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ANALYSING THE FACTORS ASSOCIATED WITH THE INTENSITY OF CONSTRAINTS TO MILK PRODUCTION IN DIFFERENT DISTRICTS OF RURAL TAMIL NAIDU

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ABSTRACT

A study was designed to analyse the socio-economic factors associated with the intensity of constraints to milk production in different districts of rural Tamil Naidu. Multiple linear regression analysis was the tool employed to analyze the factors associated with the intensity of constraints. The results of the study in Kanchipuram district showed that out of the eleven variables taken for analysis, only three variables viz., Herd size, level of extension agency contact and cross-bred cattle rearing were found to be associated negatively at a significant level. In Erode district, land holding, age of the farmer, level of extension agency contact and local cattle rearing were found to be significantly associated. In Nagappattinam district, Herd size and level of extension agency contact were found to be significant. In Thoothukkudi district, land holding, age and educational status of the farmer, level of extension agency contact, way of marketing through milk producers' co-operative society and local milk vendor were found to be negatively associated with the intensity of constraints.

Key Words: *Milk Production, Constraints Intensity, Associated Factors.*

INTRODUCTION

Dairy farming as visualized by the farmers in Tamil Naidu state is part of an integrated agricultural system where dairy and agriculture complement each other. To judge whether the farmers are efficient or otherwise, understanding of the constraints perceived by the dairy farmers is important. To maximise the production and thereby farm income, the farmer depends on his limited resources available viz., inputs, genetic potential of the animal and feed quality apart from other socio-economic constraints. Alleviating the constraints in scientific management and skill of the farmer can definitely augment the profit (Manoharan *et al.*, 2003). Keeping these facts in mind the present study was designed to analyse the socio-economic factors associated with the intensity of these constraints.

MATERIALS AND METHODS

By applying multidimensional scaling method, the Tamil Naidu state was segmented into four homogenous milk zones based on the resource endowment of the districts favorable for dairy development. From the four zones the four districts viz., Kanchipuram, Erode, Nagappattinam and Thoothukkudi were selected to represent each zone based on the factor score obtained by them. From each district, 120 dairy farmers from 12 villages (10 farmers from each village) were selected by simple random sampling. In all, a total sample size of 480 dairy farmers was selected for the present study. Information relating to various problems faced by the dairy farmers in rearing crossbred, local cows and buffaloes were enlisted in a pre-tested interview schedule. The farmers were asked to rank the problems in the order of importance based on the severity of constraints as More severe, Severe, Mild severe, Less severe and Not severe. The intensity of constraints were given the score as More severe = 5, Severe = 4, Mild severe = 3, Less severe = 2 and Not severe = 1. The score given for all the enlisted constraints by each sample farmer was summed up to arrive at the constraint intensity perceived by each sample

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dairy farmer towards the enlisted constraints. To analyse the factors associated with the severity of constraints the following multiple linear regression model was fitted (Tyagi and Sohal, 1984).

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

Where,

C_y	=	Constraints intensity
α	=	Constant term
β_i 's	=	Regression coefficients
x_i	=	Socio-economic factors
X_1		Land Holding
X_2		Herd Size
X_3		Age of the farmer
X_4		Educational Status of the farmer
X_5		Extension Agency contact
X_6		Family Size
X_7		Way of Marketing – Milk Producers Co-operative Society
X_8		Way of Marketing – Private Dairies
X_9		Way of Marketing – Local Milk Vendor
X_{10}		Breed of cattle reared – Cross bred Cow
X_{11}		Breed of cattle reared – Local Cow
U	=	Random disturbance term; ($\mu_i \sim 0, \sigma_i^2$)

RESULTS AND DISCUSSION

Factors Associated with the Severity of Constraints in Milk Production

The results of the multiple linear regression analysis to analyse the socio-economic factors associated with the severity of constraints are given in Table 1. The results of the study in Kanchipuram district showed that out of the eleven variables taken for analysis, only three variables viz., Herd size, level of extension agency contact and cross-bred cattle rearing were found to be associated negatively at a significant level. In Erode district, land holding, age of the farmer, level of extension agency contact and local cattle rearing were found to be significantly associated. In Nagappattinam district, Herd size and level of extension agency contact were found to be significant. In Thoothukkudi district, land holding, age and educational status of the farmer, level of extension agency contact, way of marketing through milk producers' co-operative society and local milk vendor were found to be negatively associated with the intensity of constraints.

The farmers with lower age and lesser frequency of extension agency contact are found to be amenable to higher severity of constraints in milk production. Similarly the farmers marketing through MPCs and private dairies are negatively associated with constraint intensity, which infers that these farmers are subjected to lesser constraints. Since these ways of marketing ensure regular procurement and better payments based on scientific pricing through fat and SNF measurement, farmers are prone to lesser constraints. The factor crossbred rearing was found to be negatively associated with constraint score. Since cross bred cows have better productivity and fetch higher returns compared to indigenous cow and buffalo rearing, this variable had significant negative relationship with constraint intensity. The educational status of the sample dairy farmers had a highly significant ($P < 0.01$) and negative association with the constraint intensity in Thoothukudi district. Since the educated farmers could have better knowledge and attitude towards dairy farming, they perceived lesser constraint intensity. In Thoothukudi district the farmers who had marketed their milk produce through local milk vendor perceived lesser constraint, while this variable was not significant in all other sample districts. In Erode district the farmers rearing indigenous cow perceived significantly higher constraint intensity, although this variable was found to be non-significant in other sample districts.

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Table 1: Factors associated with the severity of constraints

Variables (X_i)		Regression Co-efficients (β_i 's)			
		Kanchipuram	Erode	Nagapattinam	Thoothukudi
Constant (α)		44.567 **	45.740 **	47.651 **	49.272 **
X_1	Land Holding	- 0.014	- 0.161 *	0.036	- 0.426 **
X_2	Herd Size	- 0.185 *	0.142	-0.259 **	0.044
X_3	Age of the farmer	- 0.053	- 0.300 **	-0.057	-0.112 *
X_4	Educational Status of the farmer	- 0.046	0.053	-0.026	-0.317 **
X_5	Extension Agency contact	- 0.338 **	- 0.215 **	-0.192 *	-0.363 **
X_6	Family Size	0.012	- 0.013	-0.093	0.010
X_7	Way of Marketing – Milk Producers Co-operative Society	0.037	0.034	-	-0.396 *
X_8	Way of Marketing – Private Dairies	- 0.016	0.154	0.018	-
X_9	Way of Marketing – Local Milk Vendor	0.060	0.184	-0.041	-0.403 *
X_{10}	Breed of cattle reared – Cross bred Cow	- 0.531 **	0.132	0.132	-0.127
X_{11}	Breed of cattle reared – Local Cow	- 0.007	0.358 **	0.539	-0.096
R^2		0.743	0.508	0.495	0.749
Adjusted R^2		0.716	0.458	0.448	0.726
F		28.323 **	10.156 **	10.672 **	32.210 **
N		120	120	120	120

Dependent variable = Constraint intensity
 ** = Significant at one per cent level ($p < 0.01$)
 * = Significant at five per cent level ($0.05 > p > 0.01$)

DISCUSSION

The results of the study to analyse the factors associated with constraint intensity in Kanchipuram district showed that out of the eleven variables taken for analysis, only three variables viz., Herd size, level of extension agency contact and cross-bred cattle rearing were found to be associated negatively at a significant level. In Erode district, land holding, age of the farmer, level of extension agency contact and local cattle rearing were found to be significantly associated. In Nagapattinam district, Herd size and level of extension agency contact were found to be significant. In Thoothukudi district, land holding, age and educational status of the farmer, level of extension agency contact, way of marketing through milk producers' co-operative society and local milk vendor were found to be negatively associated with the intensity of constraints.

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ACKNOWLEDGEMENT

The financial support through Senior Research Fellowship for the completion of this study provided by the Council of Scientific and Industrial Research (CSIR), New Delhi is gratefully acknowledged.

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