

A Case Study of Increasing Income of Dairy Cattle in Rural Area in Western Part of Turkey

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Abstract: The aim of this study is to investigate the results of government supported dairy cattle farming production in rural area. The project was conducted by a co-operative. All members of co-operative are women. The research was carried out in Izmir's Kiraz country Yaglar village. Forty eight partners of the 100 partners co-operative were interviewed and the data collected were analyzed. While, the number of animals of 16 companies dealing with dairy farming was 6 on average before the co-operative, the average number of animals is 8.93 after the cooperative. While, the dairy milk yield 73 L on average, this rate went up to 117.7 L for 48 dairy farms. The annual income of members of the cooperative before the project was \$2831.8 an average, this amount raised to \$5324.1 after the project increasing 53.18%. Dairy farming project carried out by co-operatives have resulted positively in terms of villagers life standards and income growth in areas, where land allocation is not well-balanced and not adequate. In this manner, migration from rural to urban areas has been reduced to a certain extent and production and income growth in rural areas have contributed positively to both farmers and national economy.

Key words: Dairy cattle farms, income growth, co-operative, women, rural development, life standards, Turkey

INTRODUCTION

Dairy products are basic products of daily nutrition almost all around the world. More than 500 millions tons of cow's milk is produced per year in the world. Areas where milk production is the most intensive are West Europe, North America, India and India Subcontinent and Oceania. Milk production is the most important income source of many European agricultural enterprises (Hofstetter, 2005). It is expected that milk production will reach 145 million tons with rising in milk production quotas in the medium term (2012) in EU-25 (Anonymous, 2005). Developments in milk sector have reached a level that is important in terms of employment and income growth in Karnataka region of India. Micro finance system that is put into practice to develop milk sector has produced positive results in terms of natural resource management, employment and income effects (Ramakrishnappa and Jagannatta, 2006). Milk production in India is processed by mostly (88%) unorganized sector; the share of the private sector and co-operatives is only 12%. However, it is expected that co-operatives will take more share in milk sector in the future (Karmakar and Banarjee, 2006). A dairy farming project via cooperative was carried out in rural area in Rajathan region of India for the purpose of nutrition of women, developing their economy and raising their social status. Consequently, economic independence of

women was provided and they were saved from indigence chain by providing chance of income rise (Sharma, 1993).

Dairy farming plays an important role in the economy of Turkey in terms of employment and production value (Demircan *et al.*, 2006). Within total value of agricultural production of Turkey, crops products account for 63% and animal products account for 23.95%. The proportion value of milk in animal products is 42.34%. The most of livestock farms in Turkey are small scale family enterprises, average number of cows per farm is 5.7 (TURKSTAT, 2008; Keskin *et al.*, 2008). Milk sector decreases immigration from rural to urban by employing excess population in rural areas (Yildirim *et al.*, 2008). Five kinds of agent in marketing of milk in farms: milk processing, small scale milk processing plants, milk processing and milk collecting cooperatives and street sellers in Turkey (Artukoglu and Olgun, 2008).

In EU in areas especially as dairy products and meat products, large-scale marketing functions are fulfilled via agricultural cooperatives (Cikin and Nergis, 1999). Nowadays in the most of EU countries 50-92% of milk is collected or processed by cooperatives and milk market and industry are controlled by cooperatives that are owned and managed by farmers. In Norway, the milk industry is 100% controlled by cooperatives (Inan, 2004). This rate in Turkey, however is only about 3% (Mulayim, 2006).

In Turkey, after the year 2002, benefiting from cooperatives enlarged to support dairy farming. It is estimated that the share of cooperatives in milk supply to milk industry has risen slightly in the recent years. In a research in Tonya-Trabzon, it is stated that milk collecting cooperative presents market and price guarantee to its members. Further, the cooperative provide its members with feed, corn, etc. at a low price and low interest rate (Ceyhan *et al.*, 2003).

The aim of this research is to determine the influence of projects carried out by the government in dairy farms on income growth in rural areas. A further objective is to assess the results of application of cooperative trading system that is an effective means in rural development.

MATERIALS AND METHODS

The research included dairy farms associated with Yaglar cooperative located in Kiraz-Izmir (a province in Western part of Turkey). The number of dairy farms is 100, at all are managed and owned by women. Out of these, 48 dairy farms were volunteered to participate to this study. The data belonged to 2008 production period and were obtained from the women farm operators face to face by means of questionnaires.

In this research, questions are asked to assess particularly income growth provided by dairy farms in rural areas and to obtain the results of the project members by cooperative. The views of villagers on this project was interpreted using simple average, percentage accounts and 5-point Likert scales.

A series of 5-point Likert scales intended for use with the questionnaire were derived from each of the six areas (i.e., standards of living, increasing knowledge, information about cooperative facility, consumption milk amount, diet and healthy cost and efficiency milk price of cooperative). These questions intent to measure the increasing income, socialization and efficiency of cooperative by this project. The following numbers and corresponding descriptions show the range of the scales: strongly disagree, disagree, uncertain, agree and strongly agree (Clason and Dormody, 1994).

RESULTS AND DISCUSSION

Dairy farming carried out in the field of study is made up of long term interest free project credit loans. The project aims rural development and it was prepared by Ministry of agriculture and rural affairs and Ministry of state.

Principles of implementation of social supports project in rural areas:

The principles of implementation are readied with the cooperation between the Ministry of Agriculture and Rural Affairs (MARA) (2009) and the ministry of state within the scope of struggle with poverty, the practice joint projects to raise income level of individuals and families suffering from economic and social poverty, to increase employment to evaluate and market agricultural products on the spot and to prevent migration from villages to cities. Features of projects are as follows: that least 50 family \times 2 head dairy cattle farming projects or 100 family \times 2 head dairy cattle farming projects, or 50 family \times 25 sheep. These projects are implemented by the offers of the Ministry Social Assistance and Solidarity General Directorate approval.

The project loans will be given to groups that came together as cooperative. Types of stalls and cotes will be determined by the ministry. Two cattles each to 100 families farming project has ben carried out in the village that is under investigation in this research. The project cost is 873.633 TL (approximately \$661.000, for 2005). Project time is 5 years, the method of payment is interest free, first 2 years free of payment, remaining years equal installments.

Some general information in Yaglar village:

Yaglar village is 140 km far from Izmir and 7 km from Kiraz country center. The population of the village is 553 in 2004 and the number of houses is 180. The primary income resources of the village are vegetable and animal production. The village has 506 ha land. The main products are cotton, potato, water melon, wheat, clover and vetch. Before cooperative was established, there were 781 unit dairy cattles, 1200 unit Merinos sheep and 300 unit hives in the village. No commercial handicrafts activities are made in the village. Over the last decade, 30 families have migrated from village to other cities and towns due to unemployment (Koçturk *et al.*, 2008).

Some general information on farms:

All members of cooperatives are women. The average farm managers age was 43.18 years and households was 3.68 person. All members of cooperatives were literate and the average schooling rate was 5.5 years. The average land per farm was 0.94 ha. About 32% of cooperative partners have never dealt with livestock. About 41.7% of partners participated in cooperative of their own accord. The other 47.9% participated in cooperative with husband's request and the remaining 10.4% with friend's advice.

Some parameters are before member of cooperative and after member of cooperative:

While, the number of animals of 16 companies dealing with dairy farming was 6 on average before cooperative, the average number of

Table 1: Descriptive statistics for the sample of 48 dairy farms

Parameters	Mean	SD	Minimum	Maximum
Age of producer (year)	43.18	8.42	28.0	60
Education level of producer (year)	5.50	1.55	5.0	11
Family size (person)	3.68	0.85	1.0	5
Land (ha)	0.94	7.19	2.0	35
The ownership dairy farm before membership in a cooperative	Yes: 16 (1)	No: 32 (0)	-	-
Number of cow before application on project (for 16 dairy farm)	6.00	4.30	1	14
Number of cow after application on project (for 16 dairy farm)	14.50	8.77	6	40
Number of cow after application on project (for 48 dairy farm)	8.93	7.00	2	40
Amount of milk produced (for 16 dairy farm, daily)	73.12	51.24	20	200
Amount of milk produced after application on project (for 16 dairy farm, daily)	168.12	90.12	70	400
Amount of milk produced (for 48 dairy farm, daily)	117.70	68.86	40	400

Table 2: Increasing income of dairy farms (\$ years⁻¹)

Income (\$)	Application on dairy project		%
	Before	After	
Average years income			
For 16 dairy farm	3448.8	6273.1	54.97
Out of dairy production for 32 farm	2518.5	4849.5	51.93
For 48 dairy farm	2831.8	5324.1	53.18

Table 3: Evaluation (comment) on project application by dairy farmers

Dairy farmers	Mean	SD
Standards of living	3.56	0.82
Increasing knowledge	4.04	0.54
Information about cooperative facility	4.14	0.65
Diet and cost of health	3.00	0.68
Consumption milk amount	2.45	0.77
Efficiency milk price of cooperative	4.41	0.49

*Based on 5-point Likert scales: Strongly disagree, disagree, uncertain, agree and strongly agree

animals after cooperative, was 14.5. Of all 48 dairy farms after cooperative, the average number of animals was 8.9. While, the daily milk yield of 16 dairy farming companies was 73.12 L before cooperative, this rate after cooperative project went up to 168.12 L. After the project, average milk yield for total 48 companies reached 117.7 L (Table 1).

Evaluation of income growth and cooperative efficiency on project application by members of cooperative: About 72.9% of members attended cooperative general meeting. About 93.8% of members stated that they didn't want to take part in the management and control of the cooperative. While, the annual income of members of cooperative before the project was \$2831.8 on average, this amount raised to \$5324.1, increasing 53.18% (Table 2).

In evaluations done according to Likert scale: The means of Likert type scales provide interesting results. The mean of life standard is better after the project is 3.56. The mean of cooperative applications increase livestock knowledge is 4.04. The mean of average value regarding the rise in nutrition and health expenses is 3.0. It has been explained that there is not such a big change in dairy product consumption after project with a 2.45 value. Partners have evaluated the effect of cooperatives on milk prices with 4.41 mean scores (Table 3). When, it is asked how they

make use of their savings after income growth, firstly 39.6% of them say that they buy new cattle and secondly, tractor and equipment. Partners have made some suggestions such as establishing dairy farms, increasing the number of partners and selling feed at a cheaper price to research more efficiently.

The dairy farmer's responses indicate that low raw milk price and fluctuation in market and higher feed prices are the major problems in Turkey (Azabagaoglu, 2004). Producers in the area of research have also pointed out the same problems and stated that they want the government and cooperatives to play a bigger role in solving these problems.

The main problem of dairy industry in Turkey has appeared to be the supply inadequacies and inferior quality of raw milk. One of the primary reasons for this problem is small sizes, scarcity and low efficiency of the dairy farms (Tosun *et al.*, 2007). The number of dairy farms that have 1-4 cattle in Turkey accounts for 59.71% of total dairy farms (TURKSTAT, 2008). However, recently an increase to a certain extent in cattle number has been provided with the application of cooperative projects. In addition, the fact that partners themselves take their milk to cooperative center and that price premium has been implemented has contributed to the rise in quality.

Throughout Turkey, profitability is too low in dairy farming. The main reason of low profitability is low milk productivity per cattle (Sahin, 2009). Average milk productivity in the project area of research is 4.5 ton year⁻¹. Especially, a recent decrease to 0.40-0.42 TL (25-26 cent L⁻¹-1.62 TL) in milk price although, milk price was 0.45-0.48 TL on average in 2005 (35-36 cent L⁻¹ - \$1 = 1.32 TL) and an increase in cost of production have affected the producer incomes negatively (CBRT, 2009).

CONCLUSION

Dairy farming projects carried out by cooperatives have resulted positively in terms of villagers life standards and income growth in areas where land allocation is not well-balanced and not adequate. Undoubtedly, cooperatives have played a large role in developing livestock. The major reasons for this are the decrease in the cost of production particularly in feed costs and the fact that it demonstrates productive power in determining milk price by creating bargaining power.

Livestock and other agricultural projects implemented by the government are very important in terms of keeping villagers in rural areas. In this manner, migration from rural to urban areas has been reduced to a certain extent and production and income growth in rural areas have contributed positively to both farmers and national economy.

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