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Resource use efficiency in milk production in case of members and non-members of dairy cooperatives in Saharanpur district of western U.P.

YOGENDRA KUMAR, GAJENDRA KUMAR AND AMIT KUMAR[1]
Department of Animal Husbandry & Dairying, Kisan (P.G.) College, Simbhaoli, Hapur
E.mail: dryogendrakumarkd@gmail.com

Abstract

The study was undertaken in Saharanpur district of western U.P. with the objectives to examine the input-output relationships and assess the resource use efficiency in milk production. The data pertaining to milk yield and value of milk, quantity of dry fodder, green fodder and concentrate fed to each buffalo along with price were collected from a total 150 household (75 members and 75 non members of dairy cooperatives) selected on the basis of probability proportionate random sampling technique by personal interview method with the help of pre-tested schedule. Cobb-Douglas production functions was applied. The functional analysis indicates that in case of members concentrate has significant impact in the total income from milk production and the value of its elasticity is greater than one in all the three groups which indicates further scope of increasing concentrate for increasing total income from milk production. In case of landless group, dry fodder has also shown significant impact in case of non-members, dry fodder and concentrate shown significant impact on total income by milk production from landless groups. Whereas, group of non-members dry fodder is significant in small group and only concentrate is significant in marginal group. The marginal value productivity for all significant variables is greater than one (value of feed) which lshows further scope for increasing the use these inputs (feed) to increase in milk production.feeds.

Key Words: Production function, co-operative, members, non-members, MVP, green fodder, dry fodder, concentrate

Introduction

Dairying has become an important secondary source of income for millions of rural families and had assumed the most important role in providing employment and income generating opportunities particularly for marginal and women farmers. Most of the milk is produced by small, marginal farmers and landless labourers. Government of India is making efforts for strengthening the dairy sector through various development schemes. (Satyakam, 2016).

India ranks first among the world's milk producing nations since 1998 and has the largest bovine population in the world. Milk production in India during the period 1950-51 to 2017-18, has increased from 17 million tonnes to 176.4 million tonnes as compared to 165.4 million tonnes during 2016-17 recording a growth of 6.65 %. FAO reported 1.46% increase in world milk production from 800.2 million tonnes in 2016 to 811.9(Estimated) million tonnes in 2017. The per capita availability of milk in the country which was 130 gram per day during 1950-51 has increased to 374 gram per day in 2017-18 as against the world estimated average consumption of 294 grams per day during 2017. This represents sustained growth in the availability of milk and milk products for our growing population. About 16.6 million farmers have been brought under the ambit of about 1,85,903 village level Dairy Cooperative Societies (DCS) up to March 2018. Women members of the DCS are also being encouraged to assume leadership roles. The total number of women in dairy cooperatives across the country was 4.9 million in 32,092 women DCS which is 29.5% of total farmers.

[1]COVAS, S.V.B.P. University of Ag. & Tech. Meerut.

(Department of animal husbandry, dairying and fisheries, GOI)

The milk production is influenced by various genetic and non-genetic factors. The non-genetic factors influencing the milk production are quality and quantity of feeds and fodders fed, stage of lactation, order of lactation, herd size, labour use, seasons etc. Hence the selection of suitable variables to study the milk production is very essential. To ensure the optimal use of various inputs used by the milk producers is matter of primary concern. It is important to know whether the inputs owned by milk producers are used efficiently or not. An empirical assessment of determinants of milk production and resource use efficiency are important for planning, projecting and formulating dairy development policies in a particular region. To achieve optimum production of milk, it is imperative to know the input-output relationship. The input-output relationship in milk production and resource use efficiency have been studied by several researchers in the various parts of the country and found different for different areas depending upon the type of milch animals and the milk production technology. No study has been carried out to investigate the milk production function and resource use efficiency in respect of member and non-member of dairy co-operatives in Saharanpur district of western Uttar Pradesh.

The present study was undertaken with the following specific objectives:-

(i) To examine the input-output relationships in milk production in case of members and non-members.
(ii) To study the resource use efficiency of milk production in case of members and non-members.

Materials and Methods

The present study was confined to Saharanpur Zila Dugdh Utpadak Sahakari Sangh Ltd. (S.Z.D.U.S.S.) Saharanpur of western U. P. Out of eleven blocks which were covered by S.Z.D.U.S.S., Saharanpur. Two blocks were selected randomly. Since, S.Z.D.U.S.S., Saharanpur was working in these blocks with highest number of milk producing co-operative societies. After selection of blocks, a list of milk producing co-operative societies working in different villages was prepared with the help of supervisor and other official staff of sahakari samiti. Out of these societies, only five societies were selected randomly for the study. The list of milk producing co-operative societies falling in the blocks was prepared and five milk producing co-operative societies were selected randomly for the study from the whole list.

After selection of milk producing co-operative societies a separate list of members and non-members (keeping milch animals) of small, marginal and landless categories were prepared for the selected societies. In which 75 cases from members (15 small, 25 marginal and 35 landless) and 75 case from non-members (12 small, 24 marginal and 39 landless) were selected for the present study. The survey method was followed for the collection of data. The data were related to the year 2008-09. The data were collected on milk production, quantity of green fodder, dry fodder, concentrate and miscellaneous expenditure along with their monetary values.

Results and Discussion

Milk production function:

The table 1 reveals that in case of member the overall average of variation in per day milk production came to 70.84%. In different categories it came to about 95.30% on small farms, about 48.70% on marginal farms and almost 93.40% in case of landless families. In case of non- members the overall average of variation in per day milk production came to about 41.90%. In different categories it came to about 99.00% on small farms, about 41.00%, on marginal farms and about 52.70% in landless families of non-members. It was explained on the basis of the variables involved in the regression equation.

In case of small and marginal category of members the elasticity of production was significant and grater then one for concentrate was not significant for green fodder and dry fodder. It shows that the use of concentrate may be increased for gating more income from milk production. In case of landless category of members the elasticity of production was significant and grater then one for dry fodder and concentrate and were not significant for green fodder. It shows that the use of dry fodder and concentrate may be increased for gating more income from milk production. It can be concluded from the table that in case of all categories of members the elasticity of production was significant and grater then one for concentrate were not significant for green fodder and dry fodder. It shows that the use of concentrate may be increased for gating more income from milk production.

The table further shows that in case of small category of non-members the elasticity of production

Table 1: Milk production functions under different categories of members and non –members families

Category	No. of Observations	Constant	Regression co-efficient			
			Green fodder	Dry fodder	Concentrate	R2
			Members			
Small	33	0.01076	0.31619	-0.42326	1.81667**	0.95336
			(0.29218)	(0.22544)	(0.08980)	
Marginall	61	0.00004	0.87504	-0.17856	1.72125**	0.48799
			(0.52910)	(0.51729)	(0.27392)	
Landless	82	0.00025	-0.14293	0.56361**	1.82502**	0.93426
			(0.22813)	(0.17940)	(0.06016)	
Overall	176	0.00257	0.08898	0.20575	1.65225**	0.70841
			(0.19717)	(0.18280)	(0.09106)	
			Non-Members			
Small	28	1.70823	0.00028	1.26054**	0.00172	0.99988
			(0.00434)	(0.00424)	(0.00119)	
Marginal	53	1.84013	-1.44208	0.30651	1.45736**	0.41037
			(1.63095)	(0.79879)	(0.27350)	
Landless	83	0.000001	0.32997	2.25020**	1.47015**	0.52752
			(0.82067)	(0.53264)	(0.24905)	
Overall	161	0.000001	0.14511	1.34817**	1.34644**	0.41997
			(0.42632)	(0.38798)	(0.15740)	

*Significant at 5% level **Significant at 1% level
(Figures in parenthesis indicate percentage)
Not: only wet animal have been considered for functional analysis.

was significant and grater then one for dry fodder was not significant for green fodder and concentrate. It shows that the use of dry fodder may be increased for gating more income from milk production. In case of marginal category of non-members the elasticity of production was significant and grater then one for concentrate was not significant for green fodder and dry fodder. It shows that the use of concentrate may be increased for gating more income from milk production. In case of landless category of non-members the elasticity of production was significant and graters then one for dry fodder and concentrate were not significant for green fodder. It shows that the use of concentrate may be increased for gating more income from milk production. It can be concluded from the table that In case of all categories of non-members the elasticity of production was significant and grater then one for dry fodder and concentrate were not significant for green fodder. It shows that the use of dry fodder and concentrate may be increased for gating more income from milk production. These findings are comparable with findings of Lalrinsangpuii (2016) and Mehra et al. (2018).

Marginal value productivities:

The marginal values of productivities (M.V.P.) were also estimated separately in case of members and non-members and are shown in table 2.

All the input variables and the milk output have been estimated in value forms and such the marginal value productivity and the M.V.P. / price ratio is same as M.V.P. In case of members the M.V.P. of concentrate was significant and there is much scope of increasing the use of concentrates. In case of landless members M.V.P. of dry fodder also shows for there possibility of increasing its use significantly for increasing the income from milk production. The M.V.P. of green fodder in case of all groups of members is not significant and M.V.P. of dry fodder is also not significant in small, marginal groups and overall.

In case of non-members the dry fodder in small groups, concentrate in marginal group, dry fodder and concentrate both in landless group and overall are positive and significant and have showing possibility for the increasing income. The use of these input for increasing the income from milk production. The other

Table 2: Marginal value productivities under different categories of members and non-members families.

(in Rs.)

Category	Green fodder	Dry fodder	Concentrate
Members			
Small	2.46	-6.94	12.04
\Marginal	6.67	-2.36	11.03
Landless	-1.18	6.21	12.01
Overall	**0.71**	**2.60**	**10.79**
Non-Members			
Small	0.00	16.40	0.01
Marginal	-12.32	3.79	10.38
Landless	2.71	24.64	9.75
Overall	**1.29**	**15.78**	**9.09**

inputs are not significant and do not show any scope for increasing the input. These results are comparable with earlier reporters that of Sharma et al. (2014) and Tanwar et.al. (2015).

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