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Research Article

Dairy Work to Entrepreneurship: Exploring Women Entrepreneurial Behaviour Among Dairy Cooperative Members in Eastern Dry Zone of Karnataka

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Abstract

Entrepreneurship is an important aspect of women participation in dairy farming. Women contribute to various activities such as managing dairy enterprises, adopting improved practices, processing milk and marketing dairy products. These activities enable them to identify business opportunities and make productive use of available resources. Dairy cooperatives can play a useful role in developing entrepreneurial abilities among women by providing training, technical guidance, market information and institutional support. This study looked at how entrepreneurially women dairy cooperative members behave in the Eastern Dry Zone of Karnataka. Data were collected from 240 women in Tumkur and Chikkaballapura districts, 60 small-farm and 60 big-farm women from each, using a 25-statement schedule on enterprise practices. Mann Whitney U, Kruskal-Wallis, path, discriminant and logistic regression analyses were used to examine differences between groups and the factors behind them.

Women followed milk quality standards and managed their time and labour well, and most used cooperative support to find buyers. Reinvesting income, evaluating enterprise profit, selling under their own label and making long-term plans were far less common, especially among small-farm women. Big-farm women showed significantly higher entrepreneurial behaviour than small-farm women in both districts. Achievement motivation, marketing behaviour, annual income, scientific orientation and herd size had the strongest effects, and risk-bearing ability, herd size, organisational participation, income and scientific orientation best separated women with low, medium and high entrepreneurial behaviour. The factors that mattered differed by district and farm size. Dairy cooperatives are useful entry points, but support is needed beyond milk collection, particularly in financial management, value addition and branding, and tailoring it to farm size.

Keywords: Entrepreneurship; Women Dairy Farmers; Dairy Cooperatives; Value Addition; Marketing

Introduction

Dairy farming is an important livelihood activity in rural areas, with women playing a substantial role in animal care, milking, processing and marketing. Their involvement extends across various stages of dairy production, making them an integral part of the dairy-based livelihood system. However, the contribution of women to dairy farming is not limited to performing routine farm operations; it also provides opportunities for them to engage in entrepreneurial activities and strengthen their economic participation. Entrepreneurship introduces a business-oriented perspective to dairy farming by encouraging women to take initiative, identify emerging opportunities, make informed decisions and undertake activities beyond conventional milk production. Dairy cooperatives can play an important role in facilitating the entrepreneurial development of women by providing access to organised markets, technical guidance, training, institutional support and information on government programmes. Through cooperative participation, women can gain greater exposure to enterprise-related opportunities and resources that may support the development and expansion of their dairy activities. Nevertheless, the transition from routine dairy production to entrepreneurial engagement may be constrained by limited financial resources, inadequate technical knowledge, restricted access to improved technologies, infrastructure deficiencies and market-related challenges.

Entrepreneurial behaviour in dairy farming reflects the extent to which women translate their existing knowledge and skills into purposeful economic activities and enterprise development. It involves the ability to take initiative, identify and respond to opportunities, make calculated decisions, adopt innovative practices and adapt to changing production and market conditions. Women demonstrating such behaviour may gradually move beyond routine dairy operations towards greater involvement in enterprise planning, financial management, investment, value addition and business-related decision-making. Thus, examining entrepreneurial behaviour among women dairy cooperative members provides an important understanding of their participation in dairy-based enterprise development and the opportunities available for strengthening their entrepreneurial engagement.

Objective

To examine the entrepreneurial behaviour and activities of dairy farm women.

Methodology

The study was conducted in Tumkur and Chikkaballapura districts of Karnataka among women dairy cooperative members. A total of 240 respondents were selected, with 60 small farm and 60 big farm women from each district. Entrepreneurial behaviour was assessed using a structured schedule comprising 25 statements covering different dimensions of women entrepreneurial activities in dairy farming. Responses were recorded and scores were assigned to obtain the entrepreneurial behaviour of the respondents. The data collected were subjected to appropriate statistical analysis, including descriptive statistics, Mann Whitney U test, Pearson's correlation, multiple regression and path analysis, to examine the entrepreneurial behaviour and its associated factors among women dairy farmers.

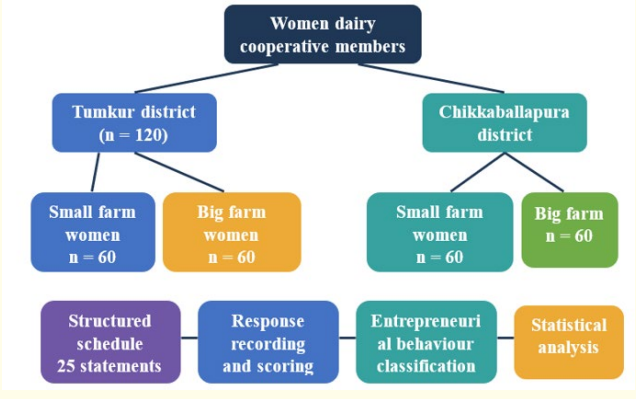


Figure 1: Sampling Structure and Data Collection.

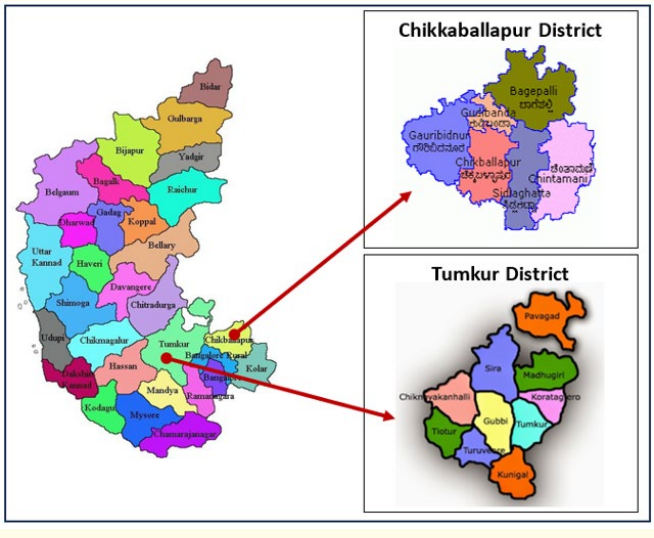


Figure 2: Map Depicting Study area of Research.

Results and Discussion

Table 1 reveals entrepreneurial behaviour of farm women was assessed through 25 statements grouped under five dimensions, namely entrepreneurial initiation and enterprise planning, production and resource management, marketing and customer development, financial management and value addition, and institutional linkages and scheme utilization. The responses revealed considerable variation in the adoption of entrepreneurial practices among small and big farm women of Tumkur and Chikkaballapura districts. With respect to.

Entrepreneurial initiation and enterprise planning

Initiating dairy-based activities with the intention of earning regular income was reported by 91.70 per cent of big farm women in Tumkur, followed by 70.00 per cent in Chikkaballapura. Similarly, expansion of dairy activities beyond routine milk production was reported by 83.33 per cent of big farm women in Chikkaballapura. However, developing long-term plans for sustaining or expanding dairy enterprises was reported by only 10.00 per cent of small farm women in Tumkur, indicating limited emphasis on long-term enterprise planning.

Production and resource management

Following quality standards while producing milk or value-added dairy products was reported by all respondents (100.00%) across the four categories. Efficient management of time and labour was also prominent among big farm women in Chikkaballapura (88.30%). Adoption of improved methods or tools was reported by 70.00 per cent of big farm women in Tumkur and 66.70 per cent in Chikkaballapura. In contrast, receipt of equipment or infrastructure support through entrepreneurship development schemes was reported by only 6.70 per cent of small farm women in Tumkur.

Marketing and customer development

The use of mobile phones or WhatsApp for communicating with customers was reported by 93.30 per cent of big farm women in Tumkur, followed by 83.30 per cent in Chikkaballapura. Direct contact with buyers or traders was highest among small farm women in Chikkaballapura (81.70%). Further, an increase in the number of customers after joining the cooperative was reported by 91.70 per cent of big farm women in Tumkur. However, exploration of new local markets was reported by only 23.30 per cent of small farm women in Tumkur.

Financial management and value addition

Cooperative encouragement for diversifying dairy activities into value-added products was reported by 80.00 per cent of big farm women in Tumkur and 65.00 per cent in Chikkaballapura. Selling value-added dairy products under their own name or label was reported by 41.70 per cent of big farm women in Chikkaballapura. However, reinvestment of income from dairy or value-addition activities into the enterprise was reported by only 5.00 per cent of small farm women in Chikkaballapura and 6.70 per cent in Tumkur. Evaluation of enterprise performance based on income or profit was also relatively low, particularly among big farm women in Tumkur (10.00%).

Institutional linkages and scheme utilization

Cooperative support in finding markets for value-added dairy products was reported by 93.30 per cent of small farm women in Tumkur, followed by 81.70 per cent of big farm women in the same district. Awareness of government schemes supporting dairy-based entrepreneurship was highest among big farm women in Chikkaballapura (55.00%), followed by small farm women in the same district (51.67%). Receipt of benefits from dairy or entrepreneurship development schemes was reported by 81.70 per cent of big farm women in Tumkur. However, utilization of scheme benefits for processing, packaging or storage was reported by only 6.70 per cent of small farm women in Chikkaballapura.

Overall, the findings indicate that quality maintenance, customer communication and cooperative market support were prominent entrepreneurial practices. In contrast, long-term planning, reinvestment of income, enterprise performance evaluation and utilization of scheme benefits for value addition were comparatively less reported. This highlights the need to strengthen financial management, enterprise planning and effective utilization of institutional support among women dairy cooperative members.

District wise entrepreneurial behaviour of women dairy farmers

Table 2 shows the distribution of women dairy farmers according to their level of entrepreneurial behaviour. In Tumkur, small-farm women were predominantly in the medium category (41.60%), whereas big-farm women had a relatively higher proportion in the

Sl. No.	Entrepreneurship Behaviour	Tumkur								Chickkaballapura							
		Small farm women $n_3 = 60$				Big farm women $n_4 = 60$				Small farm women $n_5 = 60$				Big farm women $n_6 = 60$			
		Yes		No		Yes		No		Yes		No		Yes		No	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
A	Entrepreneurial Initiation and Enterprise Planning																
1	Initiated dairy-based activity with the intention of earning regular income rather than occasional sales	45	75.00	15	25.00	55	91.70	05	08.30	25	41.70	35	58.30	42	70.00	18	30.00
2	Plan dairy activities by estimating expected costs and returns in advance	24	40.00	36	60.00	39	65.00	21	35.00	20	33.33	40	66.67	48	80.00	12	20.00
3	Expanded dairy activities beyond routine milk production after joining the cooperative	31	51.67	29	48.33	42	70.00	18	30.00	33	55.00	27	45.00	50	83.33	10	16.70
4	Increased the scale of dairy or value-addition activities over time	30	50.00	30	50.00	46	76.70	14	23.30	15	25.00	45	75.00	36	60.00	24	40.00
5	Developed long-term plans for sustaining or expanding dairy-based enterprises	06	10.00	54	90.00	35	58.30	25	41.70	23	38.30	37	61.70	30	50.00	30	50.00
B	Production and Resource Management																

6	Adopted improved methods or tools to increase efficiency in dairy or value-addition activities	25	41.70	35	58.30	42	70.00	18	30.00	23	38.30	37	61.70	40	66.70	20	33.30
7	Manage time and labour efficiently for dairy and value-addition activities	37	61.70	23	38.30	45	75.00	15	25.00	42	70.00	18	30.00	53	88.30	07	11.70
8	Follow quality standards while producing milk or value-added dairy products	60	100.00	0	0	60	100.00	0	0	60	100.00	0	0	60	100.00	0	0
9	Capable of managing production, processing, and marketing of value-added dairy products as a business.	19	31.70	41	68.30	36	60.00	24	40..00	12	20.00	48	80.00	44	73.30	16	26.70
10	Received equipment or infrastructure support through entrepreneurship development schemes	04	06.70	56	93.30	47	78.30	13	21.70	27	45.00	33	55.00	44	73.30	16	26.70
C	Marketing and Customer Development																

11	Direct contact with buyers or traders for selling milk or value-added dairy products	37	61.70	23	38.30	40	66.70	20	33.30	49	81.70	11	18.30	33	55.00	27	45.00
12	Explored new local markets for selling milk or value-added dairy products	14	23.30	46	76.70	38	63.30	22	36.70	24	40.00	36	60.00	41	68.30	19	31.70
13	Increased the number of customers after joining the dairy cooperative	45	75.00	15	25.00	55	91.70	05	08.30	41	68.30	19	31.70	38	63.30	22	36.70
14	Regularly supply milk or dairy products to shops, hotels, or institutions	12	20.00	48	80.00	35	58.30	25	41.70	29	48.30	31	51.70	52	86.70	08	13.30
15	Use mobile phone or WhatsApp to communicate with customers for dairy product sales	50	83.30	10	16.70	56	93.30	04	06.70	16	26.70	44	73.30	50	83.30	10	16.70
D	Financial Management and Value Addition																
16	Reinvested income from dairy or value-addition activities back into the enterprise	04	06.70	56	93.30	17	28.30	43	71.70	03	05.00	57	95.00	30	50.00	30	50.00

17	Evaluate the performance of your dairy enterprise based on income or profit generated	18	30.00	42	70.00	06	10.00	54	90.00	15	25.00	45	75.00	25	41.70	35	58.30
18	Sell value-added dairy products under your own name or label	12	20.00	48	80.00	20	33.30	40	66.70	22	36.70	38	63.30	25	41.70	35	58.30
19	Cooperative support has encouraged to diversify dairy activities into value-added products	34	56.70	26	43.30	48	80.00	12	20.00	29	48.30	31	51.70	39	65.00	21	35.00
20	Utilized scheme benefits for processing, packaging, or storage of dairy products	06	10.00	54	90.00	31	51.67	29	48.30	04	06.70	56	93.30	26	43.30	34	56.70
E	Institutional Linkages and Scheme Utilization																
21	Received support from the cooperative in finding markets for value-added dairy products	56	93.30	04	06.70	49	81.70	11	18.30	44	73.30	16	26.70	41	68.30	19	31.70
22	Aware of government schemes that support dairy-based entrepreneurship for women	22	36.70	38	63.30	25	41.70	35	58.30	31	51.67	29	48.30	33	55.00	27	45.00

23	Received information about entrepreneurship development schemes through the dairy cooperative	34	56.70	26	43.30	48	80.00	12	20.00	29	48.30	31	51.70	39	65.00	21	35.00
24	Received benefits from dairy or entrepreneurship development scheme	20	33.33	40	66.70	49	81.70	11	18.30	29	48.30	31	51.70	30	50.00	30	50.00
25	Received financial assistance or subsidy under any dairy entrepreneurship scheme	12	20.00	48	80.00	45	75.00	15	25.00	26	43.30	34	56.70	39	65.00	21	35.00

Table 1: Entrepreneurial Behaviour of Women Dairy Cooperative Members (n = 240).

high category (38.34%). In Chikkaballapura, small-farm women were mainly in the low category (36.70%), while big-farm women were predominantly in the medium category (43.30%). The overall mean entrepreneurial behaviour score was 13.95 with a standard deviation of 3.93.

The variation across groups indicates that entrepreneurial behaviour was not uniform among the respondents. The relatively higher proportion of big farm women in the high or medium categories may be associated with their greater scope for dairy enterprise development, whereas the concentration of small farm women in the low or medium categories may reflect comparatively limited opportunities for expansion and diversification.

Sl. No.	Category	Tumkur (n_1 = 120)				Chikkaballapura (n_2 = 120)			
		Small farm women n_3 = 60		Big farm women n_4 = 60		Small farm women n_5 = 60		Big farm women n_6 = 60	
		No	%	No	%	No	%	No	%
1	Low (Mean-0.5*SD) (<11.98)	19	31.70	20	33.33	22	36.70	19	31.70
2	Medium (11.98-15.91)	25	41.60	17	28.33	18	30.00	26	43.30

3	High (Mean+ 0.5*SD) (>15.91)	16	26.70	23	38.34	20	33.30	15	25.00
Mean -13.95 SD – 3.93									

Table 2: District wise Entrepreneurial Behaviour of Women Dairy Farmers (n = 240).

Comparative analysis of entrepreneurial behaviour of women dairy cooperative members

The Mann Whitney U test revealed a significant difference in entrepreneurial behaviour between small- and big-farm women in both Tumkur and Chikkaballapura. In Tumkur, big-farm women recorded a substantially higher mean rank (89.45) than small-farm women (31.55), with a U value of 63 ($p < 0.01$). Similarly, in Chikkaballapura, the mean rank was higher among big-farm women (87.15) than small-farm women (33.85), with a U value of 201 ($p < 0.01$). The Kruskal Wallis test also showed a significant difference among the groups ($H = 157.616$, $p < 0.01$).

The significantly higher entrepreneurial behaviour among big farm women in both districts may be attributed to their larger resource base, higher production capacity, greater financial flexibility and wider scope for enterprise expansion and marketing. In contrast, small farm women may have fewer resources and limited capacity to invest in diversification and value added activities. The consistency of the results across both districts indicates that farm size is an important factor associated with entrepreneurial behaviour among women dairy farmers.

Sl. No.	Comparison	Small Farm Women Mean Rank	Big Farm Women Mean Rank	U Value	p Value
1	Tumkur	31.55	89.45	63	0.001**
2	Chikkaballapura	33.85	87.15	201	0.001**
3	Overall	66.18	174.82	682	0.001**
Kruskal-Wallis H = 157.616, p = 0.001 **		** Significant at 1% level of probability (p < 0.01) * Significant at 5% level of probability (p < 0.05)			

Table 3: Comparative Analysis of Entrepreneurial Behaviour of Women Dairy Cooperative Members (n = 240).

Path analysis - Direct, indirect and total effects of profile variables on entrepreneurial behaviour

Table 4 presents the direct, indirect and total effects of selected variables on the entrepreneurial behaviour of women dairy farmers. Achievement motivation recorded the highest total effect (r = 0.449), followed by marketing behaviour (r = 0.425) and annual income (r = 0.404). Scientific orientation (r = 0.365) and herd size (r = 0.348) also recorded relatively higher total effects. Information-seeking behaviour (r = 0.330), organisational participation (r = 0.307), level of aspiration (r = 0.266), education (r = 0.260), economic motivation (r = 0.259), training participation (r = 0.243) and extension contact (r = 0.216) showed positive total effects. Extension participation (r = 0.156), experience (r = 0.137), age (r = 0.061), marital status (r = 0.012) and family size (r = 0.011) recorded comparatively lower effects.

The pattern indicates that motivational, economic, marketing, knowledge and enterprise-related factors had greater effects within the path model, whereas demographic characteristics showed relatively smaller effects. Achievement motivation may encourage women to set goals and take initiative, while marketing exposure and higher income may provide greater opportunities and resources for enterprise development. Similarly, scientific orientation, information seeking and organisational participation may facilitate access to improved practices, knowledge and institutional support. The relatively higher effect of herd size may reflect the greater scope for managing and expanding dairy activities.

The model explained 85.00 per cent of the variation in entrepreneurial behaviour (R^2 = 0.850), with a residual path coefficient of 0.387, indicating that the variables included in the model accounted for a substantial proportion of the observed variation.

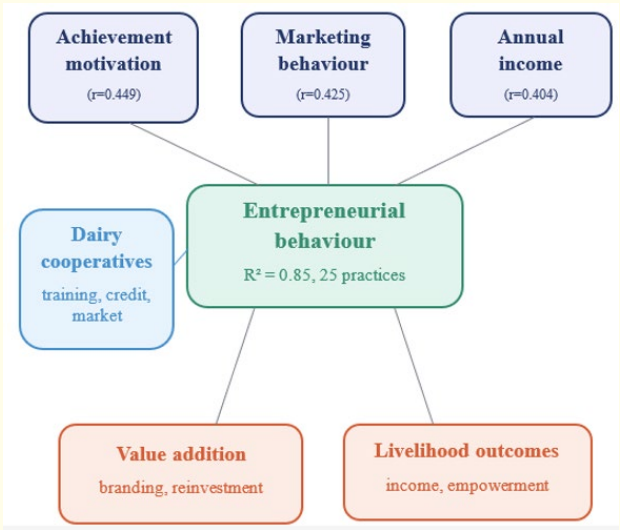


Figure 3: Conceptual framework linking determinants, entrepreneurial behaviour.

Profile Variable	Direct (β) Effects	Indirect (β) Effects	Total (r) Effects	Contribution	Rank
Age	0.082	-0.021	0.061	Low	15
Education	0.174	0.086	0.260	Moderate	7
Marital Status	0.023	-0.011	0.012	Low	17
Experience	0.096	0.041	0.137	Low	13
Family Size	-0.018	0.029	0.011	Low	16
Annual Income	0.286	0.118	0.404	High	3
Herd Size	0.251	0.097	0.348	High	5
Training Participation	0.168	0.075	0.243	Moderate	8
Extension Participation	0.112	0.044	0.156	Low	11
Extension Contact	0.154	0.062	0.216	Moderate	9
Organizational Participation	0.218	0.089	0.307	Moderate	6
Scientific Orientation	0.274	0.091	0.365	High	4
Achievement Motivation	0.341	0.108	0.449	High	1
Level of Aspiration	0.192	0.074	0.266	Moderate	6
Economic Motivation	0.178	0.081	0.259	Moderate	7
Information Seeking Behaviour	0.236	0.094	0.330	Moderate	5
Marketing Behaviour	0.298	0.127	0.425	High	2
R^2 = 0.85 Residual Path = 0.387					

Table 4: Path Analysis - Direct, Indirect and Total Effects of Profile Variables on Entrepreneurial Behaviour (n = 240).

Discriminant function analysis (DFA) of entrepreneurial behaviour

Discriminant analysis was carried out to identify the variables that best differentiated farm women into low, medium and high entrepreneurial behaviour groups. The overall classification accuracy was 74.2 per cent, indicating that nearly three-fourths of the respondents were correctly classified into their respective groups. The Wilks' Lambda value of 0.362 and χ^2 value of 218.40 with 34 degrees of freedom were statistically significant ($p < 0.01$), confirming the significance of the discriminant function. The relatively low Wilks' Lambda indicated substantial discrimination among the three groups.

Risk-bearing ability (0.512) emerged as the highest discriminating variable, followed by herd size (0.418), organizational participation (0.387), annual income (0.341) and scientific orientation (0.298). The prominent role of risk-bearing ability may be associated with the willingness of farm women to undertake new practices and manage uncertainty in dairy enterprises. Herd size may provide greater scope for production, income generation and enterprise expansion. Organizational participation can facilitate access to information, training and technical support, while higher annual income may provide greater capacity for investment in dairy activities. Scientific orientation may encourage the adoption of improved technologies and scientific management practices. Thus, these factors showed greater discriminatory power in distinguishing respondents across the entrepreneurial behaviour groups.

The group centroids also showed a clear separation among the three categories. The low entrepreneurial behaviour group had centroid values ranging from -1.487 to -0.318, while the medium group ranged from -0.612 to +0.687. The high group recorded centroid values ranging from +0.587 to +2.114. The progressively higher centroid positions from the low to high group indicate the ability of the discriminant function to differentiate respondents according to their entrepreneurial behaviour level.

Overall, the discriminant analysis showed that risk-bearing ability, herd size, organizational participation, annual income and scientific orientation were the major variables contributing to the differentiation of farm women across entrepreneurial behaviour groups. The significant discriminant function and 74.2 per cent classification accuracy suggest that the selected variables provided a reasonably good basis for group differentiation.

Particulars	Entrepreneurial Behaviour
Overall Classification Accuracy (%)	74.2
Wilks' Lambda	0.362
χ^2	218.4
df	34
Significance	0.000**
Major Discriminating Variables	Risk Bearing Ability (0.512); Herd Size (0.418); Organizational Participation (0.387); Annual Income (0.341); Scientific Orientation (0.298)
Low Group Centroid	-1.487 to -0.318
Medium Group Centroid	-0.612 to +0.687
High Group Centroid	+0.587 to +2.114

Table 5: Discriminant Function Analysis (DFA) of Entrepreneurial Behaviour.

** Significant at 1% level of probability ($p < 0.01$).

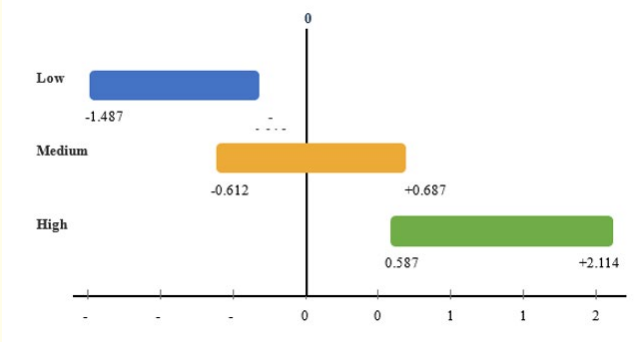


Figure 4: Graph indicating Values of Discriminant Functional Analysis of Entrepreneurial Behaviour.

The centroid graph revealed a clear separation among the three entrepreneurial behaviour groups. The Low group recorded negative discriminant scores ranging from −1.487 to −0.318, while the High group showed positive scores ranging from 0.587 to 2.114. The Medium group ranged from −0.612 to 0.687, indicating an intermediate position with some overlap with the Low and High groups. Overall, the results suggest that the discriminant function effectively differentiated the respondents according to their level of entrepreneurial behaviour.

Logistic regression analysis of entrepreneurial behaviour

Logistic regression analysis was carried out separately for Tumkur small (TMK Small), Tumkur big (TMK Big), Chikkaballapura small (CBP Small) and Chikkaballapura big (CBP Big) farm women to identify the variables associated with the respective binary outcome. Model performance and significant predictors are presented in the table 6.

For TMK Small farm women, the model recorded a classification accuracy of 71.7 per cent and a Nagelkerke R^2 of 0.201. The -2 Log Likelihood value was 70.284, while the χ^2 value of 9.596 was significant ($p < 0.01$), indicating that the model was statistically significant. Among the predictors, age (OR = 2.08) and experience (OR = 1.46) had odds ratios greater than one, whereas education (OR = 0.59) had an odds ratio below one. The higher odds associated with age and experience may reflect the role of accumulated practical knowledge and familiarity with farm management. The association with education may vary depending on the extent to which formal knowledge is applied to farming activities.

For TMK Big farm women, the model showed a classification accuracy of 86.7 per cent and a Nagelkerke R^2 of 0.501, indicating comparatively greater explanatory power. The -2 Log Likelihood was 44.289 and the χ^2 value of 25.300 was significant ($p < 0.01$). Age (OR = 2.49) showed an odds ratio above one, while organizational participation (OR = 0.29) and economic motivation (OR = 0.50) had odds ratios below one. The association with age may be related to accumulated farming experience and decision-making familiarity. The lower odds associated with organizational participation and economic motivation suggest that their relationship with the outcome was not uniform and may depend on the nature and extent of participation and economic circumstances of the respondents.

For CBP Small farm women, the model achieved a classification accuracy of 73.3 per cent and a Nagelkerke R^2 of 0.140. The -2 Log Likelihood was 72.365, with a significant χ^2 value of 6.494 ($p < 0.05$). Achievement motivation (OR = 0.69) and risk-bearing ability (OR = 0.75) had odds ratios below one, whereas family size (OR = 1.36) had an odds ratio above one. The association of family size with the outcome may be related to the availability of family labour for dairy and farm activities. The relationships observed for achievement motivation and risk-bearing ability may reflect differences in the goals, resources and activities pursued by the respondents.

For CBP Big farm women, the model recorded a classification accuracy of 76.7 per cent and a Nagelkerke R^2 of 0.181. The -2 Log Likelihood was 59.644, and the χ^2 value of 7.837 was significant ($p < 0.05$). Age (OR = 1.63), education (OR = 1.44) and risk-bearing ability (OR = 1.79) had odds ratios greater than one. These associations suggest that accumulated experience, formal education and willingness to manage uncertainty were positively related to the modelled outcome in this group. Education may facilitate access to technical information and improved practices, while risk-bearing ability may be relevant to investment and management decisions associated with larger dairy enterprises.

Overall, the predictors varied across district and farm-size groups, indicating that the factors associated with the outcome were not uniform. Age was associated with the outcome in three groups, while risk-bearing ability appeared in both Chikkaballapura groups. The TMK Big model showed the highest classification accuracy (86.7%) and Nagelkerke R^2 (0.501), indicating comparatively better model performance. The group-wise differences highlight the importance of considering farm size and location when interpreting the factors associated with the outcome.

Group	Accuracy (%)	Nagelkerke R^2	-2 Log Likelihood	χ^2	Sig.	Key Predictors (Odds Ratio)
TMK Small	71.7	0.201	70.284	9.596	**	Age (2.08), Education (0.59), Experience (1.46)
TMK Big	86.7	0.501	44.289	25.300	**	Age (2.49), Organizational Participation (0.29), Economic Motivation (0.50)
CBP Small	73.3	0.140	72.365	6.494	*	Achievement Motivation (0.69), Family Size (1.36), Risk-Bearing Ability (0.75)

CBP Big	76.7	0.181	59.644	7.837	*	Age (1.63), Education (1.44), Risk-Bearing Ability (1.79)

Table 6: Comparative Logistic Regression Model Fit and Significant Predictors of Entrepreneurial Behaviour (n = 240).

Note: ** p < 0.01; * p < 0.05. Accuracy (%) indicates overall classification accuracy, while Nagelkerke R^2 represents pseudo-R^2 model fit. Figures in parentheses against key predictors are odds ratios.

Conclusion

The study concluded that women role in dairy farming and their entrepreneurial behaviour were shaped by a combination of personal, socio-economic, psychological and institutional factors. The findings showed clear differences between small and big farm women and between Tumkur and Chikkaballapura districts. Risk-bearing ability, herd size, organizational participation, annual income and scientific orientation were important in differentiating women based on their entrepreneurial behaviour, while factors such as age, education, experience, family size and economic motivation also influenced the outcomes in different groups. Participation in dairy cooperatives provided women with better opportunities to improve their economic and financial position, although the benefits varied across groups. The study therefore highlights that improving women's performance in dairy farming cannot depend on financial support alone; they also need timely credit, technical knowledge, training, access to improved resources, organizational support, market linkages and encouragement to take calculated risks. Greater attention to these areas, particularly among small farm women, can help women strengthen their dairy enterprises, increase their income and become more confident and active in making decisions related to their farming and livelihoods [1-16].

Policy recommendations

- **Move cooperative support beyond milk collection:** Women already follow quality standards and use cooperatives to find buyers, but few reinvest income or track profit. Cooperatives should offer simple training on record-keeping, costing and reinvestment.
- **Build motivation and risk-taking, not only skills:** Achievement motivation and risk-bearing ability were among the strongest factors. Exposure visits, success stories of local women entrepreneurs and mentoring by established women can help.
- **Help small-farm women first:** They lagged on planning, reinvestment, branding and use of scheme benefits. Small-farm women need targeted credit, herd-building support and a clear route to the schemes they know little about.
- **Support value addition and branding:** Few women sold products under their own name. Training in processing, packaging, quality certification and branding for products like curd, paneer and ghee, with shared processing facilities, would help.
- **Strengthen market linkages and digital use:** Marketing behaviour was a leading factor, and phone and WhatsApp selling was uneven across groups, lowest among small-farm women in Chikkaballapura. Training in digital marketing and links to local shops, hotels and institutions would help.
- **Close the scheme awareness gap:** Awareness of entrepreneurship schemes was low in several groups. Cooperatives can run regular scheme camps and help women with applications for subsidies, equipment and processing support.
- **Encourage women's participation in cooperative leadership:** Organisational participation helped distinguish stronger entrepreneurs. Women need real roles in cooperative committees and decisions.
- **Tailor programmes by district and farm size:** The factors that mattered differed across the four groups, so one uniform programme will not fit. Small-farm women need capacity building and basic enterprise support, while big-farm women are ready for expansion and commercialisation.

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