

The Role of Cooperatives in Milk Marketing

The Case of Armenia

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ABSTRACT

This research study identifies and measures the benefits of the marketing cooperatives created in the Republic of Armenia with the support of the U.S. Department of Agriculture Marketing Assistance Program(MAP). It analyzes the importance of marketing cooperatives to the member farmers by revealing and presenting the possible benefits farmers would not obtain by acting on their own. Empirical results from surveying cooperative members are used to test the hypothesis that milk marketing cooperatives are beneficial for farmers utilizing their services. Based on our findings certain recommendations are made to extend the cooperative activity over other aspects of agricultural field.

Key words: *cooperative, milk marketing, benefits, cooperative member, performance*



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, 11), with lack of suitable machinery and equipment, water for irrigation and knowledge of good farming practices.

Among the problems the selling 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, 15). 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, 34).

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 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, 8)

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, 5)

By December 31 of 2003 there were registered 15 milk marketing cooperatives.

OBJECTIVES

The primary objectives of this paper are to:

1. Describe the current 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 ATC 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 120 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 103 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, 178, Stafford 1985, 47, Adrian 2001, 22) 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 for the sake 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 analysis. The major findings are the following.

Table 1.

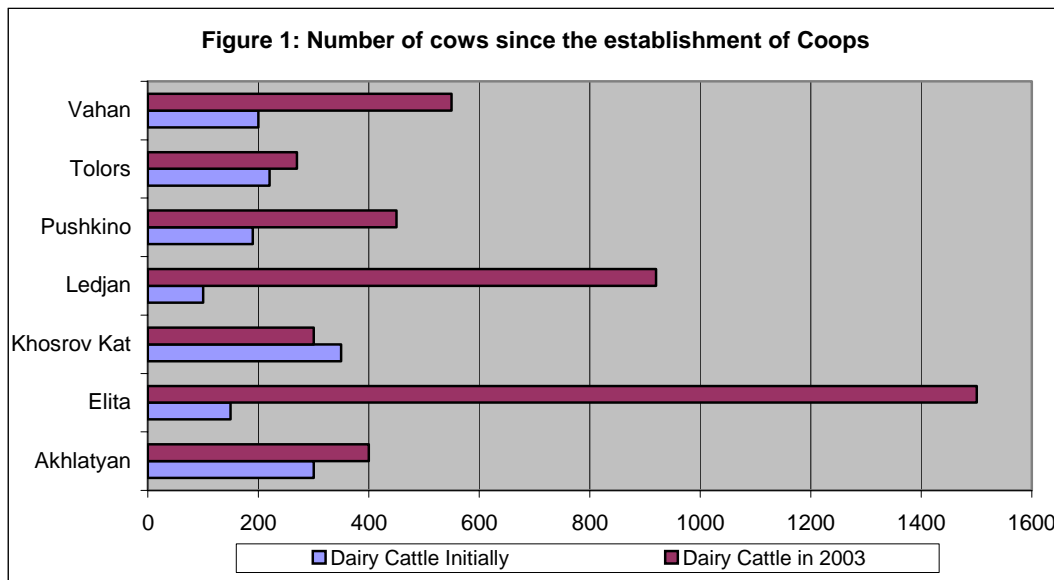
N =103	Min	Max	Mean	St. Deviation
Number of cows after joining the coop	1.0	70.0	4.7	4.1
Number of cows before joining the coop	0.0	46	4.5	7.0
Average daily production of member farmers (Lit.)	11.0	286.0	53	45.2
Milk sold to the cooperative daily (Lit.)	7.0	282.0	36.6	46.4
Home consumed milk of coop members (Lit.)	4.0	34.0	16.4	8.1
Average daily production before joining the coop (Lit.)	0.0	120.0	32.3	27.5
Daily sold milk before joining the coop (Lit.)	0.0	100.0	18.6	27

* N is the Sample Size

As is visible from the table 1, the average number of cows per farmer after joining the cooperative has increased from 4.5 to 4.7 (4%). Meanwhile, the standard deviation decreased from 7.0 to 4.1 (41%). This implies that polarization of the number of cows among farmers decreased appreciably.

Due to a 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.

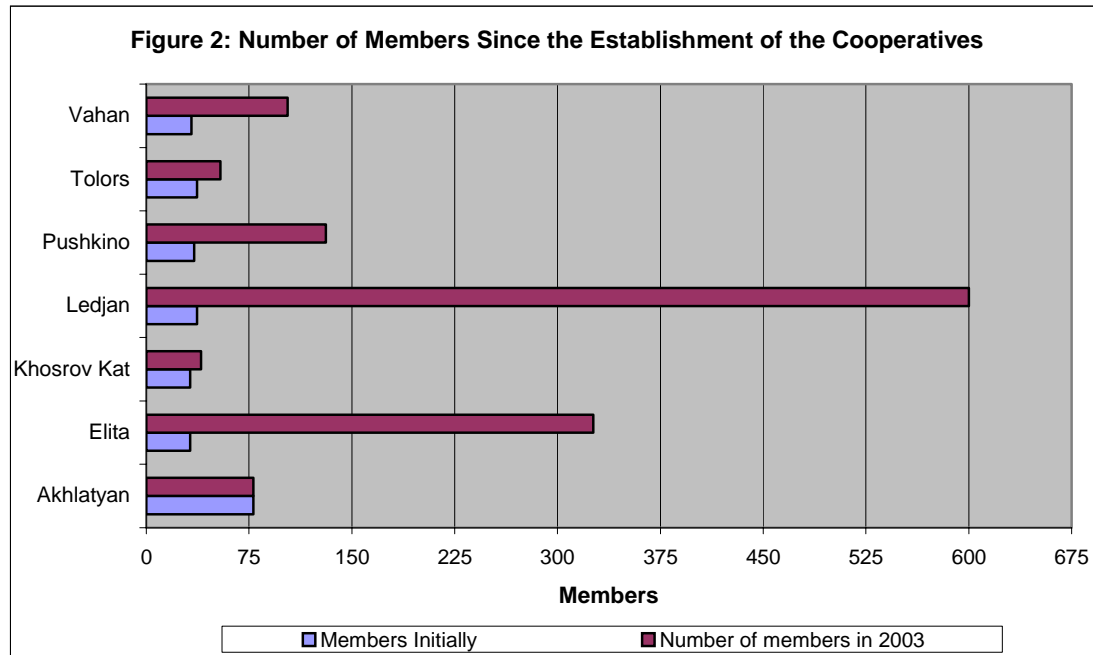
In parallel with milk productivity growth, the share of sold milk through cooperatives has also increased. According to indicators presented in table 1, before the cooperative activity farmers sold 57.6% of their milk, while through cooperatives they sold about 69% of entire milk.



Source: Cooperative Membership Records, Survey Findings.

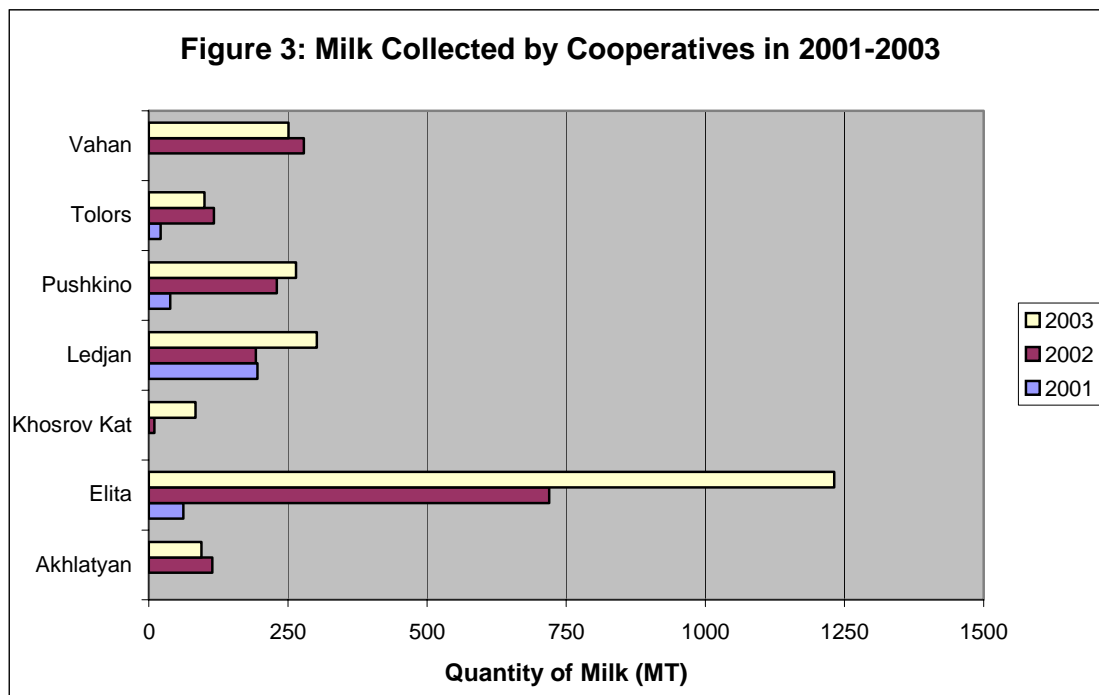
It's obvious that over years the number of cows has increased. Meanwhile, at the time of establishment, cooperatives had 5.3 cows per farmer and this measure was only 3.3 in 2003. This implies that in the successive years smaller farmers gained membership to

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 (See Figure 1).



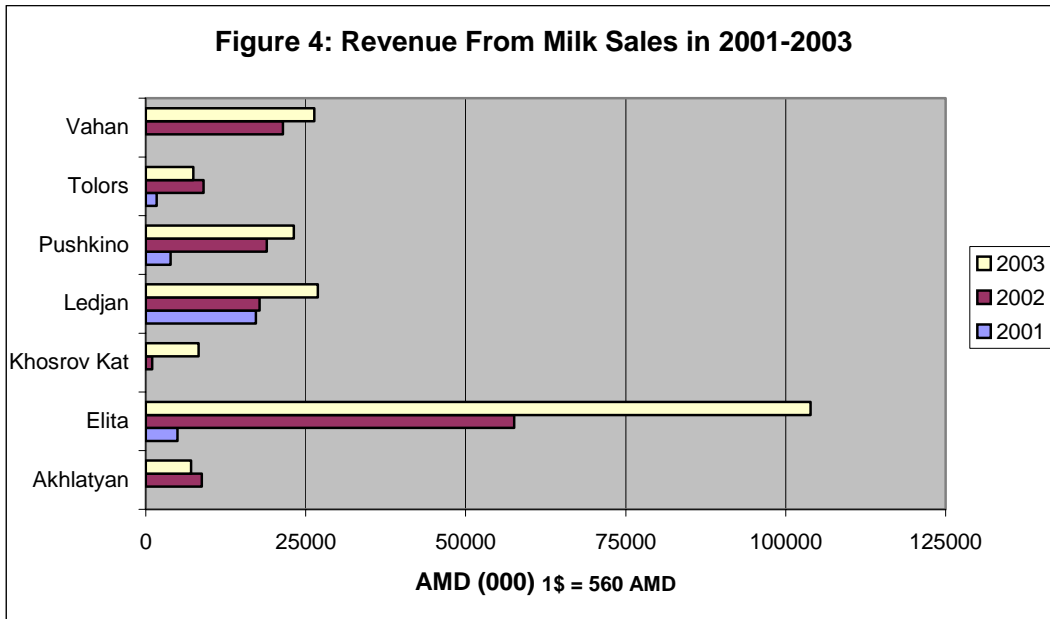
Source: Cooperative Membership Records.

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

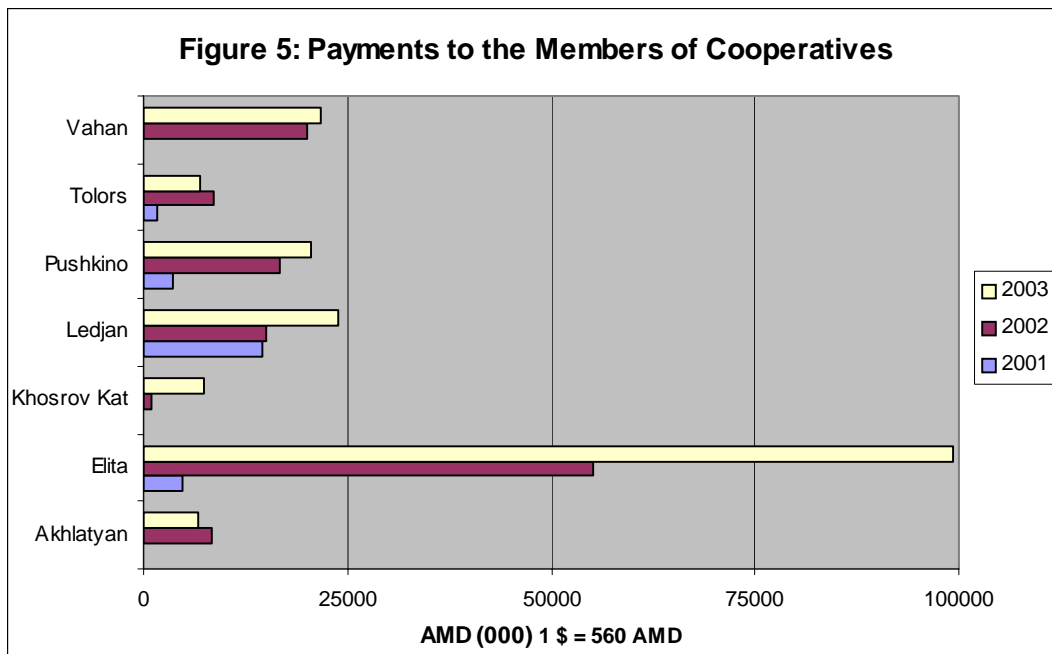


Source: Income and Expenses Statement of Cooperatives, 2001,2002,2003 / Extension Department Annual Reports

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 (See Figure 3). Total milk sold by 7 cooperatives surveyed made up 4,330 metric tons in 2003, 20% more than that of 2002. The stable growth is obvious after looking at milk sales and farmers’ payments data (See 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 (See 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.



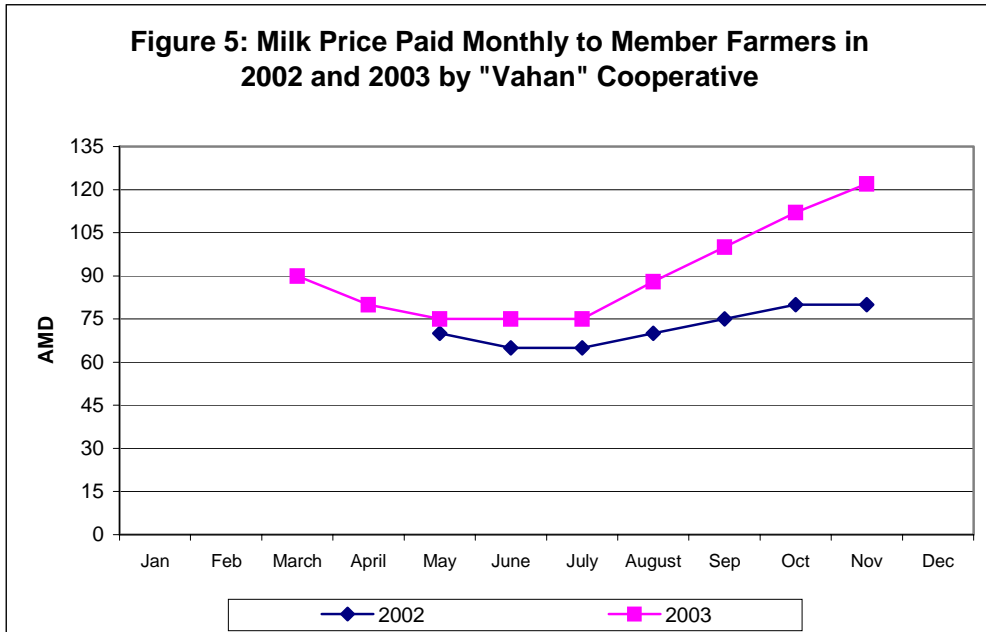
Source: Income and Expenses Statement of Cooperatives, 2001,2002,2003 / Extension Department Annual Reports



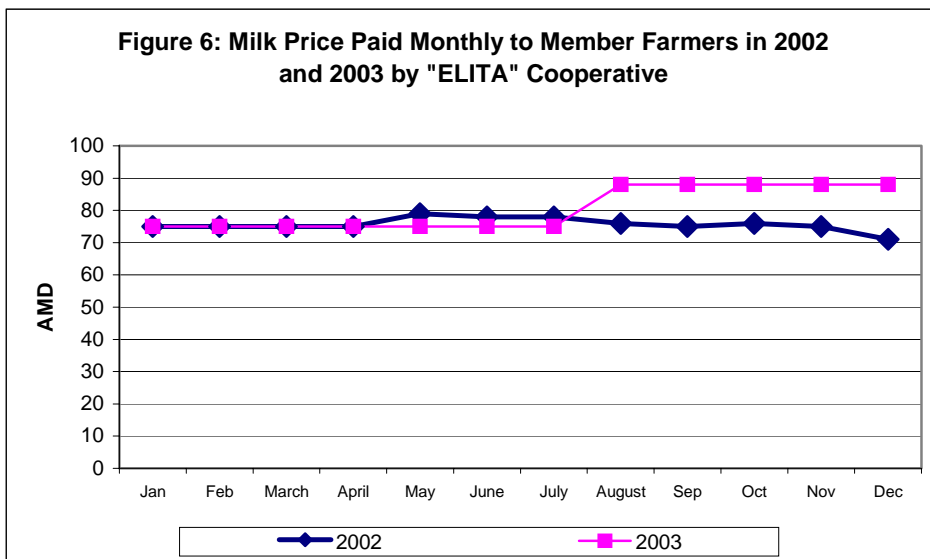
Source: Income and Expenses Statement of Cooperatives, 2001,2002,2003 / Extension Department Annual Reports

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.



Source: Income and Expenses Statement of "Vahan" Cooperative, 2002, 2003.



Source: Income and Expense Statement of "Elita" Cooperative, 2002, 2003.

As is visible from figures 5 and 6, taking into account the seasonal price variations, milk price paid by "Vahan" and "Elita" cooperatives in 2003 as compared to that of the previous year 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 7 % sell it in the retail market and only 5 % sell directly to processors. What is interesting, 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.

SUMMARY AND CONCLUSIONS

The results of our research show that there is an increasing trend in cooperative membership and subsequently in number of cows, which is the best indicator of the cooperative efficiency as opposed to individual marketing. Overall Armenian milk marketing cooperatives provide several benefits, among which the increased opportunity of milk sales is valued most by member farmers. In this sense cooperatives put an end to barter among farmers.

During the cooperative action milk production has also increased due to seminars organized by the USDA MAP regarding 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.

All of these measures tend to increase farmers' income.

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. The majority of managers noted that they had participated in the "Cooperative Management", "Financial Management in Cooperatives" and "Milk Quality Improvement" seminars carried out by the AAA professors and USDA MAP specialists. 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 vast majority of managers responded that education and employee training programs of cooperatives were very important.

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.

RESEARCH LIMITATIONS AND EXTENSION

One should interpret the findings of this research subject to several limitations. Almost all of these limitations arise due to the poor quality of the dataset obtained during the survey. One of the several shortcomings of the dataset is the low level of its representativeness. The direct implication of this is that it might be a lot more useful to allow the member farmers to participate in the process of interviewing the managers, since the answers of the latter might

result in biased answers. Also, little understanding of member farmers about the cooperatives different activities as well as farmers' low level of education, which is very typical for today's farmers in the Republic of Armenia, lead us to suggest that further research be conducted incorporating farmers with relatively higher level of education in the sample size. It is also worth pointing out that a refinement of the survey instruments that will focus on the relevant and more vital and important issues is a necessity. The increased number of the sample size is a necessity as well.

A thorough consideration aforementioned might lead to collecting better data, which in its turn will result in yielding more reliable and representative results. As such, we strongly recommend taking into account the limitations pointed out above for future researches.

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