

Influence of Socio-Economic Variables on Dairy Farmer's Decision Regarding Milk Marketing System

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Abstract

The influence of socio-economic variables on dairy farmer's decision regarding milk marketing system was studied using primary data from member and non-member dairy farmers of Dairy Co-operative Society in Samastipur district (Bihar). The data were analyzed using *t* test and discriminant function technique. The results revealed that educational level, social participation and exposure to mass communication of dairy farmers were variables influencing decision making of dairy farmers significantly regarding the selection of milk marketing system (i.e. organized and unorganized) in the area of study.

Key words : Socio-economic variable, Dairy farmer, Decision, Milk, Marketing system.

Dairy farming is a dynamic and highly competitive industry in today's world. Efficient marketing of milk is as important as efficient production. India is the world's largest producer of milk. The production of milk in India rise from 17 million tonnes in 1950-51 to 100 MT in 2006-07. The growth is attributed to the success of operation flood program, cross breeding and artificial insemination program and also the increased availability of fodder due to green revolution, though the production of fodder in India is still much below the requirement. According to report of Government of India (2007) per capita availability of milk has increased from 124 g in 1950-51 to 245 g in 2006-07. It was observed by Halse (1980) that the intervention of milk collection, processing and marketing through dairy cooperatives in predominantly rural economy enhances milk production and with it, the income and living standard of rural households get increased. It is well known that socio-economic variables like education, economic resources help the people in developing awareness in all aspects of life. In rural India living standard of dairy farmers may influence their decision in preferring a particular milk marketing system (organized and unorganized). This aspect promoted us to under-take this study. The specific objective of the study was to identify the socio-economic variables which were influencing the farmer's decision to prefer the particular milk marketing system.

Methods

The study was based on primary data collected from the member and non-member of Dairy Co-operative Society (DCS). For this purposively a list of all the DCS villages of Mithila Milk Union was obtained from the Mithila Dugdh Utpadak Sahkari Sangh Ltd., Samastipur. Out of this list, a separate list of those villages which had at least 50 DCS member was prepared. Among those villages one village namely, Morsand Gokhula having 89 DCS members was randomly selected. The name of member farmers of Morsand Gokhula DCS with their size of holding was obtained from the Head/Pradhan/Person-in-charge and village level worker/Karmachari of the village and finally 40 DCS members were selected randomly. Simi-

Table 1. Test of significance for six variables for differentiating organized farmers from unorganized farm. NS—Non significant. *At 5% level of significance.

Variable	<i>t</i> -values
1. Caste (X_1)	0.1670 NS
2. Education (X_2)	2.4211*
3. Social participation (X_3)	4.6442*
4. Milk production per milch animal (X_4)	-0.5520 NS
5. Exposure to mass communication (X_5)	2.5106*
6. Land holding (X_6)	-1.3614 NS

Table 2. Mean and their difference with regard to socio-economic characteristics of the organized and unorganized dairy farmers.

Socio-economic characteristics of dairy farmers	Mean value		
	Organized dairy farmer	Unorganized dairy farmer	Mean difference (dk)
1. Education (X_1)	3.70	3.00	0.70
2. Social participation (X_2)	3.50	1.60	1.90
3. Exposure to mass communication (X_3)	3.05	2.25	0.80

larly, a list of all the non-DCS member dairy farmers along with their holding size was prepared and matching sample of 40 non-DCS member farmers were randomly selected. Thus a sample of 80 respondents was selected for detailed investigation. Data were collected by survey method through well designed and pretested questionnaires during 2005-06.

Statistical *t* test was worked out to find whether a particular variable influenced decision making of farmers significantly or not on the selection of milk marketing system. The discriminant function technique was also carried out to measure the net effect and relative importance of the socio-economic variable that was the effect of the variables by holding the other variables constant to discriminate between the groups of organized and unorganized dairy farmers.

Results and Discussion

Identification of Significant Socio-Economic Variables

Six socio-economic variables namely, caste, educational level, level of social participation, milk pro-

duction per milch animal, exposure to mass communication and land holding were considered. The analysis revealed that out of the six socio-economic variables, only three namely, education, social participation and exposure to mass communication were found to be significant at 5% level of probability (Table 1). This implied that there were significant differences between the organized and unorganized dairy farmers with respect to these three variables. Also, there was no difference between the organized and unorganized dairy farmers with respect to variables namely caste, milk production per milch animal and land holding. It is evident that variables like, education, social participation and exposure to mass communication were found to be differentiating the organized dairy farmers from the unorganized dairy farmers.

Discriminant Function Analysis

The coefficients of regression with respect to the significant variables for organized and unorganized groups were separately calculated to assess discriminant functions for organized and unorganized groups of dairy farmers (Tables 2 to 4).

The estimated discriminant functions based on the information on these three characteristics for organized group dairy farmers were obtained as follows.

$$Z_1 = -0.20406 X_1 + 0.63540 X_2 + 0.26584 X_3 \dots (1)$$

Similarly, the estimated discriminant function on these three characteristics for unorganized group of dairy farmers was obtained as follows.

$$Z_2 = 0.440172 X_1 - 0.36289 X_2 - 0.029188 X_3 \dots (2)$$

The values of the estimated discriminant functions for organized and unorganized dairy farmer groups were calculated and then the value of Z called

Table 3. Percentage contribution of individual characteristics of organized farm to the total distance measured.

Variables	Coefficient (IK)	Mean difference (dk)	(IK. Dk)	Percentage (IK × 100) / D_2
1. Education (X_1)	-0.20406	0.70	-0.142842	-11.18
2. Socio participation (X_2)	0.6354	1.90	1.20726	94.53
3. Exposure to mass communication (X_3)	0.26584	0.80	0.212672	16.65
Total	-	-	$D_1^2 = 1.27709$	100.00

Table 4. Percentage contribution of an individual characteristics of unorganized dairy farmers to the total distance measured.

Variables	Coefficient (IK)	Mean difference (dk)	(IK. Dk)	Percentage (IK×100)/D ₂
1. Education (X ₁)	-0.44017	0.70	0.308119	-76.13
2. Social participation (X ₂)	-0.36289	1.90	-0.689491	170.36
3. Exposure to mass communication (X ₃)	-0.029183	0.80	-0.0233504	5.77
Total	-	-	D ₂ ² = 0.4047224	100.00

“Critical Z” was calculated. The critical Z value was estimated to be 0.7278725.

The critical Z value may be used to predict whether a prospective dairy farmer would opt for organized milk marketing system or unorganized milk marketing system. A dairy farmer with a discriminant scores of Z greater than or equal to critical Z value i.e. 0.7278725 would prefer organized milk marketing system, otherwise he would opt for unorganized milk marketing system. This can be shown as below :

Mean Z score for unorganized dairy farmers (0.269491)	Critical Z score for separating the two groups (0.7278725)	Mean Z score for organized dairy farmers (1.186254)

To assess the relative importance of the set of the three characteristics for their power to discriminate between the two groups of dairy farmers, the percentage contribution of these characteristics towards total distance measured for organized and un-

organized dairy farmers (D² and D₁²) were calculated (Table 3 and Table 4 respectively).

Tables 3 and 4 show that social participation was the most important factor discriminating the organized dairy farmers from unorganized dairy farmers followed by education and exposure to mass communication. These characteristics have their weight to the total distance measured as 94.53, 16.65 and -11.18 respectively in of organized farmers and 170.36, -76.13 and 5.77 respectively in unorganized dairy farmers.

The discriminant function indicated that educational level, social participation and exposure to mass communication were the major characteristics which classified the dairy farmers into organized and unorganized categories.

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