

ARMENIAN RURAL COOPERATIVES AND MARKETING: DAIRY SECTOR

HOVHANNISYAN, VARDGES – VASA, LÁSZLÓ

Key words: agriculture, cooperation, cooperative, milk production, transition economy.

CONCLUSIONS

Armenian milk marketing cooperatives provide several benefits, of which the increased opportunity for milk marketing is valued most by member farmers. During the cooperative action milk production has also increased due to seminars on cattle feeding, artificial insemination, sanitation programs, and support by cooperatives in feed procurement. Another benefit is that through pooling products of specified grade or quality, marketing cooperatives are better able to market milk to large-scale buyers than individual owners. Putting their efforts together cooperatives can move to distant markets and thus expand their sales opportunities. This is of paramount importance for those cooperatives that have a sole buyer. In addition to milk marketing, almost all of the cooperatives expressed desire to integrate themselves vertically in milk processing with the aim of capturing greater share of the consumers' food expenditures. It's worth mentioning that all managers stated the importance of seminars and educational tools to the success of their organizations. However, in their self-assessment lower ratings were noted in the areas of financial management, financial statement analysis, strategic planning, and higher scores were stated for business decision-making and cooperative principles. Our findings indicate that an opportunity exists to reinforce managers' knowledge in the areas of cooperative principles, division of responsibility between managers and the Board, and financial management. The results of the research come to advocate for continuing cooperative business and extending their activities over other aspects of the agricultural sphere (technical service, agricultural production, etc.), thus enabling farmers to further integrate themselves in food marketing system and improve their incomes.

ABSTRACT

The Republic of Armenia is situated in the southern part of the Caucasus and shares borders with Turkey, Iran, Georgia and Azerbaijan. It is a mountainous, land-locked country with an area of 29,800km². A very high degree of integration into the Soviet economy induced economic collapse during the transition period. A survey conducted among

farmers in 1999-2000 revealed that 93% of the respondents were encountering difficulties in marketing of agricultural products. The same survey revealed that more than half of the respondents would be willing to cooperate somehow in milk selling. The primary objectives of this paper are to: (1) Describe the general situation prevailing in Armenian agriculture and present the actual problems; (2) Conduct performance and efficiency

analyses of milk marketing cooperatives established with the support of the USDA Marketing Assistance Program in Armenia; (3) Propose the creation of new marketing cooperatives as a way toward sustainable value creation in food and supply chain. Data used in this analysis were collected through the survey within the scope of the research funded by Foundation of Applied Research and Agribusiness (FARA). Several Agribusiness Teaching Center students and two faculty members participated in surveys conducted in milk marketing cooperatives. The survey focused on cooperative member farmers and managers with the aim of revealing the benefits and limitations of cooperatives for people who use them. From 15 cooperatives the surveys were implemented for 7. The results of the research come to advocate for continuing cooperative business and extending their activities over other aspects of the agricultural sphere (technical service, agricultural production, etc.), thus enabling farmers to further integrate themselves in food marketing system and improve their incomes.

INTRODUCTION

The Republic of Armenia is situated in the southern part of the Caucasus and shares borders with Turkey, Iran, Georgia and Azerbaijan. It is a mountainous, land-locked country with an area of 29,800km². A very high degree of integration into the Soviet economy induced economic collapse during the transition period. In result the share of Armenian agriculture in GDP increased up to 40%. The break-up of collective agriculture in Armenia resulted in over 330,000 diversified farms (*Ghazaryan, 2001*), with lack of suitable machinery and equipment, water for irrigation, knowledge of good farming practices and so forth.

Among the problems the marketing of agricultural products is the most formidable one because of the following reasons: *First*, a decline in population, their purchasing power led to a decline in food consumption. Levels of food consumption for a large percentage of the population fell far below the poverty line. Food represented about 70% of expenditures in poor households, but such expenditures still cover less than the cost of the minimum food basket for 44% of Armenians (*Ghazaryan, 2002*). *Secondly*, after losing the traditional state procurement channels small farms are handling products on their own. Moreover, there are not any agricultural wholesale markets in Armenia, instead there are some retail markets, monopolized by some reseller groups (*Voskanyan, 2002*). We focused our research on milk marketing because it presents the biggest problem due to three important characteristics that set it apart from other farm products. Out of them we would like to single out several characteristics we believe are most important. First and foremost, milk is more perishable than other farm products (unlike most agricultural products, in its fluid form it can be stored only a few days). The *second* differentiating property is the flow nature of milk. While most agricultural products are being harvested once a year and may be stored for later sales, milk is normally harvested twice a day. *Finally*, supply and demand of milk is counter-cyclical over the year.

These facts put an Armenian individual farmer acting on his own at competitive disadvantage when dealing with only a few relatively large processors. A survey conducted among farmers in 1999-2000 revealed that 93% of the respondents were encountering difficulties in marketing of agricultural products. The same survey revealed that more than

half of the respondents would be willing to cooperate somehow in milk selling (*Sarukhanyan, 2002*) Taking into consideration all the above mentioned facts, the USDA MAP initiated creation of milk marketing cooperatives. Understanding the importance of the fact that cooperatives should be self-driven and not dictated by an aid agency and that farmers need to cooperate on the grounds of common economic interests, USDA began its initial talks with interested farmers. The USDA MAP played a crucial role as an external facilitator in creating Armenian milk marketing cooperatives. Cooling tanks were provided to cooperatives, which enabled farmers to collect and keep milk for more than one day and hand to processors (*J. Cocks, 2003*) By December 31 of 2003 there were registered 15 milk marketing cooperatives.

OBJECTIVES

The primary objectives of this paper are to:

1. Describe the general situation prevailing in Armenian agriculture and present the actual problems.
2. Conduct performance and efficiency analyses of milk marketing cooperatives established with the support of the USDA Marketing Assistance Program in Armenia.
3. Propose the creation of new marketing cooperatives as a way toward sustainable value creation in food and supply chain.

DATA DESCRIPTION

Data used in this analysis were collected through the survey within the scope of the research funded by Foundation of Applied Research and Agribusiness (FARA). Several Agribusiness Teaching Center students and two faculty members participated in surveys

conducted in milk marketing cooperatives. The survey focused on cooperative member farmers and managers with the aim of revealing the benefits and limitations of cooperatives for people who use them. From 15 cooperatives the surveys were implemented for 7, because the others were created just very recently and their performance couldn't provide basis for comparison analysis. Of the total number of 1332 member farmers 230 people were surveyed, which is explained in part by the difficulty of surveying farmers who were busy on their farmlands. The final screening resulted in 213 survey instruments being usable for the analysis. It took us on average 2 visits per cooperative to fully complete the survey. The sampling plan is developed according to cost basis approach, using the random and proportional sampling statistical method. We also interviewed the managers of above-mentioned cooperatives with the aim of revealing the problems and perspectives related to cooperatives. Questionnaires were composed of close-end and open-end questions designed to collect information we identified through a thorough review of cooperative and business literature (*Timothy, 2003; Stafford, 1985; Adrian, 2001*) and through meetings with Agribusiness Teaching Center (ATC) faculty and extension specialists of Armenian Agricultural Academy (AAA). The survey instrument asked farmers to respond to a variety of questions relating to their membership, the reason they became members of cooperatives, the number of their cattle before and after the cooperative activity, the proportion of income received from milk sales in their overall income, daily milk production volume, farmers' intent to remain as a cooperative member and the like questions with the aim of uncovering to what extent coops have facilitated the

achievement of those goals farmers pursued by gaining membership to coops. Overall, our ultimate goal is to indicate whether cooperatives in comparison with individual farmer performance are more efficient and worth continuing their operations or not.

ANALYSIS AND RESULTS

Farmers surveyed have almost unanimously (95%) reported that a major benefit of a marketing cooperative business is to achieve an assured market for their products. 4% percent of farmers mentioned higher prices they perceived cooperatives provided to member farmers and the remaining 1% valued reliable payments most. In the result of our interviews with cooperative managers we further observed that milk processors (buyers of milk) are more willing to deal with cooperatives when procuring raw milk because: *First and foremost*, it is not feasible for the processors to collect milk from each individual because of high collecting costs. *Second*, cooperatives provide stable high quality milk because cooling tanks allow for longer storage of milk and cooperatives test the milk quality on a daily basis (28% of surveyed farmers have had occasions of being refused to sell to cooperatives because of low milk quality). *Third*, cooperatives are more stable quantity suppliers. In this sense Armenian dairy processors, as any other producers, want to assure year round stable supply of milk, to keep their production going.

Having kept in mind that not all cooperative benefits are tangible or direct, within the scope of our research we attempted to quantify the most important benefits which are measurable and make some value judgments about immeasurable benefits (such as coops' effect on milk price levels). Data were analyzed using general descriptive statistics analy-

sis. The major findings are the following (Table 1).

As is visible from the Table 1, the average number of cows per farmer after joining the cooperative has increased from 4.5 to 5.0 (11%). Meanwhile, the standard deviation decreased from 7.0 to 3.1 (56%). This implies that polarization of the number of cows among farmers decreased appreciably.

Due to some moderate increase in average number of cows, the average daily milk production increased from 32.3 to 53 liters (64%). This comes to certify that member farmers faced milk productivity growth which may be explained in part by services rendered to member farmers like implementation of artificial insemination, sanitation programs, support in acquiring of feed, veterinary services, seminars, consultations, etc.

In parallel with milk productivity growth, the share of sold milk through cooperatives has also increased. According to indicators presented in table 1, before the cooperative activity farmers sold 57.6% of their milk, while through cooperatives they sold about 69% of entire milk. It's obvious that over years the number of cows has increased. Meanwhile, at the time of establishment, cooperatives had 5.3 cows per farmer and this measure was only 3.3 in 2004. This implies that in the successive years smaller farmers gained membership to cooperatives. Massive increase in the number of cows has been recorded in Ledjan and Elita Cooperatives. The number of cows in the aforementioned coops has increased 9 and 10 times respectively, while the other coops showed 4 times growth of this indicator (Figure 1).

Perhaps the most important indicator of cooperative effectiveness as opposed to individual farming is the dynamics of the number of coop members. On average, the number of members in the observed

cooperatives has increased by 5 times. Particularly, in Ledjan and Elita cooperatives the number of members has in-

creased 16 and 10 times respectively, while in the rest of the surveyed coops this measure increased 6 times (Figure 2).

Table 1

N =213	Min	Max	Mean	St. Deviation
Number of cows before joining the coop	0.0	46.0	4.5	7.0
Number of cows after joining the coop	1.0	70.0	5.0	4.1
Average daily production before joining the coop (Lit.)	0.0	120.0	32.3	27.5
Average daily production after the coop (Lit.)	11.0	286.0	53.0	45.2
Daily sold milk before joining the coop (Lit.)	0.0	100.0	18.6	27.0
Daily sold milk after joining the coop (Lit.)	7.0	282.0	36.6	46.4
Home consumed milk before joining the coop(Lit.)	4.0	34.0	16.4	8.1
Home consumed milk after joining the coop	2.0	11.0	4.0	3.6

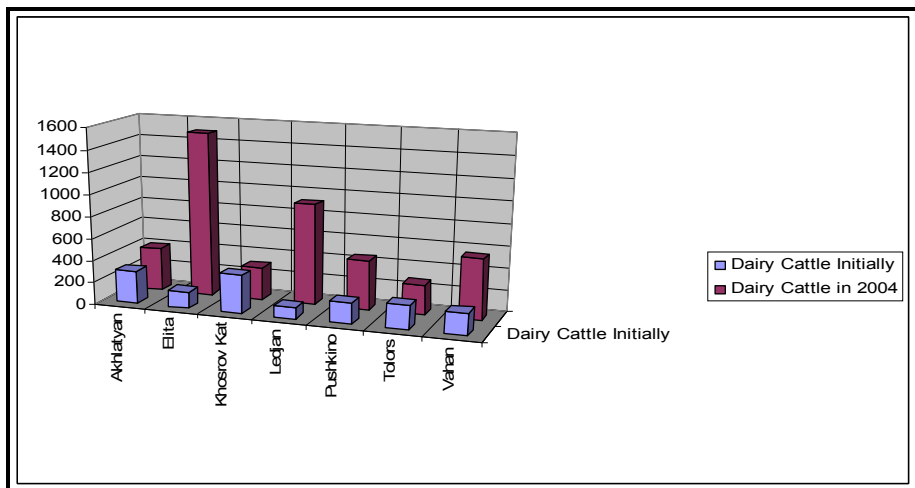
N is the Sample Size

Figure 3 shows milk collection by cooperatives during 3 years. Almost all cooperatives have recorded sustainable growth in milk collection from 2001 to 2003. Milk collection, particularly in „Elita”, „Ledjan” and „Khosrov Kat” coops increased 1.7, 1.6 and 8 times respectively compared to 2002 (Figure 3). Total milk sold by 7 cooperatives surveyed made up 4,330 metric tons in 2003, 20% more that that of 2002. The stable growth is obvious after looking

at milk sales and farmers’ payments data (Figure 4, 5). Total milk sales through the 7 coops in 2003 totaled up to 205,130 thousand AMD (\$363,000), which is 50% more than that of 2002. Elita and Ledjan respectively showed 1.8 and 1.5 times increase in milk sales in 2003 compared to 2002 (Figure 4, 5). Total payments to member farmers by these 7 cooperatives made up \$333,715 in 2003, which is 1.5 times more than that of 2002.

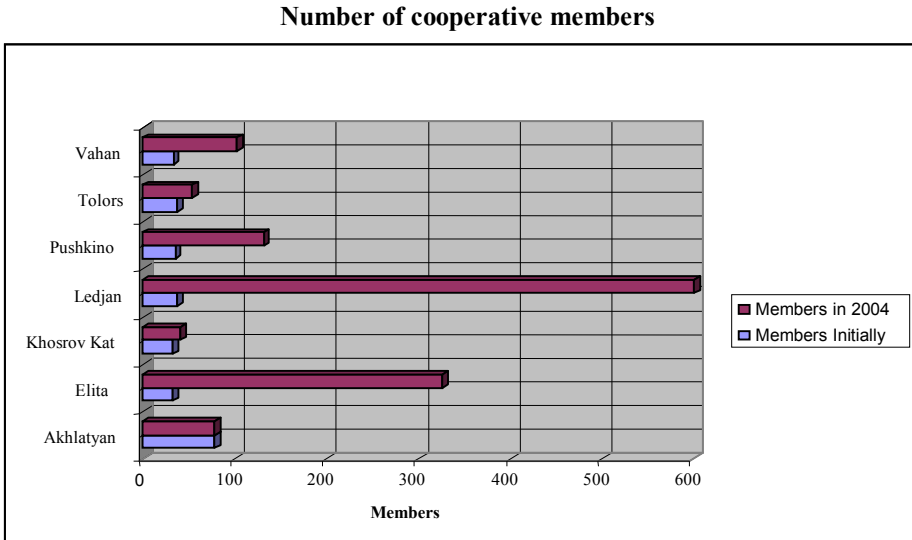
Figure 1

Number of dairy cattle



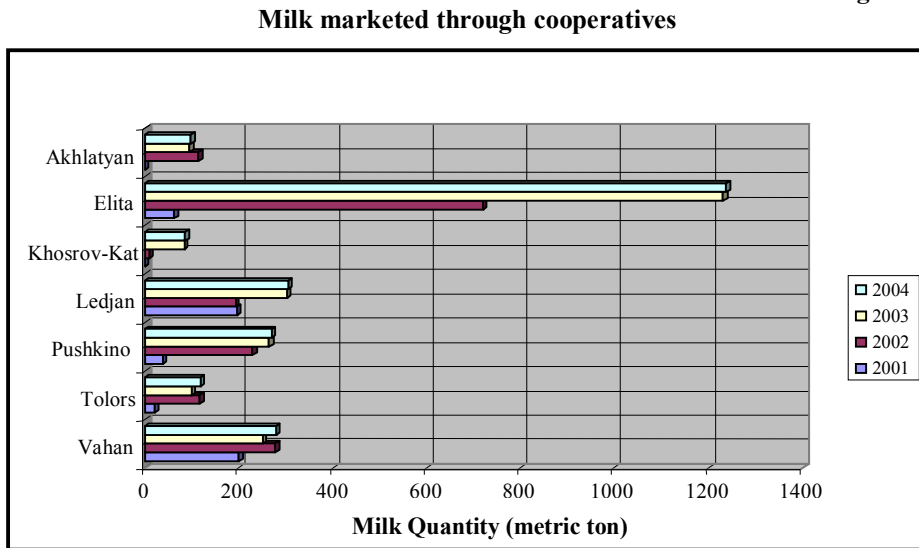
Source: Cooperative Membership Records, Survey Findings

Figure 2



Source: Cooperative Membership Records

Figure 3



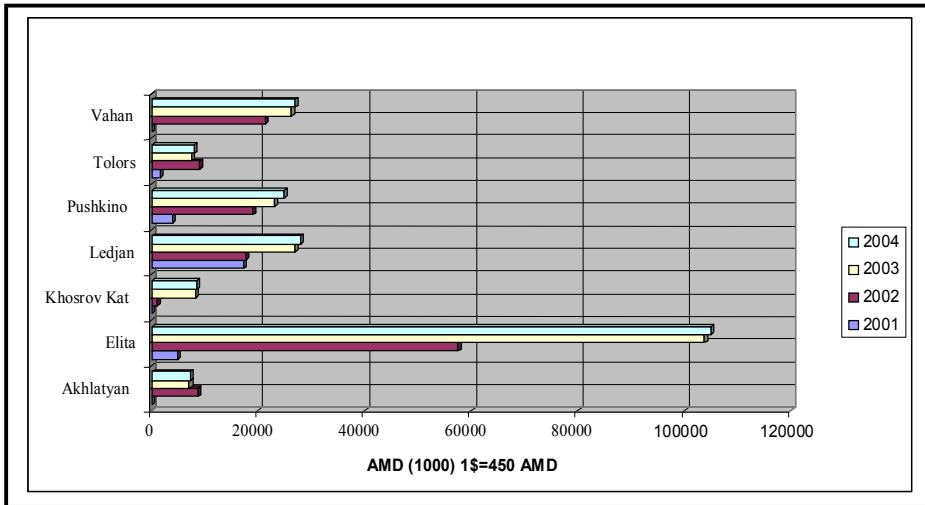
Source: Income and Expenses Statement of Cooperatives / Extension Department Annual Reports

Total revenue from milk marketing (Figure 4) is also of great importance since this sets a base for the payments that farmers actually receive. As is seen from the figure Ledjan and Elita cooperatives have enjoyed the greatest growth in total revenue (1.8 and 20.8 times respectively).

The major factors causing a sharp increase in total revenue of milk marketing cooperatives are the increase in number of member farmers and dairy cattle because milk price in observed cooperatives has increased slightly.

Figure 4

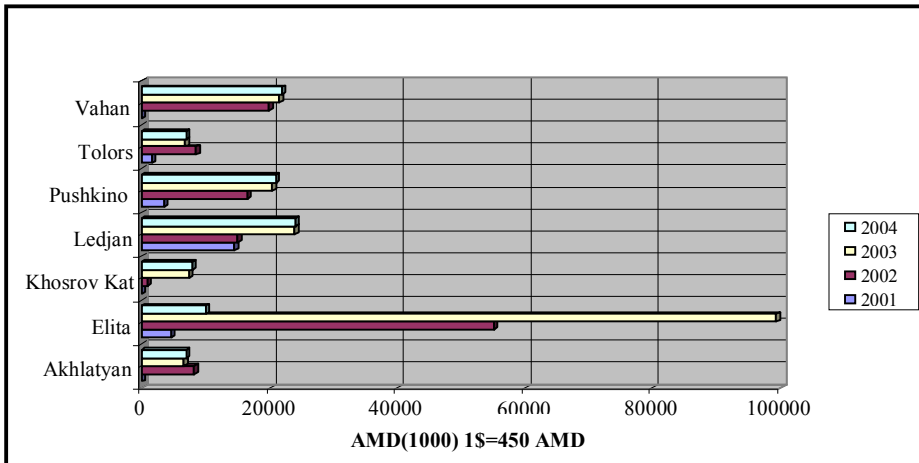
Total revenue from milk marketing



Source: Income and Expenses Statement of Cooperatives / Extension Department Annual Reports

Figure 5

Payments to cooperative members



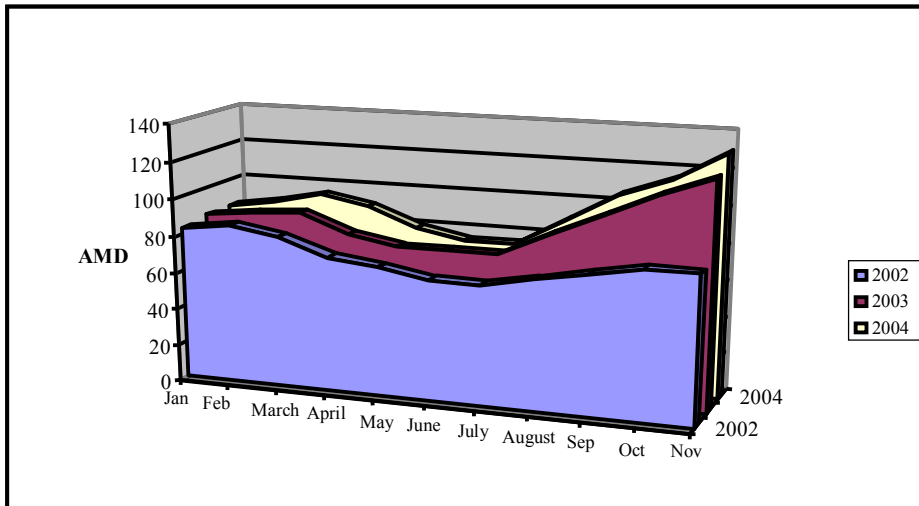
Source: Income and Expenses Statement of Cooperatives / Extension Department Annual Reports

Reportedly, the most important indicator to farmers is actual payments they get for milk marketed through cooperatives. As far as we could observe farm prices are determined according to „Derived demand” theory, which states that prices of dairy products are determined

first after which price of milk sold by cooperative is arrived by subtracting food marketing margin. Farm price in turn is determined by subtracting cooperative margin from the price paid to cooperatives by its buyers.

Figure 6

Monthly paid milk price to cooperative members by Vahan Cooperative



Source: Income and Expenses Statement of „Vahan” Cooperative

As is visible from Figure 6, taking into account the seasonal price variations, milk price paid by „Vahan” cooperative in 2004 as compared to that of the previous years increased. Milk production encounters seasonal variation (increase in autumn, winter and decrease in spring and summer) because Armenian farmers are not used to planning animal parturition. According to the results of our survey, 88% of farmers used cooperatives to market their milk, while % sell it in the retail market and only 5% sell directly to processors. What is inter-

esting, the vast majority of surveyed members farmers expressed intention to stay with cooperatives. 30% of respondents would be willing to hand their milk to those offering higher price, while the remaining 70% value loyalty, trust and stability most. 70% of cooperatives expressed further intentions of engaging themselves in milk processing to capture a greater share of consumer food expenditures.

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