A Comparative Analysis on the Management Efficiency of Dairy Entrepreneurs in Urban, Peri-urban and Rural Areas

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ABSTRACT

The study was carried out in Thanjavur district of Tamil Nadu state to analyze the differences in management efficiency among dairy farmers in three localities namely, urban, peri-urban and rural areas. A sample of 50 families comprising small (£ 4) and large (> 4) herd owning categories was selected from each of the urban, peri-urban and rural areas by applying proportionate random sampling technique, leading to a total sample size of 150 families. The findings revealed that majority of the respondents of urban area were found to be highly efficient in management of their dairy units as against one half of the respondents in peri-urban area and less than a half in rural area. The large herd owning respondents were significantly more efficient in the management of their dairy units than those owning small herds in rural and overall samples. Regardless of the localities, respondents maintaining large herds exhibited significantly higher mean score than those maintaining small herd in terms of their ability in planning, information seeking, rational marketing and risk orientation.

Key words: *Management efficiency; Dairy management efficiency;*

Dairying is an occupation that supports the livelihood of many people in India. It is considered as one of the subsidiary occupations of the rural people which play a crucial role in the national economy by generating income and employment. India's milk production registered a quantum jump from 22.5 million tonnes in 1970-71 to 76.87 million tonnes in 1998-99, which made India to reach the envious position of largest milk producer of the world (*Mathur, 2001*). Milk's contribution being the highest to the GDP amongst agricultural commodities, "production by the masses" rather than "mass production" is the key to unplug the bright future prospects of the dairy and food industry in India (*Singh, 2008*). Sustainability of dairy enterprise as a viable self-supporting unit for obtaining higher productivity of milch animals needs best possible use of the available resources like land, labour, capital, feed, etc. However, this largely depends on the efficiency of the dairy farmers in managing their dairy enterprise. The importance of this factor on the difference in milk outputs and in turn on profit between dairies bestowed

with similar resources was well established by several studies conducted in the past (*Raut, 1982; Balzar and Heinze, 1983; Goodger et. al., 1981; Kundu and Basu, 1987; Sharma and Patel, 1988; Kapgate et. al., 1994 and Palanichamy, 1996*).

Efficient management of the dairy enterprise largely depends on better knowledge and skills of the farmers in the dairy husbandry practices, better planning, decision making, risk taking and information seeking ability, adoption of scientific dairy husbandry practices, ability in mobilization and proper use of the resources, ability in co-ordinating various activities and effectiveness in marketing etc. Attempts to measure management efficiency of dairy farmers in many of the past studies have been fragmentary and covered only one aspect of this multi-faceted concept (*Goodger et. al., 1981*) and focused on assessing the effect of management factor as only an input on the production process of the dairy enterprise. For a clear understanding of the management efficiency of dairy entrepreneurs in urban, peri-urban and rural localities and to formulate location specific

management development strategies for them, a comprehensive approach encompassing various components underlying the concept is urgently required. Considering this in view, a study was carried out with the specific objective of analyzing the differences in management efficiency among dairy farmers in urban, peri-urban and rural areas.

METHODOLOGY

The study was carried out in the purposively selected Thanjavur district of Tamil Nadu state in three localities namely, urban, peri-urban and rural areas. Thanjavur town, which is the district headquarter and largest in terms of geographical area (36 sq. km.) was selected as the urban area for the study. The villages located within 10 km radius from the boundary of the Thanjavur town were considered as peri-urban area and villages located beyond 10 km from the boundary of the urban area were considered as rural area for the study. Five clusters of villages each from the peri-urban and rural areas; each comprising three villages were listed on the basis of higher milch animal population. From this, one cluster each from the peri-urban and rural areas was selected randomly.

For selection of the respondents, a list of dairy units with the number of dairy animals owned by the families living in the selected area was prepared separately for urban, peri-urban and rural areas with the help of veterinary personnel's of the Department of Animal Husbandry and Milk Producers Co-operative Societies, milk vendors (middlemen) and progressive dairy farmers operating in the respective areas. The families were then grouped into; small herd owning category (SHOR); if possessed one to four dairy animals and large herd owning category (LHOR); if possessed more than four dairy animals. A sample of 50 families comprising small and large herd size categories was selected from each of the urban, peri-urban and rural areas by applying proportionate random sampling technique, leading to a total sample size of 150 families. Any one adult member above 20 years of age and who was actively involved in the dairy farming activities of the selected families was considered as respondent for the study.

The management efficiency of dairy farmers was operationalized as the degree to which a farmer undertake mental as well as operational managerial activities with regard to dairy enterprise to get maximum benefit with available resources. In order to measure the management efficiency of dairy farmers, an index was developed using "Normalized rank approach method" recommended by *Guilford (1954)*. The steps followed for development of the management efficiency index were 1) identification and selection of various components of management efficiency, 2) Computation of scale values for each of the components, 3) measurement of each of the components of management efficiency, 4) Construction of management efficiency index and 5) testing of reliability and validity of the developed index. The different components of management efficiency identified were ability in planning, rationality in decision making, risk orientation, ability in seeking information, extent of adoption of improved dairy husbandry practices, efficiency in mobilization and use of resources, ability in co-ordinating activities and ability in rational marketing. Using the index developed, the data pertaining to the objective set forth were collected from the selected respondents through a structured interview schedule during November 2002 to January 2003 and the data were compiled, tabulated and analyzed using percentage, t-test, and one way analysis of variance.

RESULTS AND DISCUSSION

Distribution of respondents according to overall management efficiency index : It could be observed from Table1 that regardless of herd size categories, majority of the respondents from urban locality (78.00%) were found to be highly efficient in the management of their dairy enterprise. Fifty per cent each of the respondents were found to fall under less and more efficient categories in peri-urban area whereas more than a half of the respondents of rural area (56.00%) were found to be less efficient in terms of management of their dairy units. High level of knowledge, high economic and achievement motivation, high self confidence and proneness to adopt dairy innovations besides having high commercial orientation, progressive outlook and competition orientation among urban dairy farmers might be the reasons that influenced them to put more efforts in the effective management of their dairy units as compared to peri-urban and rural respondents in order to achieve optimum returns.

Table 1. Distribution of respondents according to management efficiency index

Locale	Levels	
	Low (<70.88)	High (>70.88)
Urban		
SHOR (n=29)	08 (27.59)	21 (72.41)
LHOR (n=21)	03 (14.29)	18 (85.71)
Total (n=50)	11 (22.00)	39 (78.00)
Peri-urban		
SHOR (n=32)	18 (56.25)	14 (43.75)
LHOR (n=18)	07 (38.89)	11 (61.11)
Total (n=50)	25 (50.00)	25 (50.00)
Rural		
SHOR (n=34)	21 (61.76)	13 (38.24)
LHOR (n=16)	7 (43.75)	09 (56.25)
Total (n=50)	28 (56.00)	22 (44.00)
Overall		
SHOR (n=95)	47 (49.47)	48 (50.53)
LHOR (n=55)	17 (30.91)	38 (69.09)
Total (N=150)	64 (42.67)	86 (57.33)

Figures in parentheses indicate percentages

Table 2. Differences in mean scores of management efficiency between small and large herd owning respondents (N=150)

Locale	Mean scores		't' value
	SHOR	LHOR	
Urban	74.65	75.39	0.42**NS**
Peri-urban	70.06	72.71	1.06**NS**
Rural	63.77	72.21	2.99**
Overall	69.31	73.59	2.89**

**- Significant at 0.01 level of probability, NS-Non-significant

Table 1 further reveals that category wise, large herd owning respondents in all the three localities had comparatively better management efficiency than those owning small herds. Thus, an increase in number of animals seemed to have an influence on the management efficiency of the respondents. The overall results show that about 57.00 per cent of the respondents were more efficient in managing their dairy units irrespective of the herd size and locality.

Differences in the mean scores of management efficiency between small and large herd owning respondents : Table 2   reveals that the large herd owning respondents had higher mean values than those

owning small herds in each of the urban, peri-urban and rural areas as well as in overall sample. However highly significant (p<0.01) differences were found only in rural and overall sample.

Differences in the mean scores in respect of different components of management efficiency between small and large herd owning respondents:

Urban area : Table 3 clearly shows that in urban locality, the small herd owning respondents differed significantly (p<0.05) from the large herd owning respondents only in respect of ability in seeking information out of the eight components. The mean score of this component was higher among large herd owners than the small herd owning respondents.

Peri-urban area: Table 3 shows that small and large herd owning respondents of the peri-urban locality did not differ in any of the components of management efficiency.

Rural area : Table 3 indicates that in the rural area, the large herd owning respondents had higher mean scores in respect of all the components than the respondents owning small herds. The differences were found to be highly significant (p<0.01) in terms of ability in planning, information seeking and rational marketing and significant (p<0.05) in terms of rationality in decision making, risk orientation and ability in coordinating activities.

Overall sample : It is revealed in Table 3 that irrespective of the locality, the large herd owning respondents had higher mean scores than the small herd owners in respect of all the components except in efficient mobilization and use of resources. The differences were found to be significant in terms of ability in planning, seeking information, rational marketing (p<0.01) and risk orientation (p<0.05).

Differences between the respondents hailing from urban, peri-urban and rural areas in respect of management efficiency : Table 4 points out highly significant (p<0.01) differences in the levels of management efficiency between small herd owning respondents of urban, peri-urban and rural areas. However, the large herd owning respondents in the three areas were not differing statistically between them in terms of their management efficiency. Table 4 further reveals that the small herd owning respondents

Table 3. Differences in mean scores of different components of management efficiency between small and large herd owning respondents

S. No.	Components	Urban area (n=50)			Peri-urban area (n=50)			Rural area (n=50)			Overall (N=150)		
		Mean scores		't'	Mean scores		't'	Mean scores		't'	Mean scores		't'
		SHOR	LHOR	value	SHOR	LHOR	value	SHOR	LHOR	value	SHOR	LHOR	value
1	Ability in planning	8.31	8.81	1.54[NS]	7.09	7.72	1.74[NS]	6.53	8.31	3.63**	7.28	8.31	4.06**
2	Rationality in decision making	20.52	20.33	0.36[NS]	19.78	19.81	0.42[NS]	17.35	19.85	2.51*	19.15	19.85	1.32[NS]
3	Risk orientation	27.97	29.25	0.47[NS]	26.15	28.43	1.22[NS]	25.19	28.04	2.49*	26.46	28.04	2.39*
4	Ability in seeking information	16.34	19.05	2.21*	19.13	21.89	1.70[NS]	13.79	19.93	3.53**	16.44	19.93	3.96**
5	Extent of adoption of improved dairy husbandry practices	8.08	7.83	0.77[NS]	7.38	7.31	0.27[NS]	6.61	7.44	1.31[NS]	7.32	7.44	0.60[NS]
6	Efficiency in mobilization and use of resources	14.51	14.18	0.67[NS]	14.95	14.60	1.16[NS]	14.12	14.40	0.52[NS]	14.67	14.40	0.89[NS]
7	Ability in coordinating activities	6.79	6.48	0.89[NS]	6.38	6.78	1.16[NS]	5.41	6.58	2.31*	6.18	6.58	1.69[NS]
8	Ability in rational marketing	10.10	10.75	1.89[NS]	7.09	7.72	1.74[NS]	8.46	10.49	2.88**	9.14	10.49	4.98**

**- Significant at 0.01 level of probability, *- significant at 0.05 level of probability, NS- Non- significant.

Table 4. Differences in the levels of management efficiency of respondents of urban, peri-urban and rural areas (ANOVA)

Farmers category	Locale			'F' value
	Urban	Peri- urban	Rural	
SHOR (n=95)	74.65 (± 1.08)a	70.06 (±1.49)b	63.77 (±1.76)c	13.08**
LHOR (n=55)	75.39 (±1.42)	72.71 (±2.03)	72.21 (±1.69)	1.047[NS]

**- significant at 0.01 level of probability,
*- significant at 0.05 level of probability,
NS – Non-significant.

belonging to urban area had higher mean values of management efficiency followed by peri-urban and rural counterparts and each differed significantly (p<0.05) from one another. Similar observations were made with overall respondents, irrespective of the size of herd.

Differences between small herd owning respondents hailing from urban, peri-urban and rural areas in respect of various components of management efficiency : Table 5 shows highly significant differences (P<0.01) in the levels of each component of management

efficiency among small herd owning respondents of urban, peri-urban and rural areas except for efficiency in mobilization and use of resources. Small herd owners of the urban area had higher mean scores in all the components except for information seeking ability than those belonging to other areas. The mean score of ability in seeking information was higher among peri-urban respondents followed by urban and rural respondents.

Respondents from urban area had better ability in planning, rational marketing and risk orientation than the respondents belonging to peri-urban and rural areas, who were not differing significantly between them with regard to these components. Respondents hailing from urban and peri-urban areas did not differ significantly (p<0.05) with respect to rationality in decision-making and ability in coordinating activities, whereas rural respondents differed significantly (p<0.05) from both urban and peri-urban respondents. The extent of adoption of improved dairy husbandry practices and ability in seeking information, however, were found significantly different between the respondents in each of the urban, peri-urban and rural areas.

Table 5. Differences in the levels of different components of management efficiency between the respondents of urban, peri-urban and rural areas (ANOVA)

S. No.	Components	SHOR (n=95)				LHOR (n=55)				Overall (N=150)			
		U	PU (n=29)	R (n=32)	'F' (n=34)	U Value	PU (n=29)	R (n=32)	'F' (n=34)	U Value	PU (n=29)	R (n=32)	'F' (n=34)
1	Value Ability in planning	8.3^a (±0.22)	7.09^b (±0.23)	6.53^b (±0.30)	12.01**	8.81^a (±0.22)	7.72^b (±0.25)	8.3^{ab} (±0.31)	4.63*	8.52^a (±0.16)	7.32^b (±0.18)	7.10^b (±0.26)	4.22**
2	Rationality in decision making	20.52^a (±0.32)	19.78^a (±0.43)	17.35^b (±0.63)	11.44**	20.33 (±0.40)	19.81 (±0.48)	19.33 (±1.21)	0.44^{NS}	20.44^a (±0.25)	19.62^a (±0.51)	18.14^b (±0.48)	7.37**
3	Risk orientation	27.97^a (±0.58)	26.15^b (±0.66)	25.19^b (±0.62)	4.89**	29.25 (±1.17)	28.43 (±0.84)	26.50 (±0.92)	2.03^{NS}	28.16^a (±0.48)	27.14^{ab} (±0.61)	25.66^b (±0.52)	5.41**
4	Ability in seeking information	16.34^b (±0.75)	19.13^a (±0.96)	13.79^c (±0.73)	10.96**	19.05 (±1.00)	21.89 (±1.34)	18.88 (±1.43)	1.84^{NS}	17.48^b (±0.63)	20.12^a (±0.80)	15.42^c (±0.75)	10.52**
5	Extent of adoption	8.08^a (±0.20)	7.38^b (±0.17)	6.6^c (±0.21)	13.89**	7.83^a (±0.25)	7.31$_{ab}$ (±0.21)	7.06^b (±0.18)	3.23*	7.98^a (±0.16)	7.35^b (±0.13)	6.76^c (±0.16)	16.86**
6	Efficiency in mobilization and use of resources	14.51 (±0.34)	14.95 (±0.24)	14.12 (±0.40)	1.58^{NS}	14.18 (±0.31)	14.60 (±0.54)	14.45 (±0.32)	0.30^{NS}	14.37 (±0.24)	14.83 (±0.25)	14.22 (±0.29)	1.47^{NS}
7	Ability in coordinating activities	6.79^a (±0.23)	6.38^a (±0.20)	5.41^b (±0.28)	8.67**	6.48 (±0.26)	6.78 (±0.30)	6.50 (±0.35)	0.31^{NS}	6.66^a (±0.18)	6.52^a (±0.17)	5.76^b (±0.23)	6.32**
8	Ability in rational marketing	10.10^a (±0.19)	8.85^b (±0.29)	8.46^b (±0.35)	8.27**	10.75 (±0.27)	10.71 (±0.28)	10.00 (±0.33)	2.02^{NS}	10.36^a (±0.16)	9.46^b (±0.25)	9.02^b (±0.27)	8.60**

**- Significant at 0.01 level of probability, *Significant at 0.05 level of probability, NS- Non-significant.
Mean ± SE across the row bearing different superscripts are significant at 0.05 level of probability

Differences between large herd owning respondents hailing from urban, peri-urban and rural areas in respect of various components of management efficiency : Table 5 highlights that the large herd owning respondents of urban, peri-urban and rural areas showed significant (p<0.05) differences between them with respect to the levels of ability in planning and extent of adoption of improved dairy husbandry practices. Rest of the components did not reveal significant differences between the respondents of urban, peri-urban and rural areas.

Further, the study revealed that the large herd owners of the urban area had higher mean score with regard to ability in planning followed by their rural and peri-urban counterparts. The planning ability was found significantly (p<0.05) different between urban and peri-urban respondents. However, the respondents owning large herds in the rural area did not differ significantly (p<0.05) either from those belonged to urban or peri-

urban areas. Table 5 further shows that the large herd owners of urban area achieved higher mean score with respect to the extent of adoption of improved dairy husbandry practices followed by those in peri-urban and rural areas. Significant differences (p<0.05) in terms of adoption were found between urban and rural respondents, whereas the respondents of the peri-urban area did not differ significantly either from their urban or rural counterparts.

Differences between the respondents regardless of the herd size categories hailing from urban, peri-urban and rural areas in respect of various components of management efficiency : A perusal of Table 5 indicates the highly significant (p<0.01) differences in the levels of each component of management efficiency except in efficient mobilization and use of resources among the respondents of urban, peri-urban and rural areas. The respondents belonging to the urban area achieved higher mean scores for all

the components except in information seeking ability than the respondents of peri-urban and rural areas. Higher mean score for information seeking ability was observed among the respondents from peri-urban area.

Ability in planning and rational marketing were found to be better among urban respondents than those belonging to peri-urban and rural areas, whereas the peri-urban and rural respondents did not differ significantly between them with respect to these components. The respondents of urban area differed significantly (p<0.05) from the respondents of rural area in terms of their orientation towards taking risks. Respondents belonging to peri-urban area however were not found significantly different either from those in urban or rural areas.

Respondents hailing from urban and peri-urban areas did not differ significantly with respect to rationality in decision-making and ability in coordinating the activities of a dairy farm, whereas rural respondents were found significantly (p<0.05) different from those belonged to urban and peri-urban areas. The extent of adoption of improved dairy husbandry practices and ability in seeking information, however, were found significantly different between the respondents in each of the urban, peri-urban and rural areas.

CONCLUSION

Majority of the respondents of urban area were found to be highly efficient in management of their dairy units as against one half of the respondents in peri-urban area and less than a half in rural area. The large herd owning respondents were significantly more efficient in the management of their dairy units than those owning small herds in rural and overall samples. However, small and large herd owners did not differ significantly in urban and peri-urban areas. Component wise, large herd owners of urban area had significantly higher mean score than those of small herd owners only in respect of their ability in seeking information,. Small and large herd owning respondents in peri-urban area differed significantly only in terms of rational marketing. The large herd owning respondents from rural area had significantly better ability in planning, information seeking, coordination activities, rational marketing, risk orientation and rationality in decision making than those possessing small herds. Regardless of the localities, respondents maintaining large herds exhibited significantly higher mean score than those maintaining small herds in terms of their ability in planning, information seeking, rational marketing and risk orientation.

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