entrepreneurial behaviour of dairy farmers also increases.

### 4.3.8 Dairy farming experience and Entrepreneurial behaviour

Table 4.22 revealed that dairy farming experience had negative and significant relationship with entrepreneurial behaviour. This might be because old age respondents with more farming experience are reluctant to accept new technologies, rather they continue with conventional methods.

### 4.3.9 Milk production and Entrepreneurial behaviour

Table 4.22 shows that there is a positive and significant correlation between milk production and entrepreneurial behaviour. This is likely because higher milk production leads to more income from dairy business, which motivates respondents to engage in entrepreneurial activities.

### 4.3.10 Extension contact and Entrepreneurial behaviour

Table 4.22 revealed that extension contact had positive and significant relationship with entrepreneurial behaviour. The probable reason might be that frequent participation in extension activities provides necessary timely knowledge and helps them to select new technologies to increase their yield and profit.

### 4.3.11 Media exposure and Entrepreneurial behaviour

Table 4.22 revealed that media exposure had positive and non-significant relationship with entrepreneurial behaviour. This might be due to the fact that media utilization provides both theoretical and visual knowledge regarding the subject matter.

### 4.3.12 Social participation and Entrepreneurial behaviour

Table 4.22 revealed that social participation had positive and non-significant relationship with entrepreneurial behaviour. The probable reason might be the limited availability of information related to dairy farming.

### 4.4 Constraints faced by dairy farmers

The constraints faced by dairy farmers regarding dairy farming were categorized into constraints in management of dairy enterprise, informational constraints, marketing constraints, and financial constraints.

#### 4.4.1 Constraints in management of dairy enterprise

The ranking of constraints in management of dairy enterprise is presented in table 4.23.

**Table 4.23: Ranking of constraints in management of dairy enterprise**

| Sl. No. | Constraints | Frequency | Percentage | Rank |
|---|---|---|---|---|
| 1 | Unavailability of green fodder round the year | 81 | 90.00 | I |
| 2 | Limited availability of clean & safe drinking water for animal | 10 | 11.11 | XIV |
| 3 | Fluctuation in concentrate feed cost | 75 | 83.33 | II |
| 4 | Inadequate grazing land for dairy animals | 46 | 51.11 | XI |
| 5 | Infertility related problems | 50 | 55.56 | X |
| 6 | Problem of abortion | 44 | 48.89 | XII |
| 7 | Non-availability of quality breeding bulls | 62 | 68.89 | VI |
| 8 | Poor conception rate in Artificial Insemination | 73 | 81.11 | III |
| 9 | Distance to AI centre/hospital | 39 | 43.33 | XIII |
| 10 | Vulnerability of indigenous dairy animals to diseases | 60 | 66.67 | VII |
| 11 | Non-availability of timely healthcare services | 58 | 64.44 | VIII |
| 12 | Lack of awareness of deworming of milch animals | 71 | 78.89 | IV |
| 13 | Difficulty in following correct and timely vaccination schedule | 67 | 74.44 | V |
| 14 | Distance to veterinary hospital | 57 | 63.33 | IX |

Table 4.23 highlights the top constraints faced by dairy farmers in management of dairy enterprise. The majority of farmers (90.00%) expressed unavailability of green fodder throughout the year as the major constraint, ranking it at number I. This might be due to insufficient green fodder cultivation throughout the year as it gets affected by heatwaves, scarcity of water, climate change, etc.

This was followed by fluctuation in concentrate feed cost (83.33%) at number II, poor conception rate in Artificial Insemination (81.11%) at number III, lack of awareness of deworming of milch animals (78.89%) at number IV, difficulty in following correct and timely vaccination schedule (74.44%) at number V, non-availability of quality breeding bulls (68.89%) at number VI, vulnerability of indigenous dairy animals to diseases (66.67%) at number VII, non-availability of timely healthcare services (64.44%) at number VIII, distance to veterinary hospital (63.33%) at number IX, infertility-related problems (55.56%) at number X, inadequate grazing land for dairy animals (51.11%) at number XI, problem of abortion (48.89%) at number XII, distance to AI centre/hospital (43.33%) at number XIII, and limited availability of clean and safe drinking water for animals (11.11%) at number XIV.

### 4.4.2 Informational constraints

The ranking of the informational constraints is presented in table 4.24.

**Table 4.24: Ranking of informational constraints**

| Sl. No. | Constraints | Frequency | Percentage | Rank |
|---|---|---|---|---|
| 1 | Inadequate knowledge on scientific housing | 55 | 61.11 | III |
| 2 | Insufficient training programs on scientific dairy management practices | 43 | 47.78 | V |
| 3 | Lack of information about government schemes related to dairy | 50 | 55.56 | IV |
| 4 | Lack of awareness on insurance facilities and their utilization | 66 | 73.33 | II |
| 5 | Lack of knowledge in marketing strategies | 69 | 76.67 | I |

Table 4.24 shows that among informational constraints, majority of dairy farmers expressed lack of knowledge in marketing strategies (76.67%) ranking at I as major constraint. The probable reason might be medium extension contact of the respondents and lack of awareness and training programmes on marketing strategies.

This was followed by lack of awareness on insurance facilities and their utilization (73.33%) ranking at II, inadequate knowledge on scientific housing (61.11%) ranking at III, lack of information about government schemes related to dairy (55.56%) ranking at IV and insufficient training programs on scientific dairy management practices (47.78%) ranking at V.

### 4.4.3 Financial constraints

The ranking of the financial constraints is presented in table 4.25.

**Table 4.25: Ranking of financial constraints**

| Sl. No. | Constraints | Frequency | Percentage | Rank |
|---|---|---|---|---|
| 1 | High cost of cross breed dairy animal | 70 | 77.78 | III |
| 2 | High cost of veterinary medicines | 69 | 76.67 | IV |
| 3 | High cost of cattle feed & concentrate mixture | 80 | 88.89 | I |
| 4 | Non availability of capital and loan at proper time | 74 | 82.22 | II |

Table 4.25 shows that among financial constraints, majority of dairy farmers expressed high cost of cattle feed & concentrate mixture (88.89%) ranking at I as major constraint. This may be due to the increased cost of cattle feed ingredients such as corn, soybeans, and de-oiled rice bran, with no better or more affordable alternatives currently available.

This was followed by non availability of capital and loan at proper time (82.22%) ranking at II, high cost of cross breed dairy animal (77.78%) ranking at III, and high cost of veterinary medicines (76.67%) ranking at IV.

### 4.4.4 Marketing constraints

The ranking of the marketing constraints is presented in table 4.26.

**Table 4.26: Ranking of marketing constraints**

| Sl. No. | Constraints | Frequency | Percentage | Rank |
|---|---|---|---|---|
| 1 | Non-Remunerative prices of milk | 51 | 56.67 | III |
| 2 | Inadequate availability of regular market | 56 | 62.22 | II |
| 3 | Distance to dairy cooperative societies | 33 | 36.67 | VII |
| 4 | Irregular market demand for milk & value-added milk products | 42 | 46.67 | VI |
| 5 | Exploitation by middle man/milk man | 69 | 76.67 | I |
| 6 | Problems of packaging & transportation | 50 | 55.56 | IV |
| 7 | Lack of proper storage facilities | 32 | 35.56 | VIII |
| 8 | Non-availability of infrastructure for value addition of milk | 49 | 54.44 | V |

Table 4.26 shows that among marketing constraints, majority of dairy farmers expressed exploitation by middle man/milk man (76.67%) ranking at I as major constraint. This might be due to the fact that the farmers may not be receiving direct income from customers due to lack of access to markets, hence they depend on middle men for sale of their milk.

This was followed by inadequate availability of regular market (62.22%) ranking at II, non-remunerative prices of milk (56.67%) ranking at III, problems of packaging & transportation (55.56%) ranking at IV, non-availability of infrastructure for value addition of milk (54.44%) ranking at V, irregular market demand for milk & value-added milk products (46.67%) ranking VI, distance to dairy cooperative societies (36.67%) ranking at VII, and lack of proper storage facilities (35.56%) ranking at VIII.

# SUMMARY AND CONCLUSION

Entrepreneurs play a crucial role in the development of any nation. In particular, entrepreneurship within the dairy sector has the potential to generate significant employment opportunities and income, not just directly, but also through the various stages involved in the process, including production and procurement of raw materials, storage of finished products, and distribution of food and dairy products to consumers.

Keeping this in view, the present study was designed to analyse the **"Entrepreneurial behaviour of dairy farmers in Mayurbhanj district of Odisha",** with the following objectives:

1. To assess the socio-economic profile of the dairy farmers in the study area
2. To measure the entrepreneurial behaviour of the respondents in dairy farming
3. To analyze the relationship between the socio-economic profile of respondents with their entrepreneurial behaviour
4. To delineate the constraints faced by the dairy farmers in the study area

The study was conducted in Mayurbhanj district of Odisha. Purposive and random sampling methods were followed for the study. Three blocks were selected purposively having maximum number of dairy populations. From the three blocks, fifteen villages were selected purposively on the basis of maximum number of dairy populations. In total, 90 dairy farmers were selected randomly from these villages, each farmer owing minimum two cows.

The socio-economic profile of dairy farmers namely age, education, family size, land holding, occupation, annual income, livestock possession, dairy farming experience, milk production, extension contact, media exposure, and social participation were taken as independent variables whereas entrepreneurial behaviour (having nine components i.e., innovativeness, achievement motivation, decision-making ability, risk orientation, coordinating ability, planning ability, information seeking behaviour, cosmopoliteness and self-confidence ) as dependent variable.

A structured interview schedule was prepared for the collection of data regarding socio-economic profile, entrepreneurial behaviour and constraints faced by the dairy farmers. The data was analysed with the help of statistical techniques i.e., mean, standard deviation, and coefficient of correlation.

## 5.1 Major findings of the study

### 5.1.1 Socio-economic profile of dairy farmers

- Majority of the farmers (48.89%) belonged to the middle age group, followed by old (36.67%) and young (14.44%) age group.
- Majority of dairy farmers had education up to middle school level (35.56%), followed by high school (33.33%), primary school (12.22%), college level (10.00%), functionally literate (6.67%), and illiterate (2.22%).
- Majority of the dairy farmers (46.67%) had medium family size, followed by large (34.44%) and small (18.89%) family size.
- Majority of dairy farmers had small land holding (38.89%), followed by semi-medium (30.00%), medium (12.22%), marginal (11.11%), large (5.56%) landholdings, and 2.22% being landless farmers.
- Majority (58.89%) of dairy farmers have dairy and agriculture as their primary occupation. 23.33% of dairy farmers are involved in dairy farming, agriculture, and other professions, while 17.78% of dairy farmers are exclusively involved in dairy farming.
- Majority of the dairy farmers (55.56%) have a medium annual income, followed by high (32.22%) and low (12.22%) annual income.
- Majority of the farmers (48.89%) had a moderate level of livestock possession, followed by 38.89% who had low and only 12.22% who had high livestock possession.
- Majority of the farmers (45.56%) had medium-level experience in dairy farming, followed by low experience (44.44%) and high experience (10.00%).
- Majority (46.67%) of dairy farmers have a medium milk production level, while 33.33% and 20.00% have low and high milk production levels, respectively.
- Majority (53.33%) of dairy farmers had a medium level of extension contact, while 30.00% had low extension contact and 16.67% had high extension contact.
- Majority (61.11%) of dairy farmers had medium media exposure, followed by 20.00% with high exposure and 18.89% with low exposure.
- Majority (62.22%) of the farmers belonged to the medium level of social participation, while 23.33% and 14.44% belonged to the low and high level of social participation, respectively.

### 5.1.2 Entrepreneurial behaviour of dairy farmers

- Majority of dairy farmers (57.78%) had medium level of innovativeness, while 22.22% had low innovativeness and 20.00% had high innovativeness.
- Majority (52.22%) of dairy farmers had medium achievement motivation, followed by 31.11% with high and 16.67% with low achievement motivation.
- Majority (61.11%) of dairy farmers had medium level of decision-making ability, while 20.00% and 18.89% had low and high decision-making ability respectively.
- More than half (68.89%) of the dairy farmers have medium risk orientation followed by high (20.00%) and low (11.11%) risk orientation.
- Three-fourth (75.56%) of the dairy farmers have medium co-ordinating ability followed by high (13.33%) and low (11.11%) co-ordinating ability.
- Majority of the farmers (67.78%) have medium planning ability, followed by high (17.78%) and low (14.44%) planning ability.
- Majority (74.44%) of the dairy farmers had medium level of information seeking ability followed by 16.67% had low level and 8.89% had high level of information seeking ability.
- Majority (78.89%) of the dairy farmers had medium level of cosmopoliteness followed by 14.44% had low level and only 6.67% had high level of cosmpoliteness.
- Majority (80.00%) of the dairy farmers had medium level of self confidence followed by 13.33% had high level and 6.67% had low level of self confidence.

### 5.1.3 Relationship between socio-economic profile and entrepreneurial behaviour

- Independent variables like age, family size and dairy farming experience had negative and significant relationship with entrepreneurial behaviour.
- Independent variables like education, annual income, livestock possession, milk production and extension contact had positive and significant relationship with entrepreneurial behaviour.
- Independent variables like landholding, occupation, media exposure and social participation had positive and non-significant relationship with the entrepreneurial behaviour.

### 5.1.4 Constraints faced by dairy farmers

- In case of constraints in management of dairy enterprise, majority of farmers expressed major constraints as unavailability of green fodder throughout the year, fluctuation in concentrate feed cost and poor conception rate in Artificial Insemination.
- In case of informational constraints, majority of farmers expressed lack of knowledge in marketing strategies as major constraint.
- In case of financial constraints, majority of farmers expressed high cost of cattle feed & concentrate mixture as the major constraint.
- In case of marketing constraints, majority of farmers expressed major constraints as exploitation by middle man/milk man, inadequate availability of regular market, and non-remunerative prices of milk.

## Conclusion

From the above study, it can be concluded that the majority of the dairy farmers had medium entrepreneurial behaviour, which shows a sign of progressiveness in the study area.

The study also highlights the various dimensions of entrepreneurship in the dairy industry, emphasizing the significance of factors like innovation, achievement motivation, risk-taking, etc. The research reveals that entrepreneurial dairy farmers have a crucial role to play in shaping the future of the sector, contributing to its growth, sustainability, and adaptability. With the agricultural landscape evolving, it becomes imperative to comprehend and nurture entrepreneurial behaviour in dairy farming to ensure the industry's prosperity. The study also adds to the growing body of knowledge in this field and emphasizes the need for further research and support to empower dairy farmers as entrepreneurial leaders in the agribusiness domain

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# APPENDIX

## INTERVIEW SCHEDULE

**General information**

1) Name of the respondent:
2) Village:
3) Block:
4) District:

**PART-A: Socio-economic profile of dairy farmers**

**1. Age**

a) Young (up to 35 years):
b) Middle age (36-55 years):
c) Old (55 and above):

**2. Education**

a) Illiterate:
b) Functionally literate:
c) Primary school:
d) Middle school:
e) High school:
f) College:

**3. Family size**

a) Small (upto 4 members):
b) Medium (5-8 members)
c) Big (>8 members):

**4. Land holding**

a) Landless (tenant farmers):
b) Marginal (0.1 to 1.0 ha):
c) Small (1.1 to 2.0 ha):
d) Semi-medium (2.1 to 4.0 ha):
e) Medium (4.1 to 10.0 ha):
f) Large (>10.0 ha)

5. **Occupation**
    a) Dairy:
    b) Dairy + Agriculture:
    c) Dairy + Agriculture + others:
6. **Annual family income**
    a) Up to Rs. 2,00,000:
    b) Rs. 2,00,001 to Rs. 4,00,000:
    c) Above Rs. 4,00,001:
7. **Livestock possession (herd size)**
    a) Up to 2 cows:
    b) 3 to 5 cows
    c) Above 5 cows:
8. **Dairy farming experience**
    a) Upto 15 years:
    b) 16-25 years:
    c) Above 25 years:
9. **Milk production**
    a) Upto 10 litres/day:
    b) 11 to 25 litres/day
    c) Above 25 litres/day:
10. **Extension contacts**

| Sl. No. | Extension personnel/ agency | Frequently (2) | Occasionally (1) | Never (0) |
|---|---|---|---|---|
| a) | Chief Animal Husbandry Officer | | | |
| b) | Block Veterinary Officer | | | |
| c) | KVK | | | |
| d) | Livestock Development Officer | | | |
| e) | Assistant Veterinary Surgeon | | | |
| f) | Neighbours/friends | | | |

**11. Media exposure**

| Sl. No. | Media | Regularly (2) | Occasionally (1) | Never (0) |
|---|---|---|---|---|
| a) | Radio | | | |
| b) | Television | | | |
| c) | Newspaper | | | |
| d) | Internet | | | |
| e) | Social media (YouTube, Facebook, WhatsApp, etc.) | | | |

**12. Social participation**

| Sl. No. | Particulars | Yes/No |
|---|---|---|
| 1. | No membership | **0** |
| 2. | Member of an informal organization (youth club, farmers club, religious organization, etc.) | **1** |
| 3. | Office bearer of an informal organization (youth club, farmers club, religious organization, etc.) | **2** |
| 4. | Member of a formal organization (Panchayati raj institution, cooperative society, SHG, FPO, etc.) | **3** |
| 5. | Office bearer of a formal organization (Panchayati raj institution, cooperative society, SHG, FPO, etc.) | **4** |

## PART-B: Entrepreneurial behaviour of dairy farmers

### 1. Innovativeness

| Sl. No. | Particulars | Have you adopted (yes/no) | If yes, since how many years |
|---|---|---|---|
| 1. | Artificial Insemination | | |
| 2. | Feeding colostrum to newly born calves | | |
| 3. | Feeding balance concentrate mixture based on milk production | | |
| 4. | Use of sterilized scalpel for cutting naval cord and application of tincture iodine on the cut end of the naval cord. | | |
| 5. | Timely and regular vaccination against common contagious diseases | | |
| 6. | Having pregnancy diagnosis done between 60-90 days after service. | | |

### 2. Achievement Motivation

1) In accomplishing a task, I like ……
   - to do it much better than other dairy entrepreneurs
   - to finish it before time
2) My desire is to be …….
   - an average dairy entrepreneur
   - a successful dairy entrepreneur
3) I feel my success depends…….
   - upon my hard work in dairy enterprise
   - upon my parents and relatives
4) I like …….
   - to earn more profit
   - to satisfy my minimum needs
5) After 10 years I will be …….
   - a well-known dairy entrepreneur
   - my status will be same

**3. Decision making ability**

| Sl. No. | Particulars | Not considered (0) | Considered after consultation with others (1) | Decision taken independently (2) |
|---|---|---|---|---|
| 1. | Breed of milch animal to be purchased | | | |
| 2. | Fodder management | | | |
| 3. | Insurance of animals | | | |
| 4. | Applying new practices, ideas, technologies | | | |
| 5. | Practicing A.I. | | | |
| 6. | Quality of concentrate to be fed to milch animals | | | |
| 7. | Vaccination against contagious diseases | | | |
| 8. | Milk selling | | | |

**4. Risk orientation**

| Sl. No. | Particulars | Agree | Undecided | Disagree |
|---|---|---|---|---|
| 1. | A dairy entrepreneur should take greater risk than the average farmers | **2** | **1** | **0** |
| 2. | A dairy entrepreneur should try new dairy practices only after successfully used by other dairy entrepreneurs | **0** | **1** | **2** |
| 3. | Trying an entirely new practice in dairy enterprise involves risk orientation but it is worth | **2** | **1** | **0** |
| 4. | Dairy management is full of risk | **0** | **1** | **2** |
| 5. | Dairy entrepreneur should keep improved breed instead of local bred | **2** | **1** | **0** |
| 6. | Dairy entrepreneur should sustain risk in development of his enterprise | **2** | **1** | **0** |

**5. Co-ordinating ability**

| Sl. no. | Particulars | Well in advance (2) | At nick of time (1) | Never (0) |
|---|---|---|---|---|
| 1. | When did you estimate the capital required for the entrepreneur | | | |
| 2. | When did you consult the veterinarian about the health of the animals? | | | |
| 3. | When did you estimate the required quantity of fodder? | | | |
| 4. | When did you vaccinate the animals? | | | |
| 5. | Do you take precautions for clean milk production? | | | |

**6. Planning ability**

| Sl. No. | Particulars | Followed (1) | Not followed (0) |
|---|---|---|---|
| 1. | Preparation of calendar of operation of dairy activities | | |
| 2. | Estimating in advance the fodder requirement for livestock | | |
| 3. | Estimating in advance, the capital requirement for dairy enterprise | | |
| 4. | Consulting in advance with experts about clean milk production | | |
| 5. | Anticipating in advance the number of animals required for maintaining milk production | | |

**7. Information seeking behaviour**

- **Formal sources**

| Sl. No. | Particulars | Once in a fortnight (3) | Once in a month (2) | Whenever problem arises (1) | Never (0) |
|---|---|---|---|---|---|
| 1. | Scientists of OUAT & other ICAR institutes | | | | |
| 2. | Livestock inspector | | | | |
| 3. | Veterinary doctor | | | | |
| 4. | KVK extension personnel | | | | |

- **Informal sources**

| Sl. No. | Particulars | Regularly (2) | Occasionally (1) | Never (0) |
|---|---|---|---|---|
| 1. | Family members | | | |
| 2. | Relatives | | | |
| 3. | Friends | | | |
| 4. | Dairy entrepreneur | | | |
| 5. | Para-extension workers | | | |

- **Media sources**

| Sl. No. | Particulars | Regularly (2) | Occasionally (1) | Never (0) |
|---|---|---|---|---|
| 1. | TV | | | |
| 2. | Radio | | | |
| 3. | News papers | | | |
| 4. | Agriculture literature | | | |
| 5. | Social media | | | |

**8. Cosmopoliteness**

| Sl. No. | Particulars | Agree | Undecided | Disagree |
|---|---|---|---|---|
| 1. | There is no need to collect additional information from outside of the village for successful dairy entrepreneur | **0** | **1** | **2** |
| 2. | A dairy entrepreneur should try to get information on dairy management practices from outside of his village by using mass media & social media facilities | **2** | **1** | **0** |
| 3. | A dairy entrepreneur learns many things from the happenings and experiences of his village only | **0** | **1** | **2** |
| 4. | Keeping contact with progressive dairy entrepreneur is useful for managing the dairy enterprise | **2** | **1** | **0** |
| 5. | Visiting the subject matter specialist is waste of time | **0** | **1** | **2** |
| 6. | Cattle exhibition / Agricultural Exhibition helps to gather recent information | **2** | **1** | **0** |

**9. Self-confidence**

| Sl. No. | Particulars | Yes | No |
|---|---|---|---|
| 1. | Do you have difficulty in saying the right opinion at the right time? | **0** | **1** |
| 2. | Do you frequently feel unworthy? | **0** | **1** |
| 3. | Can you adjust readily to new situation? | **1** | **0** |
| 4. | Do you feel it hard to keep your mind on a task / job? | **0** | **1** |
| 5. | Do you have enough faith in yourself to make profit in dairy enterprise? | **1** | **0** |
| 6. | Do you have relied on others to carry out all dairy activities? | **0** | **1** |

## PART-C: Constraints faced by dairy farmers

| Sl. No. | Particulars | YES/NO |
|---|---|---|
| **I.** | **Constraints in management of dairy enterprise** | |
| | **Feeding constraints** | |
| 1. | Unavailability of green fodder round the year | |
| 2. | Limited availability of clean & safe drinking water for animal | |
| 3. | Fluctuation in concentrate feed cost | |
| 4. | Inadequate grazing land for dairy animals | |
| | **Breeding constraints** | |
| 5. | Infertility related problems | |
| 6. | Problem of abortion | |
| 7. | Non-availability of quality breeding bulls | |
| 8. | Poor conception rate in Artificial Insemination | |
| 9. | Distance to AI centre/hospital | |
| | **Health care** | |
| 10. | Vulnerability of indigenous dairy animals to diseases | |
| 11. | Non-availability of timely healthcare services | |
| 12. | Lack of awareness of deworming of milch animals | |
| 13. | Difficulty in following correct and timely vaccination schedule | |
| 14. | Distance to veterinary hospital | |
| | | |
| **II.** | **Informational constraints** | |
| 1. | Inadequate knowledge on scientific housing | |
| 2. | Insufficient training programs on scientific dairy management practices | |
| 3. | Lack of information about government schemes related to dairy | |
| 4. | Lack of awareness on insurance facilities and their utilization | |
| 5. | Lack of knowledge in marketing strategies | |
| | | |
| **III.** | **Financial constraints** | |
| 1. | High cost of cross breed dairy animal | |
| 2. | High cost of veterinary medicines | |

| | | |
|---|---|---|
| 3. | High cost of cattle feed & concentrate mixture | |
| 4. | Non availability of capital and loan at proper time | |
| | | |
| **IV.** | **Marketing constraints** | |
| 1. | Non-Remunerative prices of milk | |
| 2. | Inadequate availability of regular market | |
| 3. | Distance to dairy cooperative societies | |
| 4. | Irregular market demand for milk & value-added milk products | |
| 5. | Exploitation by middle man / milk man | |
| 6. | Problems of packaging & transportation | |
| 7. | Lack of proper storage facilities | |
| 8. | Non-availability of infrastructure for value addition of milk | |

# Entrepreneurial behaviour of dairy farmers in Mayurbhanj district of Odisha

*by* Lipsita Mohanty

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