

FACTORS INFLUENCING THE ADOPTION LEVEL OF IMPROVED DAIRY FARMING TECHNOLOGIES BY PERI-URBAN DAIRY FARMERS

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Abstract: The objective of the present study was to identify the factors influencing the adoption level of improved dairy farming technologies by peri-urban dairy farmers. To this survey, a sample of 120 dairy farmers was selected randomly from 10 peri-urban villages located in and around 10 km radius of the urban areas of Thanjavur city. The results of the study revealed that the co-efficient of multiple determination (R^2) was found to be was 0.669, indicating 66.90 per cent of variation in adoption level of peri-urban dairy farmers was due to the combined influence of all the selected independent variables. The regression analysis also explained that the variables, family income and economic motivation had positive and significant (1 % level) influence on the variability in adoption level of peri-urban dairy farmers. The variables *viz.*, education and milk production showed positive and significant (five per cent level) towards adoption level of peri-urban dairy farmers. Thus, it could be stated that an increase in the level of family income, economic motivation, education and milk production resulted in an increase in the level of adoption of peri-urban dairy farmers with respect to their co-efficient values.

Keywords: Socio-economic factors, Adoption level, Peri-urban dairy farmers, Dairy farming.

Introduction

Peri-urban dairy production system is gaining momentum an important supplier of fresh milk to urban centres, where the demand for milk and milk products is remarkably high. Dairying and Livestock form the backbone of Agriculture and deserve adequate focus in order to enhance the economic condition of farmers. Among livestock enterprises dairying has a prominent role in upliftment of socio-economic status of farmers. It assures a balanced development of the rural economy (Kumar *et al.*, 2011). It also ensures the food security to the millions of people living in rural, urban and peri-urban areas (Jha, 2003). To make the dairy business more profitable particularly in peri-urban areas, it is necessary for the dairy

farmers to possess sufficient knowledge and adopt improved dairy farming technologies. Socio-economic factors have an effect on improved dairy management practices and decision making process (Belay *et al.*, 2012). These factors will therefore affect the dairy management and production and to some extent the adoption level of the farmers. Considering these facts, the present study was designed to determine the socio-economic factors influencing the adoption level of improved dairy farming technologies by peri-urban dairy farmers in Thanjavur district of Tamil Nadu.

Research Methodology

An ex-post facto research design was adopted to know about the factors influencing the adoption level of peri-urban dairy farmers. The present study was carried out in 10 randomly selected peri-urban villages located in and around 10 km radius of the urban areas in Thanjavur city of Tamil Nadu. From each village 12 farmers were selected randomly and thus a total of 120 respondents were selected for the present research. The socio-economic factors of the farmers related to the study were selected from experts and in consultation with extension professionals, published literature, journals and books. Adoption in this study is referred as the positive decision taken by an individual subject to accept and adopt an innovation which represented his / her adoption behaviour.

The important dairy farming technologies were selected in the major areas of feeding, breeding, disease control, and management practices based on review of literature and by consulting with veterinary and extension specialists of TANUVAS, Chennai. The response for the adopters was assigned a unit score 'one' and non-adopters is given 'zero'. Based on total scores, the respondents were classified into three categories i.e., low, medium and high by calculating mean and standard deviation. Multiple linear regression analysis was applied to analyze the socio-economic factors influencing the adoption level of improved dairy farming technologies by peri-urban dairy farmers.

The following multiple linear regression model was fitted.

$$Y_a = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \mu$$

Where,

Y_a	=	Adoption level
α	=	Constant term
β_i 's	=	Regression co-efficients
X_i	=	Socio-economic variables

$$\mu = \text{Random disturbance term; } (\mu_i \sim 0, \sigma_i^2)$$

Results and Discussion

A perusal of the table-1 indicates that 41.67 per cent of the farmers had medium level of adoption of improved dairy management practices, followed by low (35.00 %) and high (23.33 %) extent of adoption. This might be due to the fact that the respondents migrated from rural areas still followed some traditional management practices. This is in conformation with the findings of Rezvanfar (2007) and Satyavir (2010).

The factors influencing the adoption level of dairy farmers in peri-urban dairy farming systems are presented in Table-2 through multiple linear regression analysis. The results revealed that the value of co-efficient of multiple determination (R^2) was 0.669, indicating 66.90 per cent of variation in adoption level of peri-urban dairy farmers was due to the combined influence of all the selected independent variables. The regression analysis also explained that the variables, family income (X_4) and economic motivation (X_{13}) had positive and significant (1 % level) influence on the variability in adoption level of peri-urban dairy farmers.

The variables *viz.*, education (X_2) and milk production (X_{10}) showed positive and significant (5 % level) towards adoption level of peri-urban dairy farmers. Similar results were reported by Quddus (2012) who concluded that the level of technology adoption by dairy farmers is highly significant and dependent on farmer's education, farming experiences, financial status and milk production. Rahman and Gupta (2014) also found positive and significant association between education status, herd size, annual milk production, annual gross income of the farmers and adoption level. Thus, it could be stated that an increase in the level of family income, economic motivation, education and milk production resulted in an increase in the level of adoption of peri-urban dairy farmers with respect to their co-efficient values.

Conclusion

The results of the study showed that the adoption level of improved dairy farming technologies by peri-urban dairy farmers was influenced by education, family income, milk production and economic motivation in the selected peri-urban areas. The level of technology adoption by peri-urban dairy farmers is highly dependent on farmer's education, financial status and milk production level. So, it is recommended training programme should be conducted to improve the knowledge of farmers about different improved dairy management technologies, so that milk production and productivity could be enhanced. Dairy scientists, Subject Matter Specialists (SMS), Veterinary Surgeons and related extension officers must

contact with farmers at regular intervals to increase awareness of scientific dairy farming to boost up their knowledge in the adoption of improved dairy farming technologies. Further, innovative ideas/technologies may be disseminated through latest e-extension tools for wider and effective reach to motivate the peri-urban dairy farmers to make dairy enterprise to adopt latest management techniques.

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Table 1: Distribution of respondents according to the adoption of improved dairy farming technologies

Sl. No.	Category	Frequency (N=120)	Percentage
1	Low	42	35.00
2	Medium	50	41.67
3	High	28	23.33

Table 2: Factors influencing the adoption level of dairy farmers in peri-urban dairy farming systems

Sl.No.	Independent variables	'b'	S.E.(b)	't' value
Constant		-8.397		
X ₁	Age	-0.041 ^{NS}	0.069	-0.492
X ₂	Education	0.118 [*]	0.527	1.702
X ₃	Occupational status	-0.029 ^{NS}	0.852	-0.482
X ₄	Family income	0.214 ^{**}	0.00	3.963
X ₅	Livestock possession	0.078 ^{NS}	0.262	0.825
X ₆	Land holding	-0.01 ^{NS}	0.794	-0.148
X ₇	Experience in dairy farming	0.085 ^{NS}	0.068	1.357
X ₈	Contact with extension agency	0.024 ^{NS}	0.89	0.374
X ₉	Investment in dairying	0.1 ^{NS}	0.00	1.265
X ₁₀	Milk production	0.203 [*]	0.093	1.933
X ₁₁	Marketing through co-operatives	-0.018 ^{NS}	3.21	-0.283
X ₁₂	Marketing through milk vendors	-0.072 ^{NS}	1.606	-1.051
X ₁₃	Economic motivation	0.331 ^{**}	0.275	4.974
X ₁₄	Attitude towards dairy farming	0.102 ^{NS}	0.26	1.17
R ² = 0.669 Adjusted R ² = 0.625 F = 15.189**				
** - Significant at 0.01 level of probability * - Significant at 0.05 level of probability NS - Non-significant				