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ANALYSIS OF PROCESSORS AND TRADERS INVOLVED IN VALUE CHAIN OF SELECTED BIODIVERSITY PRODUCTS IN ARMENIA

Report

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1 PREFACE

1.1 PURPOSE AND SUBJECT OF THE ASSESSMENT

Direct and major objective of the current assessment is to identify and analyze the activities of all important processors and traders involved in the processing and marketing of the selected biodiversity resources. The specific tasks assigned within this assignment are the following:

- Collection of the primary and secondary data on historic processing and trade of the selected biodiversity resources in Armenia;
- Identification of all important actors who contribute to processing and trading within the value chains of the identified biodiversity resources;
- Description of the whole process of processing and trading (with special regard to different product qualities) and investigate detailed costs and benefits of processing and trading activities (including the impact of different qualities on price);
- Assessment of the processed and traded quantities of each grade of the biodiversity products including annual and seasonal variations;
- Identification of the profit margins for all involved participants;
- Identification of the factors affecting the prices of the selected biodiversity products;
- Identification of existing cooperation between different participants;
- Identification and definition of the main challenges and constraints within the value chains and assignment of the opportunities to overcome them; and
- Gender issues appeared at different stages of the value chains.

It was decided to implement the mentioned tasks via the survey and collection of the on-site information from the very source of it. The purpose of the survey was the collection of actual information regarding to various stages of the movement of selected products from the bottom level of the collection to processing and sales. Since the collectors were excluded from the target group of the assessment, processors of the wild products were selected to be the starting point of the survey. They were defined as intermediary ring within the value chain of the selected products. Processors are well informed about the both stages before (collection, wholesale procurement, and initial processing) and after them (distribution of the final products and retail trade).

1.2 METHODOLOGICAL APPROACH

1.2.1 Selection of Biodiversity Resources

Initial to the current assessment, a list of specific product was prepared with the purpose of further analysis. This list was produced based on the findings made during the initial mission conducted in November-December 2009. During that mission 8 communities from two targeted regions of Shikahogh (in Syunik Marz) and Kirants (in Tavush Marz) were visited. Introductory workshops with key persons of those marzes have been organized followed by seminars and group discussions in selected 8 communities.

At the beginning of the survey 8 specific biodiversity products were selected to be addressed during the assessment. After the survey that list was shortened to 7 most promising products. These products

have opportunities for the generation of high value and for constructing promising value chains. Selection of products was made based on the intensiveness of use by the survey participants.

Among those 7 products are blackberry, chervil, rosehip, thyme, walnut, cornelian cherry, and wild/apple and pear. These products are leading the list, although some 30 biodiversity products were declared to be used (i.e. collected, traded, processed, etc.) by respondents. Meantime, the shortlisted 7 products serve as inputs for other products (like preserves, dry food, tea, syrup, essential oils, etc.). In other words, the survey resulted in the analysis of not only 7, but twice as more products. The analyses were concluded by specific Sector Maps (describing the participants of the certain market sector and functions they conduct) and Value Chains (analysis of the values added at each stage of the product movement).

1.2.2 Development of the Survey Sample and Tools

It was decided to analyze four major stages of the movement of selected biodiversity products, i.e. collection, wholesale procurement and trade, processing, and retail trade/exports. In general, these major functions include all operations that are conducted on the bottom up way of the specific biodiversity resource. Certain values added are generated at each of mentioned stages comprising value chains for selected products. Participants of those processes were targeted as respondents of the current survey.

Due to the big number and limited resources, collectors have been excluded from the survey target group. Figures declared by processors played key role in the survey. Complementing rings of the value chains have been identified via those processors, too. Their support helped the survey team to meet/visit various wholesalers and retailers (who are currently responsible for bringing the final products to consumers). Information collected from various sources was classified, crosschecked, justified, and analyzed.

The field-work and information collection was conducted exclusively via face to face qualitative interviews with representatives of various businesses, participating in the value chains of selected products. In order to be consistent and accurate, those interviews were conducted via the application of standard survey tools, i.e. questionnaires, although comprising a lot of open questions and being filled with many subjective declarations and judgments.

1.2.3 Design of Value Chains and Calculation of Value Added

Within the scope of the current survey the term of Value Chain was applied to uncover details of the movement of biodiversity products through various stages of collection, wholesale procurement, initial processing, storage and transportation, general processing and distribution, wholesale and retail trade. Each stage generates additional value for final (sometimes transformed) products. Meantime, there is specific methodological issue that should be necessarily addressed in detail.

Moving through various stages of value chains products and their values can change (usually increase) due to different factors and processes, such as transportation, storing, initial and general processing, packaging, distribution, etc. Different factors and processes affect the product and its price differently: better packaging may increase the value, and wrong promotion may dump sales volumes causing significant decrease in prices. In other words, price (respectively the value, too) of *final products* does not depend only from the major input of wild collected biodiversity products. Actually, value of the same product (for example sweet preserve) may vary really significantly due to different

packaging, labeling, promotion, etc. That is why; **it was decided to address only the value (and its changes) of the initial fresh products**. Methodological peculiarities are defined below.

1. Final products of each stage of value chains are identified. Their sales prices are taken as basis for the calculation. For example, for the stage of collection fresh products are considered as final products; for the stage of general processing sweet preserves, juices, or dried products are considered as final products.
2. Participants of each stage have been asked about profit margins they apply when they sell their products. These profit margins (usually defined as a range) were deducted from the sales price and Costs of Goods (COGS) of products were calculated at each stage of value chains (named as S%). Separately the absolute figure of profit margin for each product is calculated (named as P).
3. Since the price (value, named V) for the collected fresh biodiversity products at the stage of collection are identified, it is possible to calculate the share (as percentage) of fresh product in the COGS of processed final product.
4. Shares of fresh products are taken as basis for calculating the profit that can be attributed to fresh products at the next stage (value added) by simple multiplication of $P \times S\% = P_1$. The value of processed (or transformed) product at the next stage was calculated by the following formula: $V_1 = V + P_1$.
5. The same methodological approach is applied in all other following stages. S% was applied to profit margins generated at the following stages of wholesale and retail trade for the calculation of P_2, P_3, P_4 , and respectively – V_2, V_3, V_4 .

This methodology is not the best for several reasons. The most critical shortcomings of applied methodology are the following: all figures were calculated in ranges, since initial information was calculated from several sources; some figures declared by survey participants have been justified and approximated; it is really impossible to make objective judgments on attribution shares of values. At the same time, this methodology provides at least approximate understanding of the current issue. The strengths and weaknesses of applied methodology will be again discussed during the analyses of value chains of selected biodiversity products.

2 VALUE CHAIN OVERVIEW

2.1 HISTORICAL BACKGROUND

Non-wooden biodiversity products historically played important role in Armenian economy and in livelihoods of many remote rural communities. According to various sources, about 2,000 herbs and plants (comprising approximately 60% of the total flora) were used for different purposes - food, medicine, chemistry, etc. Currently, less than 100 species of biodiversity products are used and only 30-40 of them are used intensively. Only 15 species of berries, 3 types of mushrooms, 4 types of essential oil plants, 8-10 medical plants are currently commercialized, unless the potential.

Reasons for inefficient use of biodiversity resources in Armenia are several; most important ones are presented below:

- Lack of knowledge regarding to biodiversity issues;
- Wrong (damaging) and ineffective organization of the collection of biodiversity resources;
- Ineffective organization of the wholesale procurement of the biodiversity products;
- Lack of marketing and promotional knowledge and activities for promoting local biodiversity resources in local and external markets.

During the soviet period the collection of biodiversity, i.e. wild products, was coordinated by the Ministry of Agriculture, ArmForest (state unit for the coordination of forest issues) and ArmCoop (Union of regional and local cooperatives organizing the supply of the food and everyday consumption products around the country). Those organizations used to organize the procurement of thousand tons of wild products. Currently, the regulation related to collection and use of wild products is theoretically in place, but actually it is not enforced.

Potential volumes of usable wild products are measured by tens of thousand tons, and currently only small part of it is collected. Commercialization level of wild collected products is also very low; the major part of collected products is consumed immediately. Besides, many methods of the collection are not affordable, at all. Meanwhile, effective interventions may significantly improve the situation from both sides: help to protect the biodiversity via increasing the awareness and knowledge of collectors, as well as creating marketing opportunities that will contribute to livelihood of the population.

The current survey was initiated with the major objective to contribute the idea of implementing successful and output-oriented intervention. Selected biodiversity products will be analyzed at all stages of value chains, opportunities will be identified, and solutions for the major problems will be suggested.

2.2 OVERVIEW OF THE VALUE CHAIN STAGES

In the context of the current assessment the following stages of the selected biodiversity products movement have been identified: collection and transportation, wholesale procurement and initial processing, general processing and distribution, and retail trade and exports. Values added at each mentioned stage generate value chains that are the subject of the current assessment. Below short description of each stage is presented.

2.2.1 Collection and Transportation

Collection of biodiversity products is usually conducted by the population of rural communities that are located in the neighborhood of forest areas. Meantime, some wholesale procurers and processors prefer to participate in collection process with their own resources (employees, transport units, etc.). Although the collection of the majority of biodiversity products does not require very sophisticated knowledge and skills, collectors usually apply improper practices and wrong collection methods damaging the nature and biodiversity resources. Collectors do not care of this problem much, since their activities are not properly controlled and they are simply not trained for that, at all.

Collectors of biodiversity products primarily collect for their substitute use/consumption. Commercialization level of collected products is very low, due to small volumes and lack of marketing and sales opportunities. Collectors need systemized training and awareness rising, as well as technical assistance for gaining new market opportunities and increasing collection volumes.

Aside from collection, collectors usually provide transportation of products to facilities of processors, or wholesale procurers. In some cases collectors also practice initial processing; processing of the young walnut, drying of the rosehip and thyme, marinating the chervil are good but not all examples of initial processing conducted by processors.

2.2.2 Wholesale Procurement Initial Processing

Two types of wholesale procurers have been identified for all selected biodiversity products. The first group, later referred as *Local Wholesale Procurers (LWPs)*, mainly operates on/next to the collection sites. These entities and individual entrepreneurs usually operate on behalf of processing enterprises and cooperate with them for quite a long time. Sometimes the role of an LWP is undertaken by active collectors, who succeed in their activity through the years and grow up. As it was mentioned, LWPs procure biodiversity products from the collectors and supply to processing entities.

The second group, later referred as *Wholesale Procurers at agricultural Markets (WPM)*, operates at various agricultural markets (bazaars) of the capital Yerevan and other towns. WPMs procure the biodiversity products from the collectors at same conditions as their competitor LWPs do. Once being supplied WPMs either sell their products to smaller retailers, or sell those products at markets to final consumers.

Both groups of wholesale procurers conduct initial processing activities. They make selection, classification, cleaning, drying, initial packaging, and other. The main purpose is meeting the requirements of their clients the best and selling products at higher prices. Being intermediaries between actual collectors and processors, wholesale procurers usually have to invest their own assets (finance, storage and processing facilities, transportation means).

2.2.3 General Processing and Distribution

Number of general processing practices has been identified during the survey. Most common practices are applied by canneries that are engaged in the production of sweet preserves, jams, juices and beverages, marinades, and other canned products. Aside from them producers of teas, dry products, syrups and essential oils, and other products have been involved in the survey.

Processors procure their inputs (i.e. biodiversity products) both from collectors/villagers and wholesale procurers (mainly from LWPs). Procurements are organized and conducted at certain periods that are

different for various products. Processors participate in the value chains of selected products; they usually completely transform procured inputs' processing.

Although some processors succeeded to export their products, they usually distribute their products via retail networks. For this purpose, almost all processors have developed their distribution facilities and networks. Besides, processors developed schemes of payments both with suppliers and procurers of their products.

2.2.4 Retail Networks and Exports

Retail networks are assigned to bring final products to ultimate consumers. Actually, this function is conducted by almost all participants of value chains. Some quantity of products is sold at agricultural markets directly to consumers. WPMs practice such trade, too. Processors sell their final products via firm shops, etc. Meantime, major participants of retail trade are retailers at agricultural markets, shops and supermarkets, and hotels and restaurants.

Retailers at agricultural markets usually trade with fresh products, except of special cases (like the trade with thyme or other medical or aromatic herbs). Shops and supermarkets usually trade with canned and packaged products. Hotels and restaurants serve/sell only processed food products uncovered from packaging or prepared from fresh.

What is noteworthy; hotels and restaurants are those who theoretically generate the most value. Actually, they are selling not only the product, but also their image, atmosphere and brand. Besides, people usually agree to pay much more for the same products at hotels and restaurants, than at markets and supermarkets.

Some of local processors succeeded to penetrate export markets. Major foreign markets are the USA, Russia, Ukraine, some CIS countries. Actually, exports are the most desirable sales for processors, since sustainable volumes of sales are secured at hard currency. Meantime, processors have to meet many requirements and standards, such as organic, HACCP, ISO, etc. Currently, only few local companies are eligible from that point of view. Anyhow, quality and management standards are not completely new to local processors, and some of them are ready and willing to pass through certification processes.

Details of using the selected biodiversity products during all presented stages are addressed and analyzed below.

3 VALUE CHAIN ANALYSIS

3.1 BLACKBERRY

3.1.1 Introduction – Selected For

Use of blackberry is widely practiced by Armenian population starting from rural inhabitants who collect this product, continued by a range of intermediary traders and processors and finished by final consumers. Blackberry is quite common in almost all regions of Armenia and is consumed by local population in notable quantities, both in fresh and processed conditions.

As the analysis shows blackberry appeared to be one of the most used biodiversity products. More than half of all entities involved in the current survey reported about using blackberry in their operations. This product is utilized at all stages of value chains. This means prospective value chains for this product may be identified to be quite “long”, although that does not obviously mean high-value prospective or high profitability for functionaries of those chains.

3.1.2 Analysis of Specific Functions

3.1.2.1 Collection

Wild blackberry is collected in almost all regions of Armenia. This berry grows almost everywhere (forests, roadsides, meadows, areas neighboring homestead lands, etc.), in rural areas of the country. Foothill areas of Lori, Syunik, Tavush, and Vayots Dzor regions are the most popular places for collection and use of it. Except of collection and use, the population widely practices also cultivation of this plant. Usually, blackberry bushes are used as fence restricting homestead lands from each other, and preventing entry of domestic animals due to its prickliness. The cultivated blackberry that grows on homestead lands cannot and should not be considered as wild, although it is very difficult to clearly separate wild and cultivated berries once they are collected.

Collection of blackberry is not very difficult and can be conducted by anybody; this function does not require special skills or knowledge. That is why; the collection is conducted by the population of any age and gender. People even organize family tours for collection of berries for mainly substitute consumption and sales (usually not in big quantities, although those volumes may comprise more than 50% of collected volumes).

Collection of berries starts from the end of June and may last till the end of October, or even November. The period of collection depends on region and height of the areas where the blackberry grows. Also the collection period varies due to purpose of further use. For the fresh consumption it is not very important, but for the further processing the collection is conducted mainly in the period of September-October. In these months the product best fits to requirements of wholesale procurers and processors.

As it was already mentioned the main purpose of collection is the substitute consumption in households. Collected berries are consumed both in fresh and processed (as compote, preserve, juice, or comfiture) conditions. In some places blackberry is used for the preparation of wine. Meantime, some quantity of blackberry is collected for the purpose of retail and wholesale. Two ways of trading are usually practiced: a) retail trade in rural communities and agricultural markets of neighboring towns, b) wholesale (delivered to wholesale procurers that operate in Yerevan markets or represent different processors). Respectively, delivery of products is also conducted in various ways; it depends from the purpose of use, sales/procurement conditions, place and the price of the product.

The current assessment did not address quantitative issues of the collection due to very big number of collectors throughout the country and irregular nature of the collection. Judgments can be grounded only on qualitative estimation of informed people and specialists, such as “professional” collectors, botanists engaged in different ecological programs, representatives of local authorities, heads of communities neighboring to forested areas, who usually also avoid to declare even approximate numbers. In the recent period (more than 15 years) no specific assessment of the volumes of collection of wild products has been conducted.

According to the subjective opinion of collectors and LWPs the potential of wild products, specifically for the blackberry is much more than is utilized. The estimations of the volumes currently used by the population vary from 10% to 20% of potential capacity. This means that use of blackberry is not sufficiently commercialized and there is a place for increasing the volumes of use.

In the end of 2009 GTZ SMB Project initiated baseline study of 8 communities neighboring to Shikahogh State Reserve in Syunik Region and Kirants Sanctuary in Tavush region. Among the other tasks this study also addressed the use of biodiversity products in those communities. Results of that study can be attributed to other regions of Armenia, too, although some reservations should be made. Use of biodiversity products has been identified to be quite intensive, although the potential stays much more. From 50% to 80% of local population collect and use wild berries, which contribute to their income comprising 10%-15% of their total income.

Less than half of the collected volume consumed within households, but again a reservation is to be made. The major part of the collected blackberry (40%-60%) is processed to preserve and jam, and sold to population (usually to friends and relatives) in neighboring towns. In some cases collectors took processed products to agricultural markets and trade with them in retail quantities, although they usually prefer to deliver their products to wholesalers and get paid immediately.

3.1.2.2 *Wholesale procurement*

The function of wholesale procurement of blackberry is conducted on two levels: *local* and *at agricultural markets*. In case of *Local Wholesale Procurers (LWP)* the collected volume is sold to procurers that are dislocated in their regional bases. Usually, LWPs are intermediaries (the same villagers) who possess sufficient volume of financial resources, some facilities (storage, transportation means), and connections/business relations with either processors or retail traders (rarely). More often, this category of procurers act on behalf of concrete business entities (i.e. processors), and use their resources. LWPs procure wild blackberry at the price of **250-400 AMD per kg** depending on quality of the product, and individual agreements with villagers. It was also identified that this price is paid to villagers at their communities (excluding product transportation costs). Meantime, presented figures are within the range of average prices; during peak of the season significant fluctuations may take place. Some traders reported they sometimes procure blackberry at 100-300 AMD per kg transported to procurers.

Wholesale procurers at agricultural markets (WPMs) mainly operate in Yerevan and bigger towns, where volumes of trade are comparatively substantial. These players are usually operating illegally (or semi-legally), and coordinate the trade (assign prices, decide which retailers should sell specific products, etc.) in particular agricultural markets. They usually procure blackberry at their places, villagers make the transportation, but in some cases procurers make orders (of relatively big quantity) and get products in rural places. Procurement prices are almost the same as in previous case,

although sometimes (especially when the season just starts or is almost ended) prices get higher to 500-600 AMD per kg.

Information on dynamics of blackberry prices is somewhat contradicting. LWPs in Vayots Dzor Marz declared that prices get higher for 25% in recent 2-3 years, operators in Ararat Region decreased their prices for 15%. Procurers from other regions and at agricultural markets kept prices unchanged. It can be concluded that procurement prices in different regions are affected by various factors. Here are some of them: product quality (mainly appearance), season, climatic conditions of the year (yield volumes of specific year). Meantime, the most decisive factors are the market situation (supply and demand dynamics) or competitors' prices, and procurement prices assigned by other players of the market, i.e. processors. Sometimes these entities assign prices without paying any attention to market conjuncture. They can afford such decisions, since procurers in the market are not many.

All procurers declared they procure blackberry from villagers, i.e. collectors. There are no stable conditions (once decided and kept) for making payments to villagers. Moreover, the same procurer may apply different payment terms and conditions for different suppliers, and villagers work with various procurers under different conditions. Complete payment at the moment of the procurement is practiced more often, although players who procure bigger quantities usually apply delayed payments. Meantime, if wholesale procurers receive orders for substantial quantities, they usually ask for partial or complete pre-payments (or 100% down payments), and pay to villagers similarly.

Wholesalers make their procurements in almost all regions of Armenia. Regions of Lori, Syunik, Tavush, Vayots Dzor, and Kotayk are more known as suppliers of blackberry. Almost all regions have their wholesale procurers who operate in specific areas, although villagers are free to sell their products to whomever they like. Villagers face some difficulties in selling their product only in agricultural markets of Yerevan; best places there are permanently engaged by local traders.

Wholesale procurement of blackberry usually starts in August-September and continues till the end of October; in this period processors are more active, which means that demand in market grows. Meantime, villagers start trading with this product from July and continue till November. In the beginning and at the end of the season they supply agricultural markets; in the mid of the season supplies usually go to processors.

Quantitative issues appeared to be the most difficult topic addressed by the current survey. Respondents really don't like to discuss volumes of their operations, since those figures have direct relation with their profits. They are not happy to share information about their earnings. Estimated volumes of blackberry wholesale procurements are presented in the table below.

Table 1 - Estimated average volumes of blackberry procurement (per each wholesale procurer)

Years ¹	LWPs, kg	WPMs ² , kg
2007	600 – 1,000	4,400 – 11,000
2008	800 – 1,500	4,400 – 11,000
2009	500 -1,500	4,400 – 11,000

Substantial variation in presented figures can be explained by mainly subjective reasons. At first, respondents are not responsive in this issue. Second, their majority does not operate officially; they keep no records and accounting, and simply may not remember actual volumes

of their operations. This is going to be notable problem impeding the cooperation of GTZ SMB Project with them. At the same time, usually this category of respondents tends to deflate real figures for

¹ Here we consider the yield season of blackberry

² Specified mainly for agricultural markets of capital Yerevan.

several times. It can be roughly estimated that actual volumes are 2-4 times more (figures should be especially higher for LWPs, although this subjective estimation is based on feelings and comprehension of interviewers).

Wholesale procurers also declared about their preferences regarding to the quality of blackberry they procure. WPMs require mostly nice-looking product, since the overwhelming majority of their consumers prefer to buy blackberry of good appearance (i.e. bigger berries, shining look, freshness, not crushed, etc.). In many cases they even reject to procure, if it does not fit their requirements. The conclusion is: *WPMs prefer to procure cultivated blackberry.*

On contrary, LWPs pay more attention to aroma and taste of the product. Besides, they prefer berries grown without any fertilizers and chemicals. Wild growing blackberry best fits these requirements. It can be concluded that wild collected blackberry is usually used for either own consumption or further processing. At the same time, local procurers do not completely ignore the appearance of product. They also prefer to get ripe, not crushed, and fresh product collected at the same day.

Initially it was considered that wholesale procurers may conduct not only intermediary functions, but also some other operations, too. This was important, since those operations would transform the product and add value. The analysis shows that those expectations were not right. Wholesale procurers of blackberry usually undertake only storing and delivering functions.

Once procured, the blackberry is stored in cold and dark places (such as basement storages or isolated facilities). Before delivering to processors or retailers (usually within 24 hours) wholesalers pick-out spoiled berries, pack the product in special boxes. Fast delivery is very important because the fresh blackberry cannot be stored for a long time. Wholesalers usually have initial agreements with processors and retailers, which allows them to organize the whole process without significant losses.

At this stage it can be concluded that wholesale procurers do not conduct any functions of initial processing; they simply speculate earning their profit. Sales prices declared by wholesale procurers *were declared to be 10%-20% higher than procurement prices.* Having in mind expenses that these players face (storage costs, lost of weight, transportation costs, etc.) their profit margin can be estimated at the range of 5%-15%. Profit margins for LWPs and WPMs seems to be almost the same, although the latter group may earn slightly more, since they do not much care of logistic costs. In absolute figures wholesalers' net profit comprises 50-150 AMD per kg. From the value chain prospective it can be concluded that at the end of this stage (when the product is forwarded to processors or retailers) the value of blackberry is getting higher for 20% reaching the average price of 500 AMD per kg (average figure for the season).

One important issue should be addressed at this stage of analysis. Passing through different functions products may be transformed to other products or lose some weight due to natural conditions. In other words, 1 kg of procured product may be transformed to 0.9 kg of other product (semi-ready stuff for example) or stay the same but lose weight due to evaporation of humidity. In case of wholesale trade of blackberry such changes in consistency or weight have not been observed. Thus, no corrections on the transformation were applied.

Respondents did not share financial information very responsively, too. They tend to reject answering this question or tell wrong (usually deflated) figures. This tendency can be understood; they operate almost completely illegally and are afraid of information dissemination. That is why; collected information was crosschecked and justified. Change of procurement prices throughout the season is another important issue to be kept in mind during the implementation of value chain analysis. Prices may start from 100-150 AMD per kg of blackberry and may reach to 700 AMD per kg. But extremums

took place only in the beginning and at the end of the season, when volumes are not significant and price changes do not affect whole picture notably.

Wholesale procurers are not able to specify expected volumes of procurements for 2010. More clearly, they don't decide anything. They receive orders or requests from the next link of the value chain, i.e. retailers or processors. Actually, procurement volumes exclusively depend on plans of processors and conjuncture of agricultural markets. Nevertheless, some wholesale procurers estimated potential volumes for 2010. LWPs average estimation of procurement volumes vary from 500 to 2,000 kg per each procurer. WPMs indicate volumes of their procurement in 2010 at the range of 3,500 to 5,000 kg (per each procurer). All procurers mentioned they are able to supply much more (several times) quantity if there is a demand in the market.

3.1.2.3 General processing

Processing of blackberry can be conducted in various ways; it can be frozen, dried (sometimes with sugar), preserved or processed to jam; also juices and compotes can be prepared from it. Some other processors go even further and use blackberry and its leaves (for the production of teas and species); others even try to manufacture syrups and extracts. Blackberry is used by various processors quite often, which was also proven by the current survey.

Processors procure blackberry in two ways, i.e. from villagers and from local wholesale traders in regions. In the majority of cases the actual procurement is conducted at processing facilities of processors, which means that transportation function is conducted by suppliers. Also, there are cases when processors procure some quantity of the blackberry in processed condition. Processors procure the blackberry at prices presented in the table below.

Table 2 - Procurement of the blackberry by processors³

Processor	Procured from	Procured in fresh condition		
		Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total
Nectar-Bonus	Villager - collector	300	300	90%
	Wholesale trader			
Maga Cannery	Villager - collector		150 - 200	50%
	Wholesale trader		150 - 200	50%
Borodino Cannery	Villager - collector		400 - 450	20%
	Wholesale trader		400 - 450	80%
Alishan	Villager - collector			
	Wholesale trader	300	400	100%
A. Ohanjanyan Cannery	Villager - collector	350-400		100%
	Wholesale trader			40%
Tamar-Tatik	Villager - collector	300 - 400	300 - 400	60%
	Wholesale trader	300 - 400	300 - 400	40%

³ Table 2 refers to answers of not all processors. Some processors reject to provide complete information and were not cited in the table

Processors do not really care who they procure the blackberry from, although there are some exceptions. For example, HAM tea producing company trained certain villagers in almost all regions of Armenia, for collecting specific herbs and plants, including also blackberry and its leaves. Similarly, Tamara-Fruit is going to launch a new project of lending villagers with special type of blackberry young trees (or seedlings), and will be procuring the produce of those villagers.

Processors prefer to procure products at their facilities, avoiding costs, problems, and risks related to transportation. Moreover, they declared to have the same procurement price regardless the place of the procurement. In other words, some processors do not think that transportation really adds value. Others agree partially. Procurement prices declared by processors are in line with information received before from villagers/collectors and wholesale procurers. Meantime, interesting observations can be made - processors at remote regions procure blackberry at notably lower (almost twice) price.

Overwhelming majority of processors procure blackberry only in fresh condition. Only Nectar - Bonus Company (which produces syrups) procures processed (i.e. dried) blackberry. In this specific case the blackberry is transformed to another product moving the blackberry value chain forward by other way. Transformation coefficient comprises 25%. Procurement price comprises 800-1,000 AMD per kg of dried blackberry, which equals to 200-250 AMD per kg of fresh product.

Blackberry procurement prices are assigned by processors based on factors affecting their activity in general. Meantime, processors declare that procurement prices are negotiated with major suppliers. Here are some of the factors that affect procurement prices:

- a) Yield of the current year (supply volumes);
- b) Climatic conditions;
- c) Quality (appearance, not-crushed, taste, size, etc.) of the product;
- d) Exchange rate fluctuations;
- e) Wholesale prices of competitors (also in agricultural markets).

Assignment of the procurement prices is quite objective process. Prices are somehow balanced. Processors know that collectors and suppliers will not continue their cooperation if procurement prices are assigned too low. Meantime, processors are restricted by sales prices of their final products and can't afford to procure at very high prices.

Payment schemes against procured blackberry are different; there is no general scheme of payments. Payment schemes are decided for each individual case. Advance payments or completion payments against delivery are the most practiced ways. Payment schemes do not much depend from the quantities, i.e. payment schemes are the same for wholesale procurers and simple villagers/collectors.

Respondents addressed also dynamics of the blackberry procurement prices. Responses were quite different again. Major part of processors declared that prices increased for 25% during the recent 2-3 years. Some processors procure blackberry at unchanged prices; and one of them – Alishan, even decreased its prices for 30%. Reasons for such deviation are different and are related to local/subjective specificities.

It was already presented that processors procure blackberry from all regions of Armenia, although all of them have preferred areas. Preferences are conditioned mainly with the availability of business partners in those regions. Moreover, almost all processors tried to establish such relations with both villagers/collectors and wholesale procurers. Processors prefer to cooperate with few wholesalers, instead of constructing their relations with hundreds of small suppliers. This is understandable; such approach allows them to save a lot of time and coordination resources, organize procurement schedules, avoid risks of procuring low-quality or spoiled products, apply flexible payment schemes,

etc. Working with wholesalers means procuring products for somewhat higher prices, but processors are willing to pay it.

Although blackberry is procured from all regions of Armenia, some areas are more preferable and active. Procurements from Tavush (Ijevan, Noyemberyan) and Lori (Vanadzor, Alaverdi) take place more often. Processors also mentioned Aragatsotn, Kotayk, Syunik, and Artsakh regions. Actually, processors try to procure blackberry from respectively close regions; in this case products can be delivered within 24 hours without losing its qualitative features. Some processors try to procure from regions where the use of fertilizers and chemicals, and industrial pollution are not so intensive.

Processors start their procurement of blackberry at the second half of June and continue the process till October. Most intensive period of procurements is the August-September. Almost all procurement areas supply blackberry in these months.

Blackberry procurement quantities directly depend on processed products' sales volumes. If processors are not successful in selling their products in the given period, they cannot be interested in procurement of inputs for those products. Processors also don't like sharing quantitative and financial information. There are many reasons for that and their attitude can be understood. Blackberry procurement volumes reported by selected processors are presented in the table below.

Table 3 - Blackberry procurement volumes, kg

Year	Nectar - Bonus	Maga Cannery	Borodino	Alishan	Tamar Tatik	Ohanjanyan Cannery	Tamara Fruit	HAM
2007	200	60,000	24,450	2,220	500	4,500	N/A	200
2008	200	50,000	0	1,460	1,000	4,500	90,000	0
2009	200	15,000	0	0	1,500	5,000	60,000	0

Procurement volumes of bigger processors (mainly canneries) are significantly higher. All surveyed processors squeezed their procurement volumes in the recent period. Moreover, some of them simply stopped procurement. Decrease of the market demand for final products that blackberry is processed, is the main reason for this. Besides, processors sometimes have to concentrate their efforts on other products, and stop procuring blackberry.

Figures presented in the table are not completely accurate. Processors were free to declare any volumes, and they tend to minimize figures for various reasons (mainly tax issues). At the same time, it can be concluded that general tendency of procurement volumes is correct (volumes are decreasing), but absolute figures do not reflect the reality.

Processors use certain quality standards while they procure blackberry. These quality requirements may appear to be less tight in comparison with requirements of traders who deliver fresh blackberry to final consumers, but, nevertheless, should be met by suppliers. Following qualitative requirements are suggested by processors for the blackberry procurement:

- Berries should be well but not over ripe;
- Berries should not be too small;
- Berries should be fresh collected (within 24 hours);
- Berries should have good appearance;
- Berries should not turn soured or be spoiled;
- Berries should fit requirements of organic production as much as possible;
- Berries should be of adequate color (dark blue or black);

- Berries should not be crushed;
- Berries should be transported in proper packaging (special small boxes or pails);
- Berries should not be damaged by insects;
- Berries should not be mouldy;
- Berries should not be frozen.

The list of qualitative requirements contains features requested by all surveyed processors, although the major part of those features is general for all of them. Requirements are quite tight at first sight, but closer look shows they are quite objective. Processors take care of procuring high-quality products for being able to secure the quality after processing. Processors usually ask for small exemplary quantity from suppliers for checking the quality before entering into long-term relations with them.

Almost all processors declared that they prefer to procure wild collected blackberry. Processors bring several reasons for their preferences.

- Wild collected blackberry is ecologically clean and better fit to organic standards;
- Aromatic and taste features of wild collected blackberry are much better in comparison to cultivated blackberry;
- Roots of wild growing blackberry are strong, which makes berries to stay more resistant after their collection. They keep their appearance, taste, and aroma after the collection,
- There is more dry substance in wild collected blackberry, which increases the quality. Cultivated blackberry contains more water, which makes processing more difficult and decreases qualitative features of final products.

It can be concluded that processors pay a lot of attention to blackberry they procure. They really prefer to pay for high-quality product of better taste. Some processors procure only wild blackberry for meeting organic and other standards. This means that some processors are quite well informed about standardization issues and will adopt further improvement requirements more fluently.

From the viewpoint of the value chain analysis processing is the major stage/link of products movement, where specific products are transformed to other outputs. In case of blackberry input berries can be transformed to different final results such as sweet preserve, jam, juice/compote, syrup, dried blackberry, tea and spice. Let us address main specificities of mentioned products.

Production of sweet preserve is the major way of processing the blackberry in Armenia. Blackberry preserve is widely consumed product in Armenia and has demand in local market of food products. Being sugared and preserved the blackberry completely changes its consistence and adds some additional value. In other words, it transforms to another product, i.e. sweet preserve. Such detailed definition is necessary, since from the prospective of the value chain analysis it is necessary to address the value added. Additional complementary inputs are added to blackberry in the process of preserving that contribute to value of the final product. Within the frame of the current survey special methodology has been designed for measuring the change of the value of fresh products.

Table 4 - Calculation of the value of blackberry processed to sweet preserve

Preserve from 1000g fresh, grams	Price for 1000g fresh, AMD	COGS ⁴ , AMD	Net profit, AMD	Blackberry share in COGS		Blackberry value added, AMD	
1	2	3	4	5		6	
1,500 – 2,006	1,963 – 2,667	1,895 – 2,222	379 - 444	14%	24%	60	90

⁴ Cost Of Goods Sold

The table reflects average figures of processors that produce preserves. Some further explanation of figures provided in the table is needed for proper understanding of applied methodology.

1. Local producers use 1,000 grams of the fresh blackberry for producing of 1,500 to 2,006 grams of preserve. Difference in figures appears due to various technologies and recipes applied by different producers in process of production.
2. Prices for the volumes of preserve produced from 1,000 grams of fresh blackberry vary from 1,963 to 2,667 AMD. These prices are officially assigned by processors in their price-lists.
3. Respondents declared their costs to be about 80% of sales prices. Again, figures are presented in a range.
4. Respectively, the net profit margin comprises about 20%, which is generated via transformation (processing) of blackberry, packaging and promoting it in the market, etc.
5. The statement made above has an objective to explain that final value of blackberry preserve is created not only and not uppermost by blackberry, but by other inputs, such as packaging (jars), energy, workforce, marketing, etc. The blackberry share in total value-added, i.e. in the net profit of processors is taken the share which it has in COGS. Thus, it can be concluded that blackberry adds its value for **60-90 AMD per kg** (15%-18%) being processed into preserve.

Profit margins and values added by processing blackberry into *jam* are almost adequate.

Table 5 - Calculation of the value of blackberry processed to syrup

Syrup from 1,000g fresh, grams	Price for 1,000g fresh, AMD	COGS, AMD	Net profit, AMD	Blackberry share in COGS		Blackberry value added, AMD	
1,000	2,250	1,957	293	15%	15%	45	45

Table 6 - Calculation of the value of blackberry processed to dried blackberry

Dried from 1kg fresh, grams	Price for 1kg fresh, AMD	COGS, AMD	Net profit, AMD	Blackberry share in COGS		Blackberry value added, AMD	
330	667	580	87	52%	69%	45	60

Table 7 - Calculation of the value of blackberry processed to juices and compotes

Dried from 1kg fresh, kg	Price for 1kg fresh, AMD	COGS, AMD	Net profit, AMD	Blackberry share in COGS		Blackberry value added, AMD	
700	400	333	67	45%	60%	30	40

Analysis of various processing scenarios shows that shares of the added values are almost the same in all cases. In case of dried blackberry value chain figures (both shares and absolute figures) are somewhat higher.

Sales of processed blackberry strongly depend from types of final products. Also, processors organize distribution (i.e. sales) of final products differently. Some of them concentrate their efforts on local markets, others put emphasize on exports. Some products are sold in all types of trade outlets; others are supplied only to specialized entities.

Export of final products (especially preserves and other cans) is widely practiced by local processors. Although export volumes significantly decreased due to recent economic and financial crisis,

companies like Maga, Tamara-Fruit, Alishan, and Borodino sell some part of their products in abroad. Among the major markets are Russia, Ukraine, Turkmenistan, USA, and Canada. Sales of canned products (especially processed with sugar) in European markets are almost impossible. European consumers strongly prefer organic products. Producers of dried food (such as Cheer and Tamar-Tatik) export their products in substantial volumes. The same is with frozen products (Tamara-Fruit). Producers of syrups realize their products only in local market. Nectar-Bonus sells its blackberry syrup via pharmaceutical networks. What is notable; export prices are usually quite close to local prices; sometimes they are even lower.

All processors sell their products at local market, too. Bigger entities established their distribution networks and supply products to hundreds of trade outlets – shops, supermarkets, public food entities, markets, etc. Smaller processors organize their production more modestly, supplying their products to several tens of retailers using their personal or rented transportation units.

Processors develop their plans of the blackberry procurement based on final products' sales volumes. If the processors have significant stocks of blackberry products (as in case of Borodino) they may even stop procuring it. Planned volumes of procurements in 2010 are presented in the table below.

Table 8 - Planned volumes of blackberry procurement in 2010, kg

Year	Nectar - Bonus	Maga Cannery	Borodino	Alishan	Tamar Tatik	Tamara Fruit	HAM
2010	200	not decided yet ⁵	0	30,000	5,000	not decided yet	N/A

Some processors have not yet decided on their procurement volumes. This is understandable, since those plans heavily depend on prospective of selling processed products. At the current stage processors negotiate their plans with retailers, distributors, and foreign partners. Only after having final arrangements with them they will be able to decide procurement volumes. Nevertheless, some processors have already outlined their plans.

The survey specially addressed problems and impediments of using the wild products more intensively. Respondents expressed their opinions and tried to explain their positions. Some problems are specific only for few processors; others are mostly common for all entities. Here is the list of problems impeding more intensive use of wild products to the opinion of processors.

- Local market of processed products is small, purchasing power of local consumers is quite low;
- Sales of preserves in Armenia are very difficult; many consumers simply prefer to consume homemade products (i.e. produce small quantity of preserves and other products domiciliary);
- Exports of processed products is very difficult; transportation is very expensive;
- It is difficult to get paid for exported products; exports are risky;
- Lack of financial opportunities; attraction of external financing is very difficult;
- It is difficult to organize the procurement of high-quality wild products;
- Wholesale procurers are not keeping product standards, not all intermediaries really care of the quality of procured products; punctuality and accuracy are unreachable for wholesale procurers;
- Sugar prices are continuously growing, which increases the cost of processed products;
- Sometimes periods of procurement of various products overlap; processors are made to prioritize their procurements due to lack of financing and facilities;

⁵ Currently they negotiate with potential buyers of the final products. Procurement volumes will be decided at April-May of 2010

- Climatic fluctuations; sometimes severe climate causes significant losses, and it becomes impossible to procure necessary volumes of products.

The majority of problems that impede more intensive use of wild products are related to market. Selling processed products in local or foreign markets is the most difficult problem. It is absolutely necessary and recommended to address this issue within the GTZ SMB Program.

In general, processors are quite familiar with targeted pilot regions. Some of them even make procurements from those regions. Almost all of surveyed processors will be glad to cooperate with villagers/collectors or wholesale procurers of those regions. Meantime, processors have requirements that should be met by suppliers. First of all, processors would procure only high-quality products. Processors would like to establish personal and partnership relations with potential suppliers and negotiate conditions for the supply of wild products. Besides, delivery and transportation is requested to be made by suppliers.

Again, the intensiveness of the cooperation directly depends on the final products' sales opportunities. Once having orders or delivery contracts for processed wild products, processors will be able to establish long-term and mutually beneficial relations with suppliers of Syunik and Tavush regions.

One of the processors - Tamara-Fruit requested analysis of soil of those regions. This company is certified as organic producer, and they procure only products that meet organic standards. They are anxious about Syunik region products, since they are growing on the area neighboring the metallurgical plants that spread pollution⁶ in surrounding areas.

3.1.2.4 Retail trade outlets

In the section below the analysis should be divided into two blocks: retail trade of the fresh blackberry and processed products. The survey has been conducted among retail traders at 3 agricultural markets of capital Yerevan and trade outlets (shops and supermarkets). Respondents at agricultural markets addressed topics related to fresh blackberry, trade outlets answered questions about processed blackberry.

Retailers at agricultural markets in Yerevan usually procure blackberry from villagers or wholesale procurers. Procurement prices vary from 400 to 700 AMD per kg. The procurement price varies depending from the season, quality, and place of the procurement. Fresh blackberry is procured from Kotayk, Aragatsotn, Tavush regions or from the wholesale markets of Yerevan (Malatya and GUM).

Trade outlets order processed products directly to distribution services of suppliers. Various trade outlets, from different areas of the country, mentioned they procure processed blackberry products from RagMac, Alishan, ArtFood, Tamara, Avshar Prod, etc. Most often they procure blackberry preserve. Trade outlets procure processed products at officially declared prices. Thus average sales prices announced by processors can be taken as procurement prices for retail trade outlets. Average figures are taken as basis, since prices slightly vary from one processor to another, also the product (i.e. blackberry preserve) appears in various sizes and packaging.

Both types of retailers of the fresh blackberry and processed products noted that during the recent period of 2-3 years prices slightly raised for about 10% on average. Generally this increase is legitimate, since prices for all products in Armenia increased in the mentioned period. Increase of 10%

⁶ For the soil and water

is even not too much in reality, since of other complementary products (especially sugar, processed food, etc.) increased substantially more.

Retailers at the Yerevan agricultural markets declared they strongly prefer wild collected blackberry. Here we face some asymmetric information, since wholesale procurers told they prefer to procure cultivated blackberry for better appearance. Nevertheless, retailers are more tend to procure and trade with wild blackberry. Retailers explain their preference with mainly qualitative features of the wild blackberry. In this context the quality is defined mainly by taste, aroma, and ecologically clean features of wild blackberry.

Retailers at trade outlets don't pay any attention to original inputs of processed products (i.e. blackberry in this case). They really don't care much of qualitative features of products they trade. That is left to the supplier; processors must be interested in quality and promotion of their products.

It is worthy to mention that both types of retailers define no special quality requirements for the blackberry and processed products they procure.

Retailers at agricultural markets of Yerevan usually add-on **20%-25%** commercial surplus on procurement prices of blackberry. In absolute figures this surplus comprises **100-150 AMD per kg** of fresh blackberry. At first sight this is quite significant surplus comparing to margins added before by wholesalers and processors. At the same time, retailers of fresh blackberry face risks that none of previous players have. The product life is not long and retailers usually have to realize it within the same day. Otherwise the product will lose its quality (appearance), and may be sold-off for very low price. In some cases retailers are made to consume the remainder quantity of the product themselves. From this viewpoint higher profit margins are legitimate. Besides, retailers usually pay in advance when they procure the product; in other equal conditions this means that they are going to lose their money if they don't sell products.

At the beginning and at the very end of the season prices of fresh blackberry may go very high due to lack of it in the market. Sometimes sales prices of fresh blackberry may even reach to 700-1000 AMD per kg, but these figures do not reflect real range of average prices range. At the same time, it may be concluded that if suppliers find a way for prolonging product life (apply proper storage practices (if possible), or extend the period of the collection to the very end of the season without losing qualitative features), they may have an opportunity to sell it at significantly higher prices.

Retailers at trade outlets practice different system of paying against procured products (i.e. blackberry preserve). Processors actually extend their products to trade outlets with delayed payments. Traders pay for products they procure only when they receive the next lot of products. Thus, retailers do not risk or even engage their financial means in trade. Such scheme of trading allows retailers to add-on quite low surplus margins. Margins applied by different traders vary from **5% to 8%**. Some big and well-known supermarkets sometimes increase that margin to 15%, since they secure bigger volumes of sales. Having in mind the processors' average figures of sales, the absolute surplus figures can be calculated. In case of simple trade outlets **value added on fresh blackberry** in stage of retail trade may be estimated **23-47 AMD** for 1 kg of blackberry preserve, **22-44 AMD** per 1 kg of syrup, and about **21-43 AMD per liter of juice**. In case of supermarkets presented figures of surpluses (or added value) are half as much (should be multiplied by 1.5).

During the survey respondents have been suggested to explain reasons of trading with fresh and processed wild blackberry and other products. The answer was one and only for all respondents. Retailers do not really care of wildness of products they trade. There is market demand, consumers are ready to pay for those products, and they are there to meet that demand!

3.1.2.5 Hotels and restaurants

Hotels and restaurants seem to be the latest links in value chains of blackberry (as well as other wild products). Final consumption of addressed products is conducted at this stage (on contrary to retail trade outlets). The survey addressed a number of hotels and restaurants in Yerevan and other neighboring regions. Findings are presented below.

Restaurants used to procure *fresh blackberry* and *blackberry preserve*. Both products are included in menu and proposed to clients. Procurement volume of fresh blackberry in surveyed restaurants is tiny; single retailer at agricultural markets of Yerevan daily sells more than a restaurant would sell during the whole season. This can be explained by historically developed preferences of Armenian restaurants' clients. Demand for fresh blackberry is not very high. Restaurants procure fresh blackberry from villagers of neighboring communities. The quality is requested to be very high, and it is procured at really high prices. Restaurants pay 600-800 AMD per kg of fresh blackberry.

Restaurants procure blackberry preserve in three ways: from processors (via distributors), from shops and supermarkets (but still the product of processors - ArtFood brand is the most famous one), and from villagers. In case of procuring preserves from processors or retail trade outlets, restaurants pay prices that were presented and analyzed in sections above (about 2,000 – 2,500 AMD per kg). In case of procuring blackberry preserve from villagers restaurants pay about **1,500 AMD per kg**. Average volumes of the blackberry preserve procurement by surveyed restaurants comprise 50-100 kg annually. In capital Yerevan restaurants procure and use more preserve than in regions (especially in cold seasons).

Hotels also procure blackberry preserve. Procurement of fresh blackberry is of occasional nature and cannot be considered as regular practice. Sources of blackberry preserve procurement are again the same: villagers, processors, and supermarkets (shops). Procurement from villagers is more practiced by hotels dislocated in regions. In this case prices are low again. In Tavush region price of the homemade blackberry preserve sometimes is as low as 1,000-1,200 AMD per kg, although average price should be taken at **1,500 AMD per kg**. Hotels pay 2,000-2,500 AMD per kg of the blackberry preserve procured from trade outlets. Most famous brand is the ArtFood again. Average volume of the blackberry preserve procured by hotels is again very low – up to 50kg annually at maximum.

Conditions and payments that hotels and restaurants made for procured fresh and processed blackberry are similar to conditions of other retailers. Payments to villagers for fresh products, and for processed products from shops and supermarkets are made immediately, at the moment of the procurement. Payments to processors are made with slight delay; receiving next lot of products from processors hotels and restaurants pay for the previous lot.

Only one restaurant and one hotel declared about the increase (up to 30%) of prices for fresh and processed blackberry. In this case some subjective behavior took place, since all other respondents did not observe any significant changes in prices.

Restaurants and hotels do not really care of the wildness of the blackberry and processed products they suggest to their clients. There are two reasons for that: nobody asked such questions so far, and it is simply impossible for clients to understand whether the blackberry is wild or cultivated.

Quality features that hotels and restaurant demand for fresh and processed blackberry are the same as wholesale procurers and processors demand. Fresh blackberry must meet the following requirements:

- Berries should be well but not over ripe;
- Berries should not be too small;

- Berries should be fresh collected (within 24 hours);
- Berries should have good appearance;
- Berries should not turn soured or be spoiled;
- Berries should not be crushed.

Sales of the fresh blackberry at hotels and restaurants are conducted in small quantities. Usually, fresh blackberry is served in fruit assortment, and it is not calculated/paid for separately. According to respondents, the average commercial surplus at hotels and restaurants for fresh blackberry comprises about 30% on average. In absolute figures the added value is **180-240 AMD per kg**.

The situation is even more complicated in case of processed blackberry, i.e. sweet preserve. Again, it is not sold in separate. Its cost is included in the price of breakfast or dinner. Approximate estimation of prices showed that commercial surplus of hotels and restaurants for sweet preserve comprises 20%-25% (400-500 AMD per kg) in case of selling products procured from processors, and 65%-70% (about 1,000 AMD per kg) in case of procuring from villagers. This means that input (i.e. fresh) blackberry's value added comprises **100-125 AMD per kg** in the first case, and about **200 AMD per kg** in the second case. In case of villagers certain approximation can be observed. Obviously, villagers do not spend the same resources (labor, energy, salary, and other fixed costs) as processors do. Attribution coefficient of about 25% (which is attributed/added to the value of fresh/input blackberry) may be not very accurate and may need to be somewhat increased. Unfortunately, it is not possible to estimate that figure very precisely, since different villagers may apply different technologies of processing. That is why; it was decided to keep the attribution coefficient unchanged.

At the same time, there are few hotels and restaurants that can afford to sell products at significantly higher prices. Famous entities procure fresh and processed blackberry at almost same prices (or maybe for 10-15% higher price), and sell it with a surplus of 300%-500%. Such cases are rare and volumes are not significant, but they exist. Actually, that is the value of the image and goodwill of those entities and those profits cannot and should not be attributed to specific products.

There are two major reasons for using/selling fresh and processed blackberry (especially the preserve) at hotels and restaurants. Actually those reasons are very similar to those reported by retail trade outlets. Again, hotels and restaurants sell products that are usually demanded by their clients. This demand is not big, but it exists, and should be met.

The second reason of using blackberry products is having as wide assortment of products in menu as possible. Even not using (ordering) the blackberry products, customers should be suggested that products in menu and have a chance to order them.

3.1.3 Blackberry Sector Map

Having finished the analysis of various market participants and functions they undertake and conduct, it is possible to construct the Sector Map of Armenian blackberry market. Sector Map reflects the following major parameters of the market:

- General functions conducted in the market (usually bottom-up approach is applied, starting from collection and reaching to consumption);
- Market participants (some participants may be involved in several functions); and
- Product flows (some practices of moving blackberry products are applied quite intensively, others appear rarely).

The Sector Map illustrates the flow of fresh and also processed blackberry. In the picture below various processed products were combined, although some slight differences always take place.

Product flows for preserved and dried blackberry may have legitimate differences, but they are not completely different.

Although the blackberry Sector Map is quite self-explanatory, some general conclusions will not be needless. The collection function is conducted by local inhabitants, employees of wholesale procurers and processors (this practice is rarely applied). The movement forward of fresh blackberry is implemented by wholesale procurers and processors. Wholesale procurers may sell the procured blackberry either at agricultural markets of Yerevan and other cities, or supply it to processors (i.e. producers of preserves, juices, dried and frozen food, etc.).

Stages of the wholesale trade and processing are followed by retail trade stage, where the main (i.e. fresh) product appears in already transformed condition. Retail trade of blackberry products is conducted via retail trade outlets (shops and supermarkets), and more rarely (or less intensively) via hotels and restaurants. Some small portions are also exported by processors.

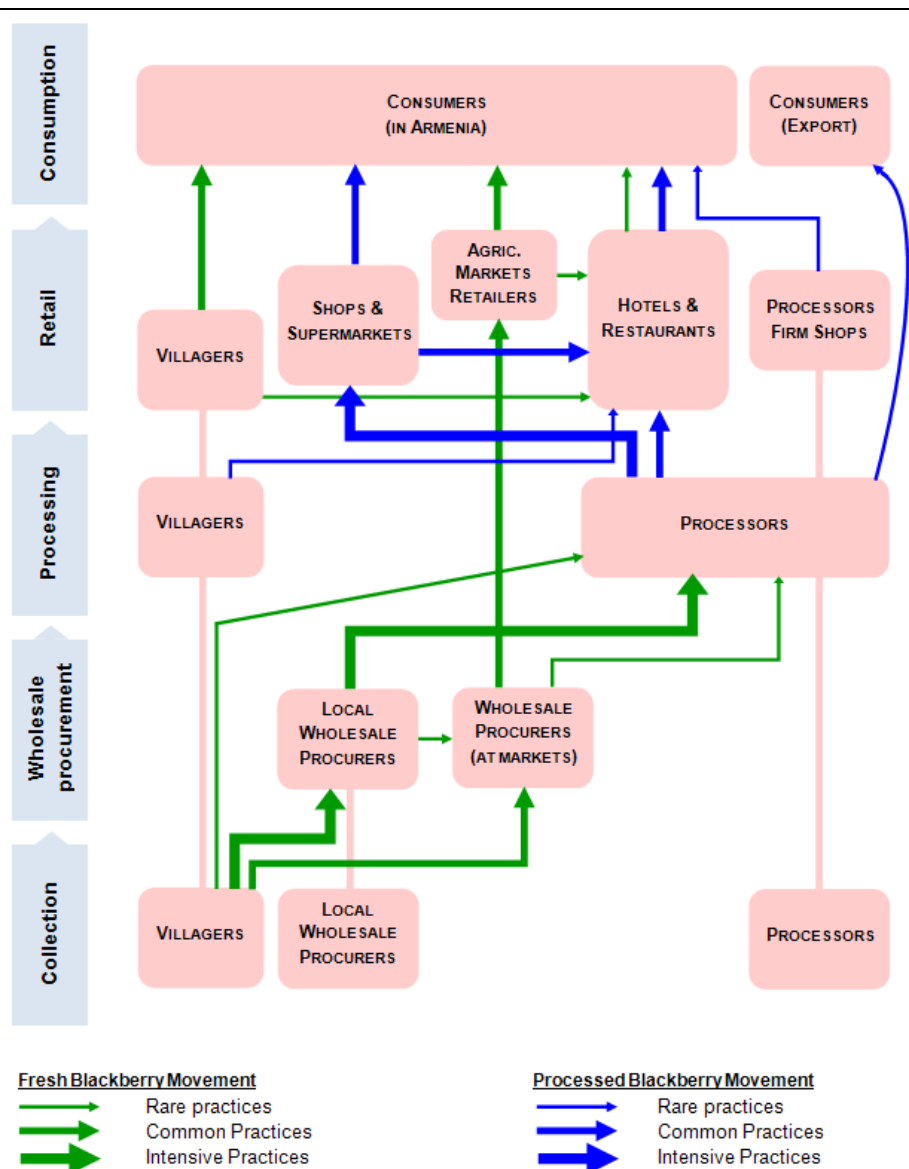


Chart 1 - Blackberry Sector Map

3.1.4 Blackberry Value Chains

Development of Value Chains for the selected wild products is the ultimate and the most important purpose of the current assessment. Within the analysis of the Value Chains the change of the product value at each stage of the implementation of certain functions is considered. In other words, Value Chains have purpose to uncover increases of the main product value each time when that product moves from one function of the Sector Map to another.

In case of blackberry it is important to mention that change of value is traced for the fresh blackberry, although starting from the stage of the processing this fresh blackberry is transformed to other processed products.

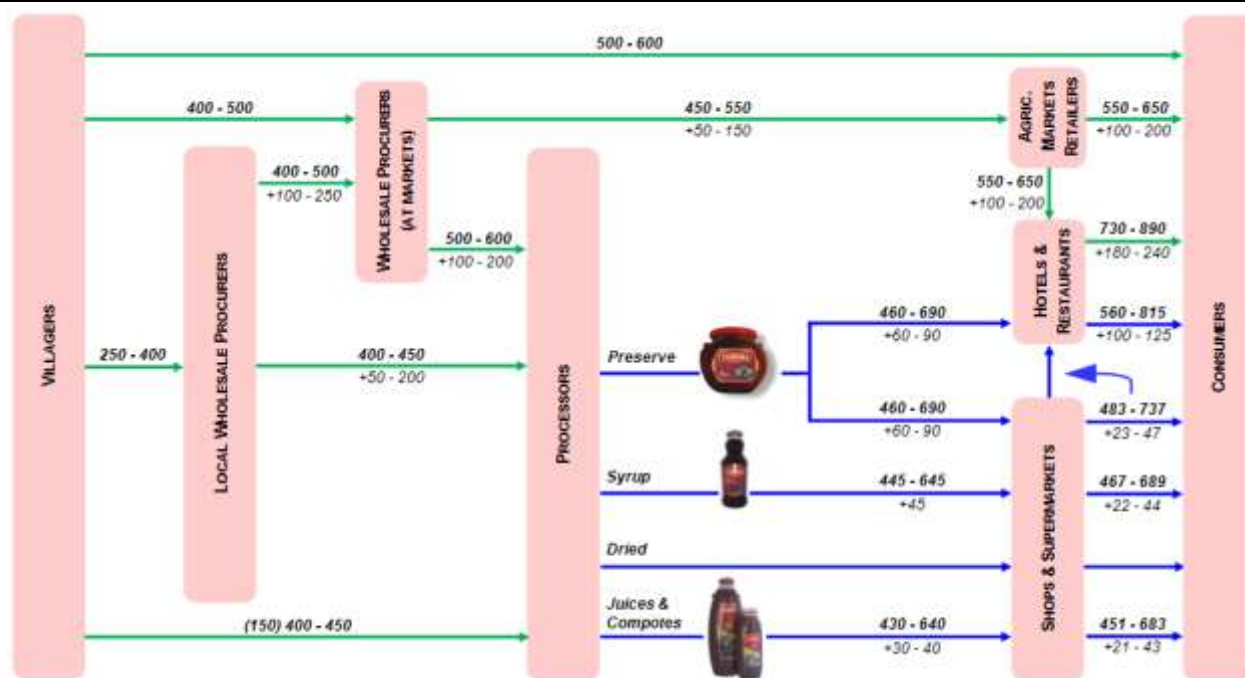


Chart 2 - Blackberry Value Chains, AMD

Again, the Blackberry Value Chain is self-explanatory. Just few general comments: fresh blackberry is procured from collectors at the price of 150-450 AMD per kg depending from location, season, and established relationships between collectors and procurers/processors. It is sold at retail market at the price of about 650 AMD per kg. Final retail price of blackberry processed into other final products vary from 450 AMD to 750 AMD per kg. Presented figures reflect only the value of the blackberry involved in processed products. The value added due to processing efforts, other inputs, marketing and promotion is somehow extracted.

Blackberry Value Chains, Added value flows in average % (calculated on the base of average for figures provided in Chart 2)							
	LWP	WPM	Processors	Shops % supermarkets	H&R	Agric. market retailers	Consumers
LWP	-	40%-63% Fr.	20%-50% Fr.	-	-	-	-
WPM	-	-	25%-40% Fr.	-	-	13%-30% Fr.	-
Processors	-	-	-	15%-20% Pr. 10%-11% Syr 8%-9% Juice	15%-20% Pr.	-	-
Shops % supermarkets	-	-	-	-	5%-10% Pr.	-	5%-10% Pr. 5%-7% Syr. 5%-7% Juice
Hotels & restaurants	-	-	-	-	-	-	33%-37% Fr. 18%-22% Pr.
Agric. market retailers	-	-	-	-	-	-	22%-36%

Where: Fr. – Fresh, Pr. – Preserve, Syr. – Syrup, Juice – Juice and Beverages

3.2 CHERVIL

3.2.1 Introduction – Selected For

Chervil is also used by local population quite intensively. Use of this herb is especially popular in rural regions. Value Chains of chervil are not so much differentiated as in case of other biodiversity products, but it is one of the most used products. This statement is confirmed also by the number of survey participants who operate with this product. Besides, chervil was reported to be one of the wild products, which is collected and directly used (i.e. consumed), in households in substantial quantities. That is why; the chervil has been selected as a promising product that can be promoted in the local market.

3.2.2 Analysis of Specific Functions

3.2.2.1 Collection

Chervil is growing in almost all regions of Armenia. This herb does not require special climatic conditions and can be often met also in regions with tougher climate. Survey participants especially mentioned chervil collected at regions of Vayots Dzor and Gyumri. Months of April and May in the early spring are the best period for collection of chervil. Chervil is collected by all members of rural households, without any gender or age exceptions. This means that collection of this herb is not a very sophisticated process and can be easily taught to everybody.

Chervil is collected from almost everywhere. Mountain and riverine forests, mountain and valley grasslands and meadows, homestead gardens and orchards have been told as good areas for collecting chervil. So, it can be concluded that collectors have easy access to chervil and can collect it almost everywhere.

Usually, stems, shots and leaves of chervil are collected for further use. This herb can be used in three ways: fresh, conserved (marinades), and salted. Use of fresh chervil (i.e. self consumption and sales) comprises 75%-85% of the total. This means that collectors prefer to get rid of the product as soon as possible, either consuming or selling it immediately. More than half of the collected volumes of the chervil are sold. Usually, self consumption comprises about 30% of the total collected volume.

Since the survey did not target collectors and no assessment of villagers has been conducted, it is impossible to judge about real volumes of collection of biodiversity products. This statement refers to collection volumes of chervil, too. Meantime, both villagers/collectors and other knowledgably people (forest workers, traders, local authority representatives, etc.) are completely sure that volumes of collection are miserable in comparison to volumes available in forests.

3.2.2.2 Wholesale procurement

The function of the wholesale procurement is also conducted by two major groups of the chervil market participants: *LWPs* and *WPMs*. *LWPs* usually cooperate with processors, while *WPMs* play intermediating role between collectors (in the rural regions) and retailers (at the Yerevan and other big cities' agricultural markets). Although the survey identified both types of procurers, representatives of the first group rejected to participate in the survey and share their information. The survey team had to rely on information collected from *WPMs*, only. One important finding is to be introduced: in many cases *WPMs* act as simple retailers, too. They procure products from villagers; part of those products is forwarded to other retailers, the other part is sold by the same procurers.

WPMs **pay 400-500 AMD per kg of the chervil**. They procure chervil only from villagers/collectors, and only in fresh condition. Actual procurement is conducted at procurers' places, i.e. the transportation is conducted by suppliers. Procurers do not much care about regions of collection. Chervil is not very sensitive and grows almost everywhere in Armenia. The best collection period is the early spring, months of April and May.

Wholesale procurers pay for the product in two ways: either they make advanced payments and make orders for certain quantity of the product, or pay for it immediately at the moment of procuring. This can be partially explained by small volumes of the procurement for the purpose of further retail sale.

Chervil price is not affected by too many factors. Actually, except of qualitative issues, procurement prices are affected by natural and climatic features. If the year is fruitful, supply volumes are comparatively high, and prices may go down, and vice versa. Respondents told that chervil prices stayed almost the same during the recent years (sometimes an increase of 10%) could be observed.

Chervil procurements conducted by WPMs are conducted on a daily basis. Procurers agree with villagers/collectors and conduct regular procurements. Volumes of procurements vary significantly depending on season and quality. Average daily procurement volume per one procurer comprises 30-100 kg, i.e. 1,800-6,000 kg per season. Tens of such procurers are involved in wholesale procurement of chervil. Average volumes are more or less stable, although some decrease can be observed in 2009.

WPMs obviously prefer the wild chervil. Moreover, they are sure that this product can be only wild collected; it is not cultivated. There are some requirements that wholesale procurers advance. Being new grown (young), fresh cut (i.e. collected), well cleaned and washed the chervil is more demanded and procurement prices are higher. The chervil that is collected for further sale is not stored for a long time. It is sold within 24 hours, for not losing its freshness.

The survey identified initial processing practices at the stage of wholesale procurement. Product is not transformed, at all. The only change/modification that wholesale procurers apply at this stage is the improvement of the appearance, i.e. some watering, re-bunching, etc. In other words, no really new function is applied in stage of the wholesale procurement. Simple trade is practiced, only.

As it was mentioned LWPs have not been interviewed, although we know that there are some. In this situation we can trace the way of chervil only to clients/customers of WPMs that operate at agricultural markets of Yerevan and other cities.

Some small volumes of chervil may be not completely sold during the same day, which means they will lose their appearance and quality. In such cases, wholesale procurers process chervil into marinade, which is used either for further consumption (mainly) or sale (rarely).

WPMs usually sell their products in retail volumes to final consumers, i.e. population that makes purchases from market. Since the product is sold in fresh condition, the coefficient of transformation (described first in case of the blackberry) is 1, which means that the quantity and volume of chervil stay almost unchanged.

Respondents declare that about 20% commercial surplus is applied to procurement prices of chervil. This means that sales price of chervil comprises about **600 AMD per kg of chervil**.

Wholesale procurers can see no significant factors that will affect trade volumes. Actually, they think that procurement and retail volumes will stay the same in 2010. Market situation may change only in

case of appearing export opportunities. Once chervil is exported (regardless the condition), market features (volumes and prices) will start changing.

3.2.2.3 General processing

Processors usually procure chervil with the purpose of preparing marinades and canning in glass jars. Procurements are made mainly from villagers/collector. Canneries that are located in remote rural regions (such as A.Ohanjanyan Ltd., Maga Cannery Ltd.) neighboring forested areas especially prefer to procure the chervil from villagers directly. Average procurement price (that processors pay to suppliers) varies between **300-500 AMD per kg** depending from various factors that will be addressed further. This price is paid at canneries, when the product is already transported. Transportation function adds on the value of the chervil 50 AMD per kg on average.

Table 9 - Procurement of chervil by processors

Processor	Procured from	Procured in fresh condition		
		Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total
Alishan	Villager/collector			100%
	Wholesaler	300-600	350-650	
A.Ohanjanyan	Villager/collector	700		100%
	Wholesaler			
Conser	Villager/collector	300		100%
	Wholesaler			
MAGA Cannery	Villager/collector	400-500		100%
	Wholesaler			
Borodino	Villager/collector		550	100%
	Wholesaler			

Theoretically processors pay the same price to both villagers and wholesale procurers for the supplied chervil. At the same time, processors are not very much interested in small volumes that individual farmers can supply. Fixed costs of procurements are the same while volumes are tiny. That is why; wholesale procurers supply processors with chervil much intensively than villagers do.

Processors declared two major ways of making payments for procured chervil. They either make prepayments ordering certain quantity of chervil, or pay completely at the moment of procurement. The first case is more practiced with villagers. In case of wholesale procurers processors sometimes apply delayed schemes of payments. Wholesale procurers have established long-term partner relations with processors and can afford some variations in payment schemes.

The majority of processors agreed that procurement prices of chervil somewhat increased in the recent 2-3 years. Various processors increased their procurement prices for 20%-25%. Procurement prices of chervil depend on different factors, such as the following:

- Good appearance;
- Prices assigned by competitors (other canneries);
- Recommendations/decisions of the wholesale procurers;
- Available volumes of the supply;
- Climate conditions;

➤ Annual yield volumes.

Processors start procuring chervil in late April and continue till the August, depending from the region. In Ararat Valley it appears in spring, but in other regions (such as Shirak and Syunik⁷ marzes) it may grow at the end of August. Except of already mentioned regions, chervil grows also in Tavush, Aragatsotn, Kotayk, and Artsakh regions. As usual, prices for chervil are comparatively higher at the beginning and at the end of the season, when the supply is significantly low.

There is no stability in volumes of chervil procurement. All processors make their decisions of procuring based on market conjuncture and opportunities to sell processed products. Approximate volumes of the chervil procurement for some processors are presented in the table below.

Table 10 - Chervil procurement volumes, kg

Year	A. Ohanjanyan	Maga Cannery	Conser	Borodino	Alishan	Byurakn
2007	1,500	5,000	-	14,481	-	-
2008	1,500	5,000	-	17,539	17,190	-
2009	1,000	5,000	1,000	-	-	2,000

Some processors prefer to procure small but stable volumes. Others make restricted but bigger purchases. Ultimately, everything depends on the market demand; if there are selling opportunities, procurement volumes will grow, and vice versa.

The chervil in Armenia is not cultivated; processors procure only wild grown and collected products. Nevertheless, certain qualitative requirements are advanced by processors for the procurement of the chervil. Most important requirements are listed below; the chervil should be:

- Fresh collected;
- Well-cleaned;
- Well but not over ripe;
- Not jammed and crushed; not colored and dried; not decayed;
- Stems of the plant are preferable; more leaves are not good.

The better is the product the higher is the price. Understandably, the highest quality products are sold at agricultural markets for significantly high price. Sometimes, price for 1 kg of high quality chervil reaches 1,000-1,200 AMD, but this price cannot be considered as usual.

Local processors produce only one product from fresh chervil, i.e. chervil marinade. This product is quite respected food in Armenia, and is usually served during special events. Processors don't apply the same technology for marinating chervil. Processors told they use approximately 700 grams of fresh chervil, for producing 1 liter of chervil marinade. Marinade is canned in glass jars of 500-3,000 ml. Increase of the chervil value via the processing it into marinade, is presented in the table below.

Table 11 - Calculation of the value of chervil processed to marinade

Marinade sales price, AMD		Marinade profit margin, %		Marinade COGS		Chervil share in the COGS		Marinade profit margin, AMD		Chervil value added, AMD	
1,167	1,389	15%	26%	992	1028	28%	34%	280	350	79	119

⁷ Especially in sub-regions of Sisian and Goris

Although sales price for 1 liter of chervil marinade sometimes vary from 1,040 AMD to 1,680 AMD, we decided to analyze average prices range that is applied more often. Those prices of chervil marinade vary in the range of 1,167-1,389 AMD per 1 liter. The average profit margin was declared at the level of 15%-26% (i.e. 280-350 AMD per 1 liter). Having calculated the chervil share in the cost of marinade, we can apply/attribute the same shares to profit margin. Thus, the value added on the 1 liter of the chervil marinade varies in the range of 79-119 AMD. Since some 700 grams of fresh chervil is used for the production of 1 liter of marinade, the value added on the 1 kg of fresh chervil processed into marinade varies from **113-170 AMD**.

Processors sell their products (i.e. chervil marinade) to almost all types of retailers. Some of them concentrate their efforts on local networks of supermarkets; others spend substantial resources for finding export opportunities. Chervil marinade is usually served at restaurants; people used to order this delicate food when they visit local entities of public food.

The survey addressed the processors' plans of chervil procurements in 2010. Almost all processors have already decided approximate volumes of the chervil procurement. Figures are presented below.

Table 12 - Planned volumes of the chervil procurement in 2010, kg

Year	A. Ohanjanyan	Maga Cannery	Conser	Borodino	Alishan	Byurakn
2007	500	not decided yet	-	7,000	20,000	6,000

As it can be seen from the table there is no clear tendency of chervil procurement volumes. Some processors plan to procure similar volumes as they did last year, others decreased or increased significantly. Their decisions are based on market situation. If processors have opportunities for selling their products (i.e. chervil marinade) they procure bigger volumes of fresh chervil, and vice versa.

3.2.2.4 Retail trade outlets

Two types of retail trade outlets are engaged in retail trade of chervil. Individual retailers are selling fresh chervil at agricultural markets of Yerevan and other cities. Shops and supermarkets sell processed, i.e. marinated, chervil supplied by processors. In fact, we deal with two various value chains.

Individual retailers usually procure fresh chervil in wholesale volumes from villagers/collectors or WPMs. Usually, it is transported to Yerevan (either to the agricultural markets, or to wholesale markets) by suppliers. Shirak (Gyumri), Syunik (Goris), Aragatsotn (Aparan), and Kotayk (Garni) regions (sub-regions) are declared as main suppliers of fresh chervil. Retailers procure it at the price of **400-500 AMD per kg**. Again, there are periods, when this product is sold for 300 AMD, or for 1,000 AMD per kg, but such cases are exceptions. Procurement (trading) volumes are very different; during the season (mainly May-July) the quantity of daily trade may vary from 20 kg to 100 kg.

Shops and supermarkets usually trade with marinated chervil. "ArtFood" and "RagMac" brands are the most popular ones, although the assortment is much wider (at least 5 more brands are presented on the stores of shops and supermarkets). Processors supply their products themselves; retailers simply need to place orders a couple of days before. Procurement prices of chervil marinade vary from 870-950 AMD per 1 glass jar of 0.720 liter. Approximate calculations result in 1,208-1,319 AMD per 1 liter of the chervil marinade. Presented figures are slightly more than processors told, but difference is not significant.

Chervil in Armenia is not cultivated; only wild collected herbs are supplied in fresh to agricultural markets, and are used for further processing by canneries. That is why; importance of being wild in case of chervil is not an issue to discuss. Similarly, retailers do not advance many qualitative requirements. Actually, shops and supermarkets do not have any requirements. Retailers of fresh chervil would require fresh and good-looking products.

All retailers told they pay for the procured products immediately and in cash, at the moment of procurement. This is explained by the fact that retailers may procure fresh chervil from tens of different suppliers during the season. Suppliers should not wait for a long period to get their payments. Besides, volumes of daily trade are not very big; retailers make their payments willingly and easily.

Shops and supermarkets make delayed payments for procured products. Usually, processors (or their distributors) are paid for the previous consignment when they supply the next consignment. This system is convenient for both parts; it secures stable sales for processors, and save working capital for retailers. Nevertheless, exceptions happen always. Sometimes processors require complete payments at the moment of supply. Retailers of both types of products declared 10%-20% increase of prices during the last 2-3 years

Retailers of fresh chervil sell their products at agricultural markets at the **average prices range of 500-600 AMD per kg**. Prices may sometimes reach even 1,000 AMD per kg, but this is not general tendency; this price appears at the beginning and at the end of the season, when the supply is quite limited.

Shops and supermarkets add-on 10%-15% commercial surplus on the marinated chervil they sell. In other words, the chervil marinade is sold at the price of 1,329-1,517 AMD per 1 liter, and the surplus in absolute figures comprises 121-198 AMD per 1 liter of marinade. The added value that can be attributed to the chervil (taken 34% at maximum⁸) comprises approximately **41-67 AMD per kg**.

Retailers have no special reason for trading with fresh and processed chervil. The only rationale is the market demand. Chervil is widely accepted in Armenia, especially in marinated condition. Marinated chervil is ever-present delicates product served at restaurants, and during big family events, such as weddings and celebrations.

3.2.2.5 *Hotels and restaurants*

Hotels and restaurants procure only marinated chervil. They procure this product directly from villagers less often, usually they prefer to be supplied by processors; “ArtFood” brand is the leader. Procurement from villagers is more practiced at restaurants and hotels located in regions and rural areas. Yerevan entities prefer to procure canned products from processors. It is interesting to mention that marinated chervil from processors costs cheaper than the same product procured from villagers. In the first case restaurants and hotels pay about 1,500 AMD per 1 liter of the canned marinade, in the second case 1 kg of the marinated chervil (not canned) is procured for 2,000-2,300 AMD per kg. It is impossible to accurately calculate costs (and respectively the value added) of homemade marinated chervil, since the survey did not address villagers/collectors, and we have no understanding of the technology they apply.

Average volumes of using chervil marinade strongly depend on the certain entity. Small restaurants and hotels located in remote regions hardly use up to 50 kg of the chervil marinade during the whole

⁸ See the Table 11

year. On contrary, well-known restaurant in the center of Yerevan uses up to 250 kg at the same period.

It was already mentioned that chervil is not cultivated in Armenia. It is growing wild and is collected from meadows and forests. That is why; respondents were not able to make comparisons, and express their preferences. Representatives of hotels and restaurants told only two qualitative requirements for chervil marinade that they procure from villagers: it should be prepared from fresh cut chervil and should not be over-ripe. In other words, the chervil should be collected exactly during the certain period (which is slightly different for various areas); otherwise it changes its taste.

Almost all restaurants and hotels told they are paying for procured chervil marinade immediately, at the moment of supply. This is legitimate, since procurement volumes are not big usually, and there is no reason for delayed payments. Most of respondents did not observe changes in prices of chervil marinade during the recent 2-3 years. Some of them mentioned that price of chervil procured from villagers increased for 15%-20%, but those statements seem to be somewhat subjective.

Hotels and restaurants usually do not sell chervil marinade as a separate dish; it is served in the assortments with other salted and marinated vegetables. This creates certain difficulties in calculation of the profit margin (respectively the value added, too) of fresh chervil. Rough estimation of the profit margin for chervil marinade comprises about 50% on the top of procurement price, i.e. 750-1150 AMD per kg. Having in mind the 34% approximate share of fresh chervil in the cost of marinade, the value added will comprise **255-391 AMD per kg**.

There is only one reason of using chervil marinade in hotels and restaurants. This product is demanded by local population. It is a very good snack to alcohol beverages (especially to vodka). Assortment of salted and marinated products is traditionally served at Armenian public food entities and chervil marinade is the essential part of that dish.

3.2.3 Chervil Sector Map

Sector Map of chervil products comes to conclude all available practices of the movement of chervil from the very bottom level of collection and to the final consumption and exports of fresh and processed products. As the presented chart attests, the chervil being collected by the villagers (inhabitants of the rural areas) can be either supplied for the final consumption directly to consumers (in fresh and marinated conditions) or get involved in the processes of wholesale procurement, processing, and retail trade.

The movement of fresh chervil towards the processing and final consumption stages is mediated by entrepreneurs who either operate on behalf of processors or on their own. Processors produce only one type of the product, i.e. chervil marinade, which is supplied to the retail network and public food entities.

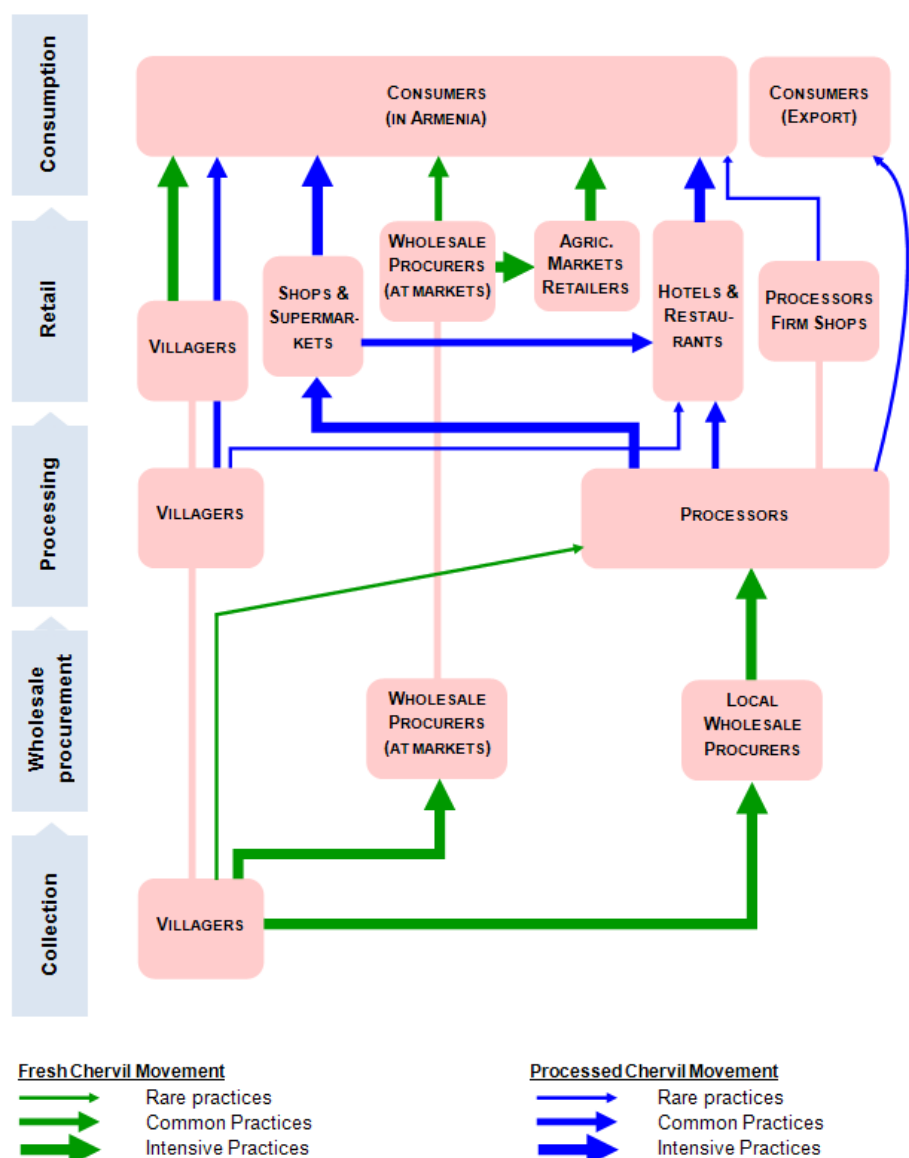


Chart 3 - Chervil Sector Map

Within this sector map some practices are applied quite intensively, others are met rarer. Although it is not unambiguous, but those processes that are met more intensively are able to generate more benefits for the participants of the Sector Map. Meantime, rare practices may need some support and promotion for developing and generating higher value.

3.2.4 Chervil Value Chains

Analysis of the Value Chains of chervil comes to measure the value created at each stage of product movement and transformation. The chart presented below illustrates *prices* and *values add* at each stage. This chart does not reflect the intensiveness of certain processes, thus it would more effective to analyze it in combination with the Sector Map.

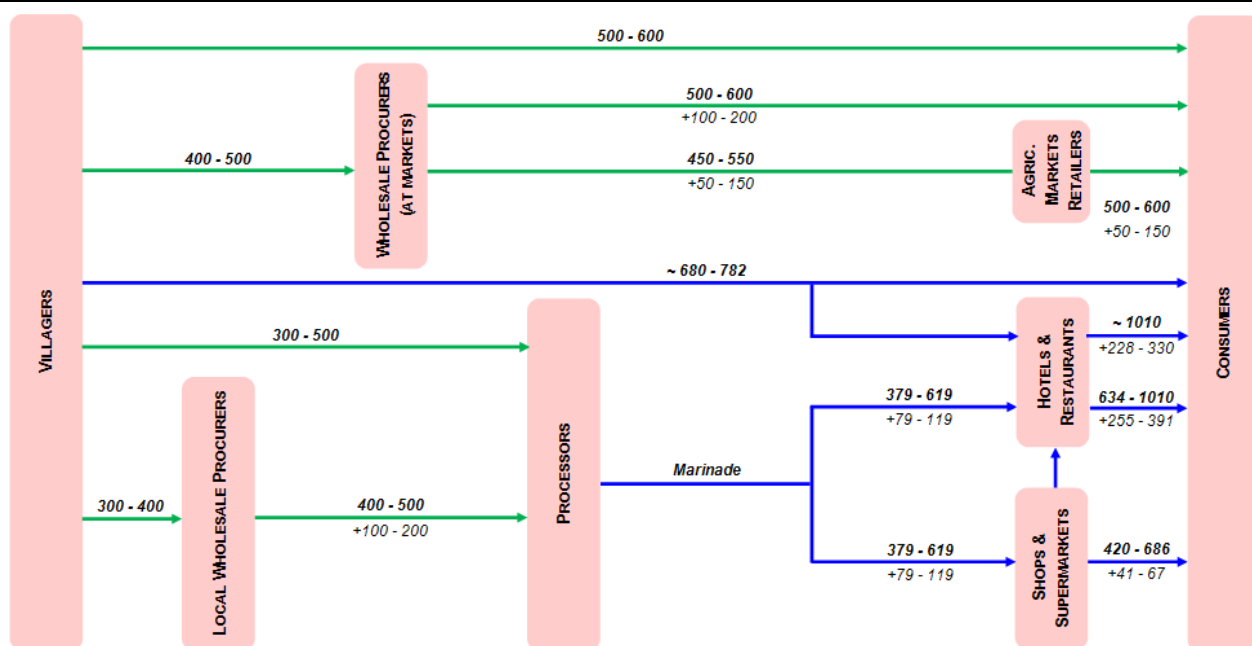


Chart 4 - Chervil Value Chains, AMD

It can be concluded that consumption of fresh chervil is quite intensive in Armenia. Meantime it takes place only at certain periods of time and cannot be considered as sustainable source of income for villagers/collectors. Interesting finding was made regarding to sales of the marinated chervil in the agricultural markets by villagers. The price requested by villagers is even higher than price assigned by processors. Again, the highest profit margin and (respectively) value added is generated by the hotels and restaurants.

Chervil Value Chains, Added value flows in average % (calculated on the base of average for figures provided in Chart 4)							
	LWP	WPM	Processors	Shops % supermarkets	H&R	Agric. market retailers	Consumers
LWP	-	-	30%-50% Fr.	-	-	-	-
WPM	-	-	-	-	--	13%-30% Fr.	25%-40% Fr.
Processors	-	-	-	20%-24% M.	20%-24% M.	-	-
Shops % supermarkets	-	-	-	-	11%-12% M.	-	11%-12% M.
Hotels & restaurants	-	-	-	-	-	-	63%-67% M.
Agric. market retailers							11%-27% Fr.

Where: Fr. – Fresh, M. - Marinade

3.3 ROSEHIP

3.3.1 Introduction – Selected For

Rosehip was selected to be addressed during this survey for several reasons. First of all, collection of this product is widely practiced in all regions of Armenia, mainly by rural population. Secondly, this product is intensively consumed at Armenian households, mainly in form of tea or extract. Finally, rosehip and products prepared from it have stable demand both in local and foreign markets. Rosehip was very popular among all four groups of respondents that were involved in the current survey.

3.3.2 Analysis of Specific Functions

3.3.2.1 *Collection*

Rosehip in Armenia grows almost everywhere, in mountain forests and grasslands, meadows and bush-lands, on arable lands and homestead gardens at rural areas. Although the plant of rosehip (i.e. Dog Rose) is covered by thorns, collection of rosehip does not require special knowledge or skills, and can be (actually is) made by all members of rural households.

Rosehip is collected in the period of September-November, when it is well ripe, somewhat dried, and of proper color. This plant is not easily damaged by weather, which makes it possible to organize collection during the late autumn months.

There are many ways of using rosehip. People consume this wild product as food, drink, and medicament. Rosehip is not used in fresh condition intensively. Actually, fresh consumption does not exceed the 5% of the total collected volume. Similarly, sales of fresh rosehip rarely exceed 10% of the total collected volume. On contrary, there are many ways of processing rosehip; it can be dried (for being used as tea or extract), processed to juice, vine, and even sweet preserve. Collectors process (mainly dry) at least 80-85% of the total collected volume of rosehip. In rural areas, it is used quite intensively; almost every rural household uses tens of kilograms of dried rosehip every year (mainly in the winter period).

At the same time, the rosehip collection is a quite commercialized process. Rosehip has big demand in market and its collection may become quite beneficial business for collectors. Rosehip is easy to sell both in rural regions, at agricultural markets, or simply supply to processors.

3.3.2.2 *Wholesale procurement*

Wholesale procurement of rosehip is practiced by both types of wholesale procurers: i.e. *LWPs*, who usually cooperate with processors, and *WPMs*, who operate at agricultural markets. In case of rosehip, the first group of procurers is much more active.

Table 13 - Procurement of the rosehip by wholesale procurers

Procured from villagers by	In fresh condition			Preliminary processed (dried)		
	Price at suppliers' places, AMD/kg	Price at procurers' place, AMD/kg	Share in total	Price at suppliers' places, AMD/kg	Price at procurers' place, AMD/kg	Share in total
LWP1 ⁹				200		100%
LWP2					150-200	100%

⁹ Local wholesale procurers

LWP3	100-120		30%	200-250		70%
LWP4					230	100%
LWP5				300		100%
LWP6	100		50%	250		50%
LWP7	100-130		30%			
LWP8				250		100%
LWP9	100		30%	200-300		70%
WPM10 ¹⁰		150-250	100%			
WPM11		100-200	20%		400	80%
WPM12					200-250	100%

As the table attests, wholesale procurers prefer to buy dried rosehip, even paying up to three times higher price. Actually, price is not even high, since fresh rosehip usually loses 30%-60% of its weight when it is dried. In other words, the transformation coefficient varies in the range of 0.4-0.7 (400-700 grams of dried rosehip from 1 kg of fresh product). All wholesale procurers procure rosehip from villagers/collectors, although some procurers are collecting rosehip themselves, too. Wholesale procurers make their procurement from all regions of Armenia; no region is to be emphasized.

In comparison to other wild products, rosehip procurement volumes are comparatively high. More importantly, volumes stayed comparatively stable or even increasing during the recent 2-3 years).

Table 14 - Rosehip procurement volumes, wholesale procurers, kg

Years	2007	2008	2009	Years	2007	2008	2009
LWP1	3,000	-	2,000	LWP8	20,000	7,000	-
LWP2	3,000	2,500	2,500	LWP9	25,000	25,000	25,000
LWP3	12,000	10,000	15,000	LWP10	7,000	-	-
LWP4	30,000	30,000	30,000	LWP11	1,000	1,000	1,000
LWP5	6,000	9,000	9,000	WPM10	9,000	9,000	9,000
LWP6	50,000	10,000	70,000	WPM11	9,000	9,000	9,000
LWP7	1,500	1,500	2,000	WPM12	1,500	1,500	1,500

As it can be seen in the table, many wholesale procurers succeeded to keep their procurement volumes unchanged. This means there is stable and even increasing rosehip demand in the market. This may create good opportunities for generating promising value chains.

Both types of the wholesale procurers told that they completely pay for procured rosehip at the moment of supply. In other words, villagers supply rosehip and get their payment at once. Sometimes procurers urgently need high quality rosehip for certain purposes. In such cases they even make orders to villagers/collectors and make advance payments.

In general, average price of rosehip procurement did not change in Armenia during the recent 2-3 years. Slight variations that happened in certain regions and lasted quite short were conditioned by local climatic problems. Such local changes cannot affect the market conjuncture, and vary prices. In particular, the rosehip price may be affected by following factors:

¹⁰ Wholesale procurers at markets

- Climatic conditions;
- Yield volume of the certain year;
- Quality of the rosehip (well-ripe for being further processed to juice, appearance, color);
- Type of rosehip (the circle sort is not much required);
- Competitors' prices (at the market);
- Processors' procurement prices, and
- Relations with villagers/ collectors.

Wholesale procurers advance special qualitative requirements for products they are going to procure. Here are the most important requirements:

- Rosehip should not be unripe (otherwise it cannot be used for juice production);
- Rosehip should not be worm-eaten or damaged by insects;
- Rosehip should not be covered by leaves or stems; should be cleaned;
- Pink or black rosehip is more demanded, and
- Almost all procurers prefer to procure well-dried rosehip.

Aside from procurement and transportation practices wholesale procurers conduct other certain functions, too. All those functions are conducted with the purpose of increasing the quality, i.e. the value. The following specific functions conducted by wholesale procurers have been identified and addressed during the survey:

- Procured rosehip is collected in a dry, clean, and sunny storage for further ripening and becoming of better (red) color;
- Once rosehip is well-ripe, it is aerated and cleaned from the dust, grass, leaves, and other waste;
- After cleaning the rosehip is dried at special facilities, packaged, and stored for being sold.

Possible functions were introduced, but it does not mean that all those functions are conducted by all wholesale procurers. Some of them simply procure fresh collected rosehip and resell it to processors.

LWPs sell procured rosehip in different ways. Some of them sell rosehip at retail markets; others supply it to processors (Sis, Alishan, ArtFood, Noyan, etc.). Some LWPs even succeed to export dried rosehip to Ukraine, Georgia, Russia, etc.

Sales prices of fresh rosehip vary in the range of **150-300 AMD per kg**. Prices vary so significantly due to seasonal issues, area of collection, type/sort of the rosehip, extent of ripening, etc. The average value added by wholesale procurers at stage of selling fresh rosehip comprises **50-70 AMD per kg**.

Sales prices of dried rosehip vary in the range of **250-500 AMD per kg**. The profit margin is declared by LWPs to comprise 10-20%. In case of WPMs, the commercial surplus sometimes reaches 30%. Value added by wholesale procurers at the stage of selling dried rosehip comprises **50-130 AMD per kg**. The only thing that should be kept in mind is the transformation of the product. After being dried rosehip loses 30%-60% of its weight, but it does not affect the figure of the value added.

Unlike the other wild products, market demand for rosehip in Armenia is quite big. The overwhelming majority of LWPs have already decided to procure substantial volumes in 2010, based on historical trends of selling this product. Surveyed LWPs declared that they are ready to procure 15,000-30,000 kg of rosehip per each procurer. Some of them, like "Sisiani Hats", or SE Serjik Gyulamiryan do not even limit their procurement volumes. They are able and willing to procure any quantity. This situation can be explained by readiness of processors to procure big volumes of rosehip, for the purpose of further processing (preparing juice or drying).

In case of WPMs volumes of procurement are less, up to 10 tons in 2010. Having in mind that the number of this category of wholesalers at markets are quite big, it can be concluded that any quantity of rosehip may be successfully procured and resold in the market. Both types of wholesale procurers do not advance strict requirements for procuring fresh or dried rosehip, although dried product is more demanded.

3.3.2.3 General processing

Although some wholesale procurers organize the retail trade and even exports on their own, the major players of rosehip market remain processors (producers of juice, dried products, etc.). Actually, processors dictate prices and other conditions in the market. They generate the major demand for the main part of collectors and wholesalers. Prices suggested by processors in the market vary from year to year depending on different factors that will be addressed further. Average figures that exist currently in the market are presented in the table below.

Table 15 - Procurement of rosehip by processors

Processor	Procured from	Procured in fresh condition			Procured in dried condition		
		Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total	Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total
Tamar Tatik	Collectors	200-250		80%			20%
	Wholesalers					300	
Maga Cannery	Collectors		200-250	50%		350-400	50%
	Wholesalers		200-250			350-400	
Alishan	Collectors					250-500	100%
	Wholesalers					250-500	
Tamara-Fruit ¹¹	Collectors			50%			50%
	Wholesalers	v	v		v	v	
A. Ohanjanyan Cannery	Collectors	180-200		50%	300-350		50%
	Wholesalers						
Byurakn	Collectors						100%
	Wholesalers					250	
SE Vahe Kostanyan	Collectors	100		20%	250-300		80%
	Wholesalers						
Abda	Collectors	200		50%	300		50%
	Wholesalers						
Mega-Ararat	Collectors	200		50%	400		50%
	Wholesalers	200				400	
Nectar-Bonus	Collectors	300		70%	400		30%
	Wholesalers						
Sis-Natural	Collectors			20%	250	250	80%
	Wholesalers	160	160		250	250	
Arfito-Pharm	Collectors				450	500	100%
	Wholesalers				450	500	

¹¹ Rejected to tell prices

As the table attest, prices for fresh rosehip vary in the range of **100-250 AMD per kg**. Prices for dried rosehip vary in the range of **250-500 AMD per kg**. The share of procuring dried rosehip is significantly (almost twice) higher.

Important observation should be made regarding to transformation of fresh rosehip. Transformation coefficients declared by different processors vary in the range of 0.3-0.6, i.e. 1 kg of fresh rosehip is transformed to 300-600 grams of dried (semi-dried) product. This variance can be explained by the ultimate purpose of using: juice producers prefer less dried product, drying entities use completely dried products.

Procurement prices are usually assigned by processors, but they are affected by various factors. Some of them are presented below:

- Weather and climate conditions;
- Yield (i.e. supply) volumes;
- Market demand and competitors' prices;
- Expectations of wholesalers and collectors;
- Quality (clean, well-ripe, not spoiled and damaged, etc.) of the supplied product, and
- Size and sort of the product.

Respondent processors have been asked to address dynamics of rosehip procurement prices. Some big processors declared that rosehip prices increased for 100% - 150% during the recent 2-3 years. Meantime, the majority of processors procure rosehip at the same prices, as they did before. This situation can be explained by the collection area. Commercial collection of rosehip was traditionally developed in certain regions and nothing changed, prices stayed stable. In other areas rosehip collection was not conducted very intensively, and prices were low. During the recent 2-3 years the market demand increased and prices were automatically inflated.

Processors are supplied from almost all regions of Armenia. This is legitimate, since this product grows and is collected everywhere. Anyhow, some regions have been mentioned more intensively. Those are Syunik, Vayots Dzor, Aragatsotn, Tavush, and Kotayk marzes.

Rosehip is collected in the autumn period, when it is well-ripe. Again, the collection season depends on climatic and geographical conditions of certain territories. In warmer areas collection starts from the late August, in colder areas rosehip may be collected even in December. The best period is the September-November.

Processors pay actually the same price to collectors/villagers and wholesalers, although they are obviously interested in procuring rosehip in bigger quantities, i.e. from wholesalers. Meantime, processors procure from collectors more easily; they can decide prices and conditions without long negotiations. Nevertheless, both ways of the procurement are intensively practiced.

Two main types of payment are applied. More often, processors make complete payment for procured rosehip at the moment of supply. This means that processors usually possess enough financial means for not delaying payments. Moreover, processors sometimes prefer to secure themselves and order necessary quantities certain time before. For being on the safe side, they make partial or complete advance payments; actually they are crediting suppliers. Other schemes of payment are practiced rarely, and can be afforded only with suppliers (usually wholesalers), with whom processors have long-term cooperation experience.

Rosehip procurement volumes were continuously growing during the recent 2-3 years. Market demand for rosehip products stays high, and new opportunities appeared. Such situation is very promising, it will allow to secure engagement and workplaces within all stages of rosehip value chain.

Table 16 - Rosehip procurement volumes, processors, kg

Year	Tamar Tatik	Maga Cannery	Alishan	Tamara-Fruit	Ohanjanyan	Byurakn	Kostanyan	Abda	Mega-Ararat	Nectar-Bonus	Sis-Natural	Arfito-Pharm
2007	2,000	100,000	3,640	-	25,000	-	2,000	-	500	1,000	14,000	100
2008	4,000	100,000	2,420	10,000	25,000	-	3,000	200	1,000	1,000	9,500	100
2009	8,000	100,000	8,750	10,000	20,000	5,000	3,000	500	23,000	1,000	32,000	100

Processors' procurement volumes are quite impressive. Maga Cannery, A. Ohanjanyan Cannery, Mega-Ararat, and Sis-Natural declared stable high demand. Also, it should be mentioned that respondents are usually tend to tell decreased figures, since their operations are partially "shadowed". It can be concluded that actual volumes are substantially higher.

Different processors use rosehip for processing it to various products of the final consumption. Those final products stipulate certain quality requirements for procured rosehip. Here are the main requirements identified during the survey:

- Rosehip should not be damaged and crushed;
- Rosehip should not be spoiled, damaged by insects or worm eaten;
- Rosehip should not be covered by mold;
- Rosehip should be well but not over ripe;
- Rosehip should be collected by scissors;
- Rosehip should be collected by collected from ecologically clean areas;
- Rosehip should be clean, without leaves or stems;
- Rosehip should be well-dried;
- Rosehip should be of dark-red or black color;
- Rosehip should be transported by clean vehicles and in proper packaging;
- Rosehip would better be of standard medium size.

Some processors practice sampling: they ask for small quantity of the product, check and analyze it, and then procure bigger quantities.

The assortment of final products manufactured from rosehip is quite large - tea, beverage, juice, oil, syrup, vine, jam, etc. Processors do not apply completely identical technologies for producing the same product. Respectively, rosehip is also used differently. That is why; sales prices, costs of production, profit margins, and, finally, values added by different processors may have significant ranges of variation. Below we shall address rosehip products that are produced more intensively.

Calculations of the values added via processing of rosehip to main two types of final products (i.e. tea and beverage) are presented in the tables below.

Table 17 - Calculation of the value of rosehip processed to tea

Price for 1kg, AMD	Sales price	Profit margin		COGS of tea, AMD		Net profit, AMD		Rosehip share in COGS	Rosehip value added, AMD
500	4,500	20%	30%	3,150	3,600	900	1,350	14%-16%	126 – 216

1 kg of dried rosehip (procured for 300 AMD on average) is processed into 5 packs of tea. Each pack costs 900 AMD, or 4,500 AMD for the quantity produced from 1 kg of dried rosehip. Net profit amount generated via the production of tea varies in the range of 900-1,350 AMD. Certain part of that profit can be attributed to rosehip. The value added comprises **126-216 AMD per 1 kg of dried rosehip**.

Table 18 - Calculation of the value of rosehip processed to juice and beverage

Processed from 1kg, liter ¹²	Price for 1kg dried, AMD		Beverage sales price, AMD		Profit margin		COGS of beverage, AMD		Net profit, AMD		Rosehip share in COGS		Rosehip value added, AMD
	250	500	2,750	3,000	15%	20%	2,337	2,400	412	600	11%	21%	
5	250	500	2,750	3,000	15%	20%	2,337	2,400	412	600	11%	21%	44 - 125

1 kg of dried rosehip is processed to about 5 liters of juice and/or beverage. Rosehip used for that purpose is procured at the price of 250-500 AMD/kg. 5 liters of juice or beverage is sold at the price of 2,337-2,400 AMD. Net profit margin was declared to be 412-600 AMD. After the attribution of the rosehip share to the net profit, **the value added to the 1 kg dried rosehip via the processing it to juice or beverage will comprise 44 - 125 AMD**.

Other products manufactured from rosehip are not addressed so closely due to small volumes and rare practice. Besides, some products are produced domiciliary (such as wine, and jam), and are not commercialized, so far.

Sale of the processed rosehip products is mainly organized via shops and supermarkets. Processors supply retail trade institutions with their products via their own distribution networks and efforts. Usually delayed payments' scheme is applied. Processors intensively target hotels and restaurants, too, and suggest them similar conditions as for shops and supermarkets. But in case of processed rosehip products only juices may be considered as demanded products at hotels and restaurants.

Some of processors like Tamar Tatik, Maga Cannery, Tamara-Fruit, Mega-Ararat, and others succeed to export their rosehip products to Russia, Ukraine, Turkmenistan, France, USA, and Canada.

Demand for fresh and dried (semi-dried) rosehip is sustainably high. Meantime, some processors lost their markets due to global economic and financial crisis, and had to decrease procurement volumes. Nevertheless, many processors plan to continue rosehip procurement in sufficient quantities.

Table 19 - Planned volumes of the rosehip procurement in 2010, kg

Year	Tamar Tatik	Maga Cannery ¹³	Alishan	Ohanjan-yan	Byurakn	Kostan-yan	Abda	Mega-Ararat ¹⁴	Nectar-Bonus	Sis-Natural	Arfito-Pharm
2010	4,000	?	50,000	1,000	10,000	5,000	500	40,000	1,000	30,000	1,000

While responding to questions regarding procurement plans, processors tried to be conservative. Some of them even have not finally decided on the volumes. Now they are planning their activities, negotiating with partners. Final procurement plans will be assigned in the months of May-June.

¹² Average for juice and beverage

¹³ Not decided yet

¹⁴ Procured as of April 2010. More volumes will be procured.

3.3.2.4 Retail trade outlets

Retailers of rosehip products can be divided into 2 major groups: those who trade with fresh (semi-dried) rosehip at agricultural markets, and those who procure processed rosehip products from processors and trade at retail quantities.

Retailers at agricultural markets usually procure rosehip from villagers/collectors or wholesale procurers at the same markets. The transportation costs are usually covered by suppliers. Fresh rosehip is procured at the price of 150-200 AMD per kg. Procurement price of the semi-dried rosehip varies in the range of 250-500 AMD per kg. Prices vary depending on the season, quality, and market conjuncture at the certain moment.

Shops and supermarkets mainly trade with rosehip tea and juice/beverage. Linara, Mega-Ararat, Abda, and Bio-Universal (Manana) are the main suppliers of tea; juices and beverages are supplied mainly by Sis-Natural (Yan), Noyan, Tamara-fruit, and Kilikia brands. Average procurement price for tea varies in the range of 450-500 AMD per pack, or 2,250-2,500 AMD for the quantity that is produced from 1 kg of dried rosehip. Procurement prices of rosehip juice-beverage vary in the range of 500-600 AMD per 1 liter of juice/drink. This figure is crosschecked with the one the processors told.

Procurers of fresh (semi-dried) rosehip make their complete payments to villagers/collectors or wholesalers immediately, at the moment of supply. They declare that prices did not change for the recent 2-3 years. Shops and supermarkets apply different types of payments. Usually they also pay immediately, but some big retail outlets usually require delayed scheme of payments. They pay for previous tranche of supplied products when they receive the next tranche. This is common practice in Armenia, and suppliers (i.e. processors) are usually willing to cooperate under these terms. Shops and supermarkets declared that procurement prices of rosehip products either stayed unchanged or increased slightly (5%-10% for different products and suppliers) during the recent 2-3 years.

Both types of retailers usually do not much care whether they trade with wild or cultivated products. Moreover, rosehip in Armenia is not cultivated; only wild collected rosehip is supplied. Similarly, qualitative requirements are not very tough, too. Actually, shops and supermarkets do not have any qualitative requirements. They secure as wide assortment as possible (even without paying for that), and consumers decide which product they prefer. Retailers at agricultural markets obviously prefer to trade with products of better quality. Although they are more expensive, demand for better quality products is higher. Meantime, every product has its price; the better quality the higher its procurement and retail prices, and vice versa.

As retailers at agricultural markets told, they apply 100-200 AMD commercial surpluses on the top of procurement price when they sell the rosehip in retail quantities. In case of fresh rosehip retail price may vary in the range of **300-500 AMD per kg**. Dried rosehip is sold at agricultural markets at the price of **450-700 AMD per kg**.

Profit margins declared by shops and supermarkets vary significantly due to wide range of products (especially concerning sizes of juices/beverages) and practices applied by different retailers. In case of the rosehip tea, commercial surplus was declared to comprise approximately 150 AMD per pack or 750 AMD per the quantity of tea produced from 1 kg of rosehip. Attribution of the rosehip share in the cost of product to the profit margin shows that the value added on **1 kg of dried rosehip will comprise 105-120 AMD**.

Retailers procure 5 liters of juice or beverage (produced from 1 kg of dried rosehip) at the price of 2,337-2,400 AMD. They told that commercial surpluses they apply comprise 5%-13%, or 117-312

AMD. After the attribution of the rosehip share in the cost of juice (11%-21%), the value added on the **1 kg of dried rosehip processed into juice comprises 13-66 AMD.**

Retailers of fresh and processed rosehip did not tell any specific reason for using rosehip, concerning quality or wild collection aspects. The only reason of using these products is the market demand. Rosehip products are traditionally consumed in Armenian households and are requested by local community. This creates opportunities for adding value and earning profits for retailers.

3.3.2.5 *Hotels and restaurants*

Similar to retail trade outlets, hotels and restaurants are mediating the movement of rosehip products towards the final consumers. The best known brands of juices are Yan, Noyan, and Jaffa. Types (juice or beverage), sizes, and brands of procured rosehip drinks are very different. Some entities prefer to procure small-size (0.25-0.33 l) bottles, others prefer big (3-5 liters) jars. Similarly, quantities of procuring and selling rosehip juice/beverage are very different: they vary from 5 to 200 liters per month depending on size and location of the surveyed entities. On average, procurement prices are adequate to those declared by processors and shops/supermarkets as sales prices.

Hotels and restaurants also widely use rosehip for the preparation of tea. They procure both fresh and (preferably) dried rosehip for that purpose. Villagers/collectors usually supply hotels and restaurants with fresh rosehip at the price of 200-300 AMD per kg. Dried rosehip costs 500 AMD and more per kg. Procurement quantities are small, up to 20 kg per year.

Representatives of hotels estimated that prices for rosehip products increased for 5%-15%, although this opinion was not shared by all of them. Respondents from restaurants think that prices stayed unchanged for the recent 2-3 years. In cases, when products are procured from villagers/collectors or shops and supermarkets, immediate complete payments are made. When products are supplied by processors, delayed schemes of payment are applied.

Since rosehip grows in Armenia only wild, hotels and restaurants were not asked about reasons of selecting "wild" rosehip. Also, hotels and restaurants do not advance many qualitative requirements for rosehip products they procure. Actually, only one requirement of being high quality for fresh/dried rosehip was mentioned by respondents during the survey.

Hotels and restaurants usually apply 80%-120% of commercial surplus on rosehip juice/beverage. In other words, on average they add-on 2,000 - 2400 AMD per 5 liters of juice/beverage, which is produced from 1 kg of dried rosehip. Attributing the rosehip share in the cost of the juice/beverage (11%-21%) it can be calculated that value added in the stage of hotels and restaurants to dried rosehip used for producing juice/beverage comprises **220-504 AMD.**

Hotels and especially restaurants also serve the rosehip tea that is extracted from dried rosehip. This means that dried rosehip is boiled in water (approximately 10 liters of water per kg of rosehip) and left for drawing/brewing. That volume of extract will comprise at least 50 cups of tea at the minimum price of 100 AMD per cup or 5,000 AMD per 1 kg of dried rosehip. The cost of the cup of rosehip tea does not exceed 15-20% (of which the half is the cost of dried rosehip), which means that the value added via the processing the rosehip to tea comprises about **2,000 AMD per kg (!)** of dried rosehip. Such profitability would be really impressive if volumes were somewhat notable.

There are no specific reasons for using the rosehip products at hotels and restaurants, except of the market demand. Armenians really like rosehip products (both the juice and tea). Visiting restaurants

and hotels, especially in the winter season, they usually order rosehip juice. Besides, some Armenians think that rosehip is healing a number of diseases although it may be somewhat subjective.

3.3.3 Rosehip Sector Map

The chart presented below uncovers all participants of the rosehip sector (i.e. market) and functions conducted by them. This product's case is quite specific, since it appears as two various products: fresh and dried rosehip. Addressing these two products is important since they are used differently; their prices are different, etc.

Aside from identification of the twofold nature of rosehip, some other important findings also took place. LWPs and processors are involved in collection of rosehip, wholesaler procurers and processors really prefer dried product, wholesaler procurers are initially processing (drying) procured rosehip quite intensively, etc.

Initial processing is special issue to concentrate on. In fact, the value is added not only via simple re-selling, but also by changing the product, increasing its value. In these cases the difference between the wholesaler procurers and processors is fading in the context of dried rosehip.

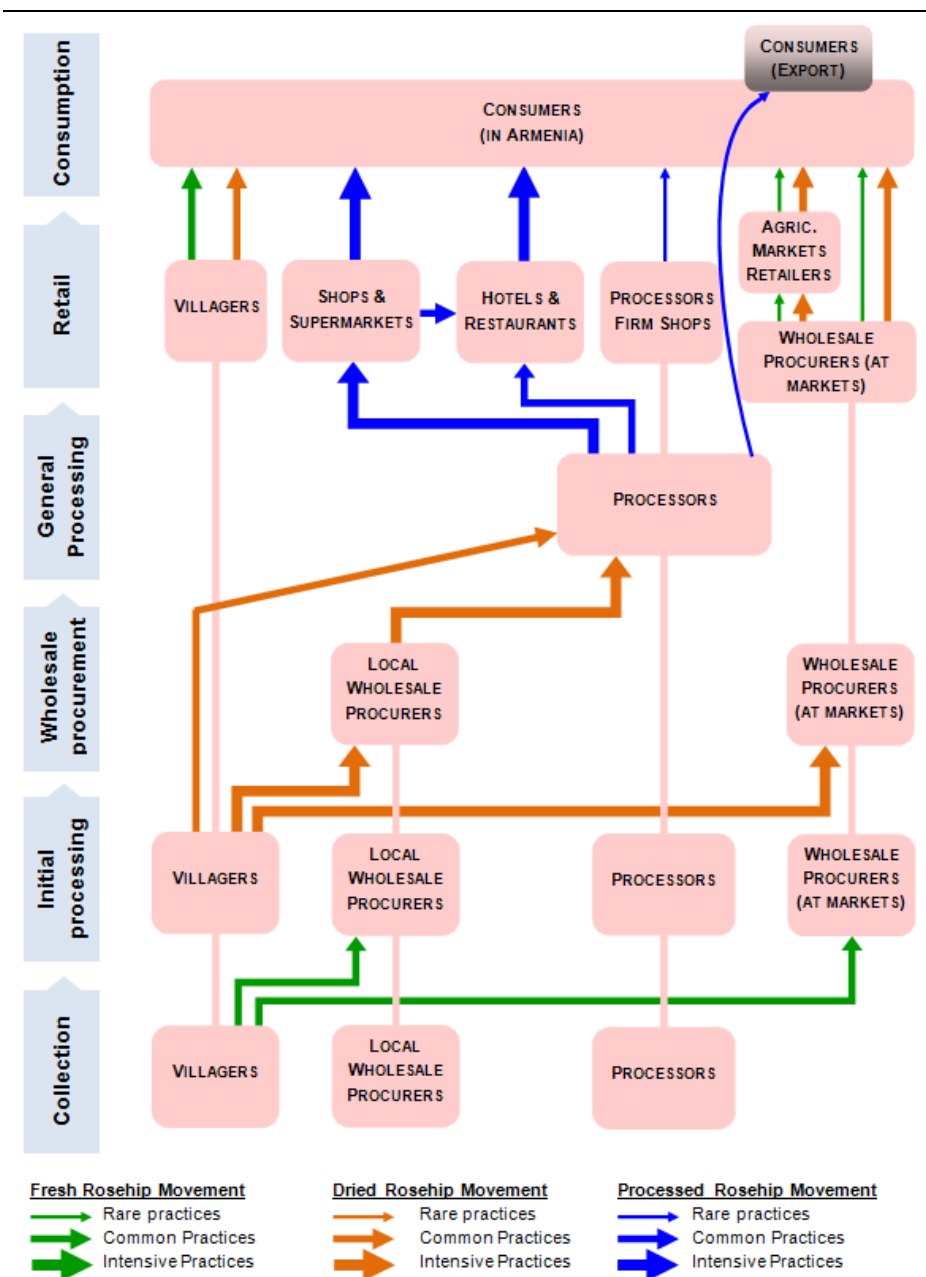


Chart 5 - Rosehip Sector Map

3.3.4 Rosehip Value Chains

Although rosehip is processed to many different products¹⁵ in Armenia, only two final processed products have been involved in the Value Chains analysis. Those products are tea and juice/ beverages and they were selected since volumes of production are notably more than for other final products. Values added at each stage of the movement of rosehip products are presented in the chart below.

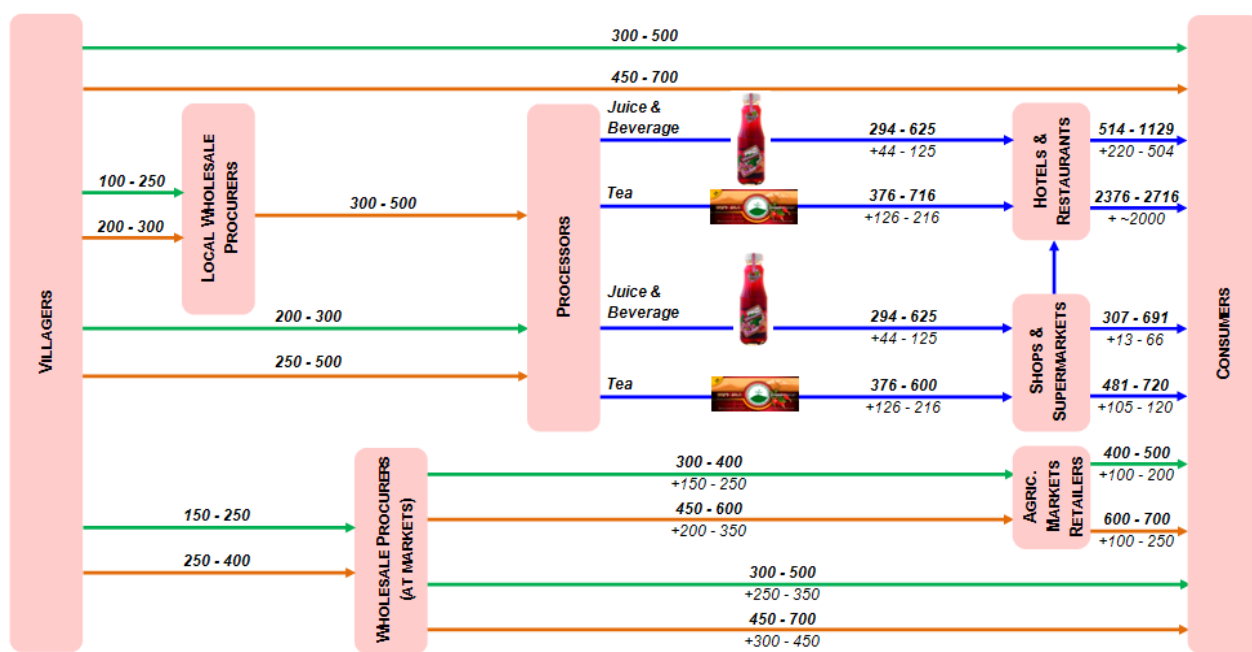


Chart 6 - Rosehip Value Chains, AMD

Special attention should be paid to the value added at the stage of retail trade with rosehip products at hotels and restaurants. Figures are significantly high, than in other stages. This phenomenon was already addressed in the current report. Hotels and restaurants are “allowed” to apply high profit margins, since they sell not only the product but also the brand and atmosphere.

General conclusions on the selection of the best opportunities should be made via the combination of the value-added at each stage, the intensiveness and application of each practice.

Rosehip Value Chains, Added value flows in average % (calculated on the base of average for figures provided in Chart 6)							
	LWP	WPM	Processors	Shops % supermarkets	H&R	Agric. market retailers	Consumers
LWP	-	-	50%-67% Dr.	-	-	-	-
WPM	-	-	-	-	-	100% Fr. 140%-167% Dr.	88%-100% Fr 113%-120% Dr.
Processors	-	-	-	15%-25% Jui. 42%-43% Tea	15%-25% Jui. 42%-43% Tea	-	-

¹⁵ Besides the products mentioned in the body text, the rosehip can be processed to wine, sweet preserve, be salted; as well as the stones can be used for extracting the rosehip oil

Shops % supermarkets	-	-	-	-	4%-10% Jui 20%-28% Tea	-	4%-10% Jui 20%-28% Tea
Hotels & restaurants	-	-	-	-	-	-	75%-81% Jui 280%-530 Tea
Agric. market retailers	-	-	-	-	-	-	22%-50% Fr. 22%-42% Dr.

Where: Fr. – Fresh, Dr. – Dried, Jui. - Juice and beverages

3.4 THYME

3.4.1 Introduction – Selected For

Collection of thymes is widely practiced by local population in almost all rural regions of Armenia. It is readily and desirably consumed in all households of the country. Even more, drinks produced from thymes are considered to be delicate food product in Armenia.

Another reason for involving thyme in the survey was the use of this product by the number of respondents, i.e. wholesalers, processors, retailers. About half of the respondents told about using this product in their activities, which means that several value chains are currently practiced in Armenia that will be analyzed below.

3.4.2 Analysis of Specific Functions

3.4.2.1 *Collection*

Thyme is collected in all rural areas of Armenia by the population of neighboring communities. This herb is collected at bush-lands, grasslands and meadows, as well as in homestead gardens. Collection requires special knowledge and skills, which collectors do not have quite often.

Months of June-August are the best period of thyme collection, although in higher regions (where the climate is colder) that period is shifted ahead for a month; in warmer regions collection starts in May. Collected thyme is further used/consumed as spice and/or tea/extract. Less than 10% of collected thyme is used by in fresh condition (i.e. fresh collected thyme is extracted and consumed immediately). Almost half of the remainder dried quantity is consumed later within households, and the other half is sold to wholesalers and processors.

The survey did not address quantities of thyme collated by population, but collectors argue that only tiny quantity of available thyme is collected. Supplies of thyme can be much more. The survey was not conducted among collectors, so there is no information on prices they require for thyme from wholesalers, processors, or final consumers. Price information was obtained from the other part (i.e. procurers) of that process.

3.4.2.2 *Wholesale procurement*

Price information for thyme is very different and asymmetric. Actually, the simple term of “thyme” does not define product that is discussed now. Various collectors supply really different products. Collection of the whole plant (without roots) is much easier; the price for such thyme is **100-300 AMD per kg** of fresh, and about **400 AMD per kg** of dried products. Many procurers consider such thyme as low-quality. On contrary, collection of high quality thyme, which actually means cutting only the top 5 cm of

the herb by scissors. This thyme is completely different product and the price for it comprises up to **1,500 AMD per kg** for dried thyme.

Such a big difference in prices is really confusing. At first sight, the same product is discussed with two very different prices. Meantime, the closer look suggests that two different products are addressed actually. In case of better quality products thyme is collected much carefully and with more efforts and labor cost. In the first case that initial treatment of collected thyme is conducted by processors, who spend almost the same resources on that processes.

Product transformation issues rise right in the beginning of the thyme value chain. Various respondents told that thyme loses 30%-75% of its weight after being dried. The coefficient varies in the range of 0.25-0.7. Again the variation is very big, and it depends on the way of processing and cleaning. The better it is dried and cleaned from dry stems (although this part of the herb is used for the production of essential oils), the less is left, but the higher is the price (for the 1 kg of dried and cleaned product). Wholesale procurers usually prefer to procure right size, dried, and cleaned thyme.

Various respondents (wholesale procurers) declare different trends for thyme procurement prices during the recent 2-3 years. The majority states that prices stayed unchanged, but few of them could see some increase for 10%-25%, although it should be noticed that those respondents mentioned general increase in prices for all wild collected products.

Thyme procurement prices are affected by the following factors:

- Climatic situation and yield volume;
- Prices assigned by competitors (other collectors);
- Prices assigned by procurers;
- Quality of the product;
- Size of the thyme bunch; and
- Collection area.

Wholesale procurers usually apply two types of payments while they procure thyme from villagers/collectors. Most often procurers pay the whole amount for procured thyme at the moment of supply. Sometimes, when procurers have clear idea about quantities they are going to procure, they make orders to collectors/villagers and make advance payments/credits to them. This means wholesale procurers possess (at least they must) sufficient financial means for conducting the procurement process without delays and problems.

Geography of procurements is very wide. Wholesale procurers procure thyme from the regions of Lori, Kotayk, Syunik, Aragatsohn, Ararat, Vayots Dzor, and Armavir. Actually, wholesale procurers make their procurements from all areas of Armenia. The period of procurement is crosschecked and coincides with the period declared by villagers, i.e. starting from May and lasting till November.

The survey addressed both bigger and small wholesale procurers in order to uncover all relevant aspects of the use of thyme in the stage of the wholesale procurement. Respondents were asked to tell their procurement volumes for the recent 2-3 years. Figures are presented in the table below.

Table 20 – Thyme procurement volumes, wholesale procurers, kg

Years	2007	2008	2009	Years	2007	2008	2009
LWP1	300	300	300	LWP6	3,000	2,000	2,000
LWP2	50	50	50	LWP7	11,000-13,000	11,000-13,000	11,000-13,000

LWP3	47,000	5,000	35,000	WPM8	2,000	2,000	2,000
LWP4	1,000	1,000	1,000	WPM9	300	300	300
LWP5	-	11,000	1,000				

The biggest quantity has been procured by Sisiani-Hats Company, who supplies to several processors and is one of the major players in the market. LWP7 secures the second biggest volume, but presented figures should be divided between two herbs – thyme and mint. Every year this procurer procures 7-8 tones of thyme and 4-5 tones of mint.

Since thyme in Armenia is not cultivated, respondents were not asked about their preferences towards wild thyme. Meantime, respondents advanced certain requirements for procuring thyme from collectors. Below we present the most important ones:

- Thyme should be clean and dry (not over dried, otherwise leaves will drop or break);
- Collected herb should not be very tall; 5 cm is the optimal height;
- Only the top of the herb should be collected/cut;
- For the production of tea/extract the thyme should be collected/cut before the herb is in blossom; for the production of the essential oils blossomed thyme is more preferred;
- Thyme should not be packed in airless conditions like in plastic or similar bag. In such conditions the thyme is glowing and decaying. The herb should be ventilated all the time.

Requirements are not too many, but meeting those requirements significantly affects procurement prices. Abovementioned requirements can be met easily, but collectors need to be explained the importance of mentioned factors.

Aside from procuring, wholesale procurers conduct several operations, including storing, drying, cleaning, and ventilating. Some wholesale procurers even classify and conduct initial packaging. In fact, the majority of wholesale procurers supply thyme only after implementation of mentioned activities. Meantime, each operation increases the value and price of the product.

WPMs apply 30%-50% commercial surplus on the top of price they paid for procuring thyme. Since they usually sell already dried product, the commercial surplus comprises 60-200 AMD per kg for low-quality thyme, or 500-1,000 AMD per kg of high-quality thyme. Sales price comprises **260-600 AMD per kg** for low-quality thyme, or **2,000-2,500 AMD per kg** of high-quality thyme. Having in mind that almost no inputs are required for drying, the whole commercial surplus can be attributed to the value added. WPMs sell thyme to final consumers, i.e. the population.

LWPs sell dried thyme of low quality at the price of **250-500 AMD per kg**. High quality products are sold at the same or even slightly higher price as WPMs do, i.e. **2,500-3,000 AMD per kg**. LWPs sell their products differently. They supply local agricultural markets, processors, or even exporters.

Surveyed wholesale procurers are quite optimistic concerning planned volumes of thyme procurement. Although some respondents have not decided their volumes of thyme procurement, declared figures are quite promising.

Table 21 - Planned volumes of the thyme procurement in 2010, kg

Year	LWP1	LWP2	LWP3	LWP4	LWP5	LWP6	LWP7	WPM8	WPM9
2010	not decided yet ¹⁶	50	50,000	1,000	not decided yet	1,500	10,000	2,000	300

¹⁶ Although can procure and collect up to 200 kg of thyme and mint per day

At the same time, plans do not mean implementation for sure. Almost all wholesale procurers told they need more clients and more sales.

3.4.2.3 General processing

Processors role in the thyme market is not as critical as in case of other wild products. This can be concluded even from quantities they procure and activities they conduct. The analyses of procurement practices and prices shows that the thyme market is not finally developed so far. Product itself is not homogenous; it is divided into high and low quality, fresh and dried products. Each group of these products has its nuances, and needs specific look. Moreover, procurement prices vary significantly depending on the type of procured thyme. Snapshot to procurement prices and suppliers of thyme is presented in the table below.

Table 22 - Procurement of thyme by processors

Processor	Procured from	Procured in fresh condition			Procured in dried condition		
		Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total	Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total
Bio-Universal (Manana)	Collectors						100%
	Wholesalers				500		
Chir	Collectors				2,000		100%
	Wholesalers						
Mega-Ararat	Collectors	200	200	20%	400	400	80%
	Wholesalers	200	200		400	400	
Tamar- Tatik ¹⁷	Collectors					2,000	100%
	Wholesalers					2,000	
Nectar-Bonus	Collectors	100	100	100%			
	Wholesalers						
Tamara-Fruit ¹⁸	Collectors			100%			
	Wholesalers	v	v				
Abda	Collectors					2,000	100%
	Wholesalers						
Arfito-Pharm	Collectors				2,000		100%
	Wholesalers				2,000		

Product transformation coefficients told by processors are generally in line with the information provided by wholesale procurers, i.e. are in range of 0.3-0.5. Being dried and cleaned thyme loses 30%-50% of its weight. Processors prefer to procure dried and cleaned product; it lessens the work they are doing.

Processors' attitude towards thyme procurement prices is not unambiguous. The majority of respondents think that procurement prices stayed unchanged for the recent 2-3 years. Meantime some processors could observe an increase of 10%-30%; other few processors decreased their

¹⁷ Tamar-Tatik intensively practices the collection of the thyme by their own employees

¹⁸ Rejected to tell the procurement prices

procurement prices for up to 20%. Although the thyme procurement prices are assigned by processors, there are many factors affecting those figures. For example, it was already mentioned that quality issues have their significant influence, and price for high-quality product may be several times more than for usual or low-quality products. Among others the following factors are more important:

- To what extent the thyme was dried;
- To what extent the thyme was cleaned;
- How and where the thyme was collected;
- How and where the thyme was dried and cleaned;
- Height of the collected herb;
- Market demand and prices of competitors;
- Availability of other procurers;
- Climate and weather conditions, and
- Quantity of the yield.

It was identified that processors procure thyme in fresh and (more preferably) dried conditions. In some cases processors even collect thyme themselves, but usually they procure from collectors and wholesale procurers (most often). Wholesale procurers not only intermediate the process of selling this product, but also provide additional services/operations, such as initial processing (drying, cleaning, and packaging) and transportation. That is why; processors are interested in cooperation with wholesalers.

Processors procure thyme from almost all regions of Armenia. Some regions, such as Ararat, Vayots Dzor, Syunik, Tavush and Aragatsotn are more known. Supplies from ecologically clean areas, where the soil is not processed with herbicides and fertilizers, are really preferred. Respondents declared the period of the end of May-August the best for procuring thyme.

The major product that thyme is processed to is tea. Some of processors are still quite new in this field and are just entering the market. Maybe, this is the reason of small procurement quantities that processors declared (in comparison to wholesale procurers). Processors' volumes of thyme procurement are presented in the table below.

Table 23 - Thyme procurement volumes, processors, kg

Year	Bio-Universal	Cheer	Mega-Ararat	Tamar-Tatik	Nectar-Bonus	Tamara-Fruit	Abda	Arfito-Pharm	HAM
2007	5,000	200	1,000	300	1,000	-	400	200	1,000
2008	10,000	-	3,000	500	1,000	500	2,500	200	500
2009	15,000	-	5,000	1,000	1,000	1,000	2,000	200	700

Leaders among processors are Bio-Universal (this Company produces thyme tea, oil, and spice/condiment), Mega-Ararat, and Abda (the last two are tea producers). Meantime, almost all processors are optimistic in their projects for tea and other thyme related products, and think that procurement volumes are going to increase.

There is no strict way of making payments for procured thyme applied by processors. Most often schemes are either prepayments (credits to collectors) or complete payments at the moment of supply. Meantime, delayed payment is also practiced intensively, especially by more or less bigger processors. They have established long-term business relationships with collectors and wholesalers from various regions and may afford to make delayed payments. In particular, payments are made in accordance with agreements, and those agreements are negotiated with almost all suppliers.

Processors have almost the same requirements for the quality of procured thyme as the wholesale procurers do. Since thyme is only wild collected in Armenia, they don't address the importance of procuring only wild thyme or mint. More importantly, processors require thyme to be collected from ecologically clean areas that are located far from industrial (especially metallurgical) locations, highways and railroads, and other polluted locations. Aside from this general requirement processors raise the following requirements:

- Only top of the thyme plant with as many leaves as possible should be collected;
- While cutting the top of thyme collectors should not damage the whole plant (especially they should not touch the roots);
- Thyme should not be damaged, without leaves, frozen, or decayed;
- Samples should be presented for the analysis;
- Thyme should meet organic standards as much as possible;
- Thyme should be collected in proper period (within the season);
- Thyme should be cut by scissors, and
- Thyme should be initially dried in clean and natural conditions;

Processors use thyme for the production of tea (most often), essential oils, and species. There is no certain technology; each processor applies its own technology, and produce different products. For example, tea is produced in bulk, big or small packs, packaged in nice looking and expensive boxes, or more economically. This creates certain difficulties for calculation of costs, profit margin, and the value added. That is why; calculations made below are somewhat approximated. The best scenario with the highest profit margin (respectively with the biggest value added). This model may be respected to the activity of leader producers of tea, such as Bio-Universal or Abda.

Table 24 - Calculation of the value of thyme processed to tea

Sales price, AMD/kg		Profit margin		Thyme tea COGS, AMD/kg		Thyme price ¹⁹ , AMD/kg	Thyme share in COGS		Profit, AMD/kg		Value added, AMD, kg	
4,800	6,000	25%	30%	3,600	4,200	2,000	56%	48%	1,200	1,800	667	857

In case of cheaper products the value added is obviously less. Thyme is procured at the price of about 300 AMD per kg, and the value added comprises 250-450 AMD per kg depending on the type, size.

The second prospective product processed from the thyme is the essential oil. This product is quite specific. It is sold only at specialized retail outlets.

Table 25 - Calculation of the value of thyme processed it to essential oil

Sales price, AMD/kg		Profit margin		Essential oil COGS, AMD/kg		Thyme price, AMD/kg	Thyme share in COGS		Profit, AMD/kg		Value added, AMD, kg	
3,000	3,000	15%	20%	2,400	2,550	500	21%	17%	450	600	95	102

Value added on thyme in case of processing it to essential oil is not such impressive as in case of tea, but still it can be interesting. The only problem with thyme essential oil is production volume. It is not really big due to promotion and marketing problems.

¹⁹ This price is taken from reports of tea producers that introduce high-quality and well-packaged tea

Products processed from thyme are sold in two main ways. Teas and species are mainly sold via shops and supermarkets. Some processors also targeted hotels and restaurants, although these entities mainly prefer to procure such products from retail network. Bigger producers like Bio-Universal, Mega-Ararat, and HAM export their teas quite intensively and successfully. Thyme essential oil is usually sold via drug stores' networks.

Processors know the prosperity of thyme products the best. Their attitude and plans of further production may be the best evidence of the profitability of those products. That is why; their readiness to keep and even increase volumes of thyme procurement is very promising.

Table 26 - Planned volumes of thyme procurement by processors in 2010, kg

Year	Bio-Universal	Cheer	Mega-Ararat	Tamar-Tatik	Nectar-Bonus	Abda	Arfito-Pharm
2010	20,000	not decided yet	5,000	2,000	1,000	1,200	200

Bigger processors declared that will increase volumes of their procurement. Some processors like Cheer and HAM have not made their decisions on the volumes of the thyme procurement, and now negotiate with potential buyers of processed products.

3.4.2.4 Retail trade outlets

As in case of previous wild products two types of retail traders will be analyzed within the value chain of the thyme products: retailers at agricultural markets and shops and supermarkets. The first group of retailers usually trade with fresh or not completely processed/dried and packed thyme products. More particularly, retailers at agricultural markets are supplied with the thyme (usually in bunches) by either wholesalers or villagers/collectors. The price that retailers at the markets procure at comprises up to 100 AMD per bunch. Usually, the weight of the bunch is 80-100 grams, so the procurement price comprises **800-1,000 AMD per kg**.

Shops and supermarkets usually sell processed thyme products. Actually respondents of this group declared about thyme tea only. Mega-Ararat, Manana (made by Bio-Universal), Linara, Sari Tey (Mountainous Tea) brands are the most known suppliers. Shops and supermarkets usually procure 25 thyme tea packs packaged in a carton box at the price of 750-850 AMD/box. This figure completely coincides with prices told by processors. Converting this price into kilograms we get the same 4,800-6,000 AMD per 1 kg of thyme processed into packaged tea.

Supply of processed thyme is conducted by processors. Usually, retailers make orders and receive what they have requested within 1-2 days. The majority of retailers mentioned they pay for supplied products at the moment of the procurement. Anyhow, some of them apply delayed payments' system. They pay for supplied products when the next procurement of the same product is made. Situation is completely different with retailers at agricultural markets. They usually have no opportunity to make orders. They simply trade with what they were supplied by villagers or wholesalers that day (although some exceptions always happen). Understandably, these retailers make their complete payments immediately, at the moment of the procurement.

Retailers at agricultural markets cannot see changes at the thyme procurement prices for the recent 2-3 years. This statement is true for the processed thyme products, too. Slight increase of 5%-10% was declared only by one respondent.

Retailers did not address issues related to wild collection, since this herb is not cultivated in Armenia. All the thyme is wild collected. Similarly, retail traders do not have specific requirements for products they procure. These requirements are replaced with price negotiations. The better product, the higher is the price, and vice versa. The same refers to sales price, too.

Retailers at agricultural markets sell the thyme at the price of about 150 AMD per bunch, or **1,200-1,500 AMD per kg**. Thus, they apply some 50% of commercial surplus. Shops and supermarkets usually apply 5%-13% commercial surplus on top of procurement prices. In absolute figures it comprises 240-780 AMD per kg, i.e. they sell the processed thyme tea at the calculated price of 5,040-6,780 AMD per kg. The value added that can be attributed to the thyme (taken 56%, see Table 24) comprises **134-437 AMD per kg** of the dried thyme processed to tea.

Commercial surplus applied by drug stores for essential oils is within almost the same range - 10%-15%. In absolute figures the profit margin comprises 300-350 AMD per kg, on average. 21% of this amount (see Table 25) can be attributed to the value of thyme. Value added comprises **63-74 AMD per kg** of the thyme processed to the essential oil.

Retailers did not mention any specific reason for selling thyme products except of commercial issues. They are interested in securing wide assortment of products they trade with and meet requirements of customers as much as possible. Thyme products are welcomed and demanded in Armenia, since the population likes this herb traditionally and uses also for medical purposes. Retailers understand that well, and do their best for the fulfillment of the requirements of their customers.

3.4.2.5 *Hotels and restaurants*

Hotels and restaurants procure thyme products mainly for preparation of tea, although some small quantity may be used as spice/condiment. Volumes of use are very different: restaurants at the center of Yerevan procure and consume really big volume of thyme products (for instance, Caucasus restaurant procures 1,000 packs of thyme tea), while small motels and restaurants somewhere in regions use 1 box (25-30 packs) of thyme tea the maximum.

Thyme procurement practices are really different. Hotels and restaurants procure all types of thyme tea. Villagers supply simply dried herb at the price of the 2,000-2,500 AMD per kg. This is mainly practiced by regional hotels and restaurants. Processors (mainly Mega-Ararat was mentioned) supply hotels and restaurants at already presented prices of 4,800-6,000 AMD per calculated kg. Moreover, hotels and restaurants procure thyme tea from shops and supermarkets, too, at the calculated price of 5,040-6,780 AMD per kg.

Except of one hotel and one restaurant, all other respondents declared that no changes at thyme procurement prices have taken place during the recent 2-3 years. This statement refers to all types of thyme products. In other words, even if changes in thymes prices happened during the mentioned period, they have been absorbed by the profit margins of previous market participants.

Almost all hotels and restaurants mentioned that they make complete payments for procured thyme products immediately, at the moment of supply. This is understandable; procurement volumes usually are not big, and there is no sense to delay payments. Meantime, some big hotels (such as Congress) and restaurants (like Caucasus and Ashtaraki-Dzor) require and apply delayed payments, since they are procuring these products in big quantities.

Hotels and restaurants did not address issues related to wild collection of thyme, since this herb is not cultivated in Armenia. All the thyme is wild collected. Besides, hotels and restaurants do not have specific requirements for thyme products they procure.

The minimum price of selling a cup of thyme tea (packed) at hotels and restaurants is 200 AMD. In case of serving thyme tea in packs, the profit margin comprises less than 50% or 100 AMD per 1 cup. Some 200-250 packs of tea can be produced from the 1 kg dried thyme. This means that profit margin per tea produced from 1 kg of the thyme comprises at least 20,000 AMD per kg, and the value added comprises more than **11,000 AMD per kg (!)** of thyme served as tea.

Some hotels and restaurants don't charge anything for teas (including thyme) they serve due to low costs. Meantime, if the restaurant serves hundreds of teas (especially in winter season) per day, significant profit appears, this is not obviously a subject to be ignored!

Respondents from hotels and restaurants explain the intensive use of thyme tea by consumers' attitude towards herbal and medicinal extracts/teas in Armenia. Thyme tea is demanded product; it is pleasant to drink, and it is eutherapeutic (i.e. are having the healing influence). Hotels and restaurants proceed from requirements of their clients. If clients regularly order certain products, these entities are obviously going to fulfill those requirements.

3.4.3 Thyme Sector Map

Thyme Sector Map presented in the chart below uncovers the participants of thyme market and functions conducted by those participants. The first general finding that can be made relates to the involvement of processors in the process of thyme collection.

The movement of fresh thyme is finished at the stage of wholesale

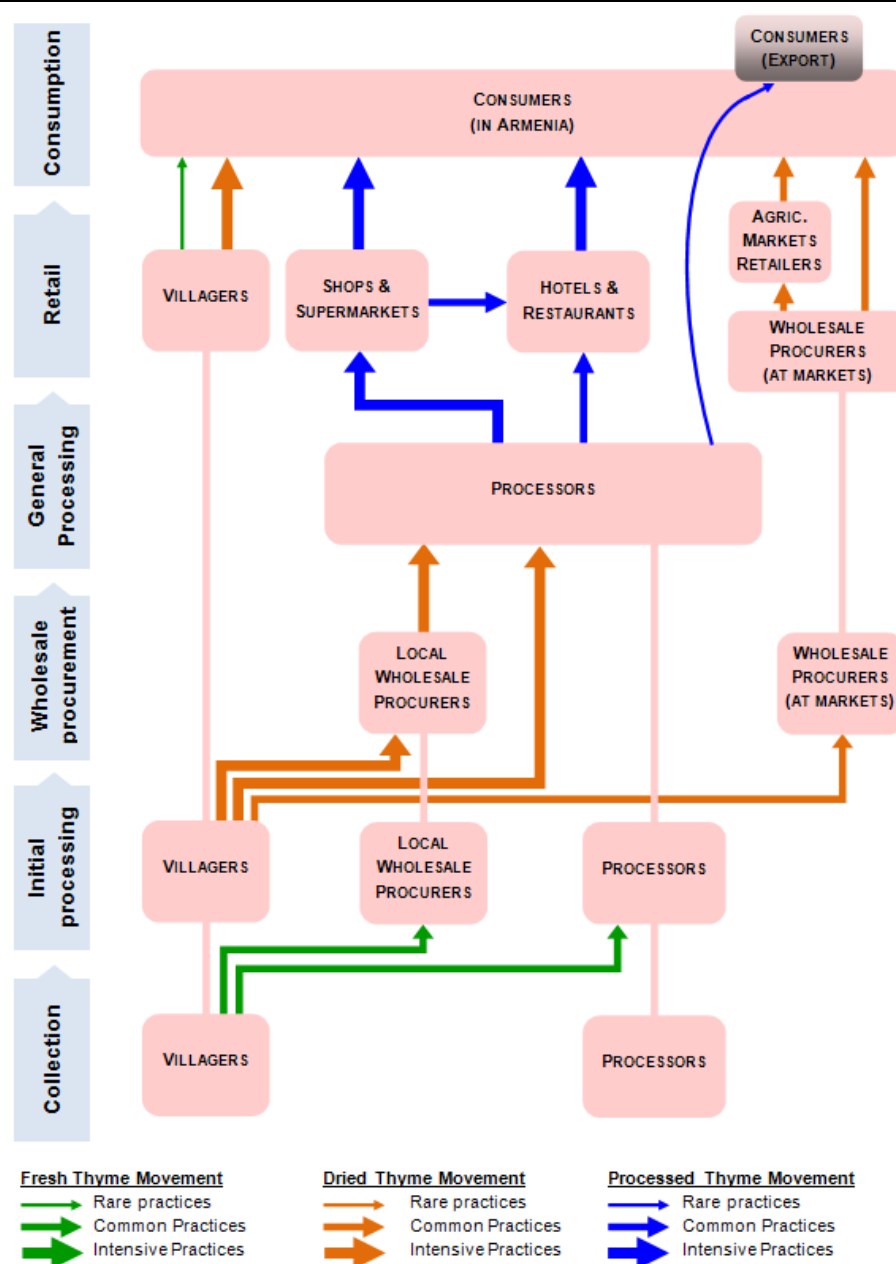


Chart 7 - Thyme Sector Map

procurement, despite some small quantity of this product suggested/ sold to final consumers at agricultural markets. Procuring fresh thyme wholesalers usually dry and clean this product actually transforming it. Interestingly, dried thyme can be found at markets (in bulk, without any packaging) as usual product at all seasons.

The thyme is used mainly as tea/extract, condiment, or input for the production of essential oils. The last option is very promising although it is conducted by quite few companies in Armenia.

3.4.4 Thyme Value Chains

Analysis of thyme Value Chains is the most contradicting and ambiguous among the all selected wild products. Ranges of prices (and values-added at different stages) are very large due to big difference in procurement prices. Thyme procurement prices at the stage of processing vary from 500 to 2,000 AMD per kg. This difference becomes even more significant during the further stages.

Such big differences are conditioned mainly by qualitative features of the product. If the whole herb is cut-off (except of roots), the price comprises 400-500 AMD per kg at maximum. But the best quality of thyme is secured with the top 5-7 cm of the herb, which may have 3-4 times less weight and volume. Actually, processors have to clean herbs and cut-off the remainder part of it, leaving only the best part, which means they throw away the most part of the collected thyme (although this part can be used for the production of essential oils). In other words the price is the same: the higher quality is of small quantity, but has higher price, and vice versa.

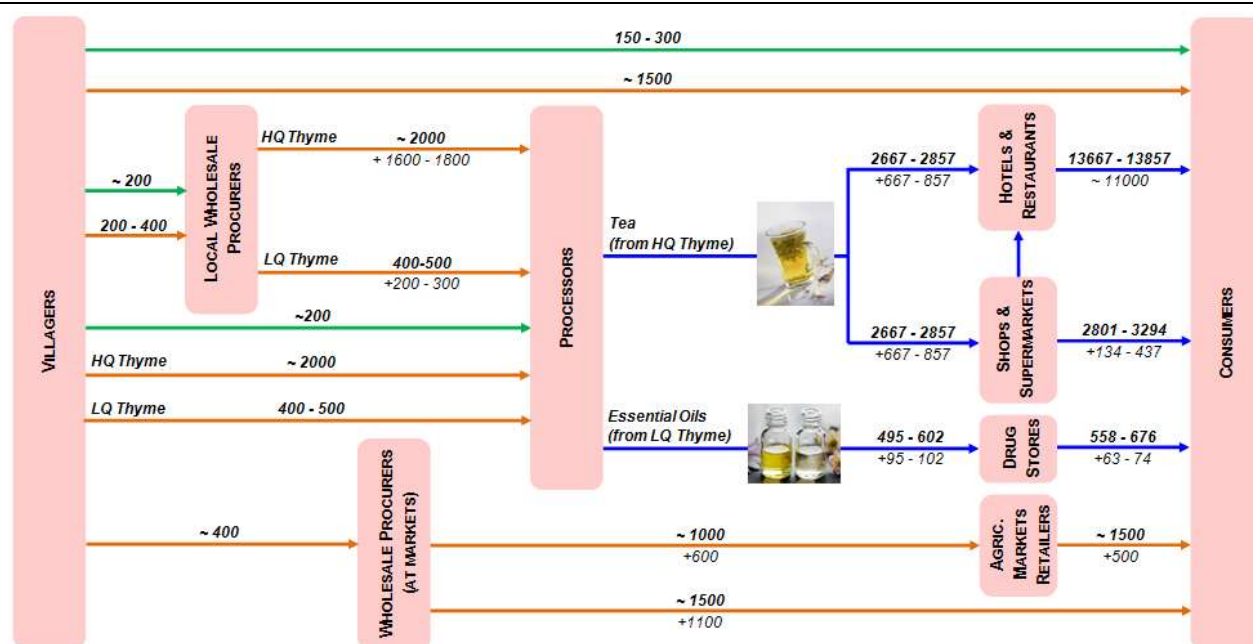


Chart 8 - Thyme Value Chains, AMD

The highest value-added is again generated at the stage of retail trade, more particularly by hotels and restaurants. These entities serve thyme as tea, and the price of the thyme tea in those entities covers the costs 4-5 times.

Thyme Value Chains, Added value flows in average % (calculated on the base of average for figures provided in Chart 8)							
	LWP	WPM	Processors	Shops % supermarkets	H&R	Agric. market retailers	Consumers
LWP	-	-	75%-100%LQD 800%-900%HQD	-	-	-	-
WPM	-	-	-	-	-	150% LQD	275% LQD
Processors	-	--	-	33%-43% Tea 20%-24% EO	33%-43% Tea	-	-
Shops % supermarkets	-	-	-	-	5%-15% Tea	-	5%-15% Tea 12%-13% EO
Hotels & restaurants	-	-	-	-	-	-	380% Tea
Agric. market retailers	-	-	-	-	-	-	50% LQD

Where: LQD – Low quality dried thyme, HQD – High quality dried thyme, EO – Essential Oil

3.5 WALNUT

3.5.1 Introduction – Selected For

Selection of walnut for further analysis in the frame of the current assessment is based on the same preconditions as for other wild products. Walnut volumes are sufficient for organizing wide-scale processing; this product is well-known and demanded within the Armenian market, there are high-value generation opportunities via processing of walnut in different ways.

Walnut is also widely used by participants of the current survey. Villagers intensively collect, wholesalers trade with fresh and semi-processed products, and processors produce at least 2-3 types of final products and sell them via the retail network. About half of the survey participants are using this product. Specific features of activities implemented at each stage of walnut movement from collectors to ultimate consumers are addressed below.

3.5.2 Analysis of Specific Functions

3.5.2.1 *Collection*

Walnut is collected at forested areas and homestead gardens in almost all regions of Armenia, although some regions are especially famous as suppliers of high-quality and very tasty walnut. Collection is conducted by all members of households including also women and children. Meantime, some of collection activities are physically quite difficult to conduct (like shaking trees when nuts are ripe). This operation is usually conducted by male members of households or elder boys, who are strong enough for climbing and shaking trees.

Walnut is used in two major ways: for the purpose of preparing sweet preserve and for kernel that is received by breaking and cleaning the nutshell. Respectively, nuts are procured twice during the year: young (green) nuts are procured starting from the end of May and till the beginning of July. The period depends on area of collection.

Currently, villagers collect all the walnut from their homestead gardens and only part of this product that grows in forests. Current assessment did not address the volumes collected by villagers. Informed respondents told the current volumes of the collection can be several times more if the market demand is there, and collectors will not have problems with selling the walnut at proper price.

Actually, villagers/collectors sell 4 different nut products: young nuts, processed young nuts, ripe (dry) nuts with shell, and kernel. Each product is traded at different prices and conditions. About 10%-30% of collected walnut is consumed within households almost evenly divided between consumption of fresh and processed products. More than 70% of collected walnut is commercialized and sold. Shares of sales of fresh and processed products are almost equal, too.

3.5.2.2 Wholesale procurement

Walnut wholesale procurers have been divided and analyzed in two separate groups: *LWPs* that usually work on behalf of processors, and *WPMs*, who supply procured products to retailers and trade in retail quantities themselves, too. Separate analysis of these groups is mainly conditioned by big differences in functions conducted.

WPMs procure either dry walnut at the price of **800-1,200 AMD per kg** depending on quality and size (bigger nuts are more expensive), or kernel at the price of **2,000-2,500 AMD per kg**. LWPs procure dry walnut and kernel at about the same prices, and young walnut at the price of **200-400 AMD per kg**. Young walnut is procured in pieces; one walnut costs 3-5 AMD, depending on the size. Anyhow, it would be better to base on kilograms; otherwise the analysis will not be objective. Local wholesale procurers also procure initially processed (with lime and species) young walnut at the price of 400-800 AMD per kg. Procurement of initially processed walnut is rarer practice.

Transformation coefficient of kernel from walnut comprises about 0.4-0.6, i.e. walnut loses 40%- 60% of its weight when it is broken and unshelled. Being processed the young walnut loses 10%-20% of its weight, i.e. the transformation coefficient is about 0.9.

Wholesale procurers expressed different opinions regarding to dynamics of procurement prices. Half of them cannot see any significant changes in the recent 2-3 years. Meantime, some local wholesale procurers observed notable increase of 10%-30% in walnut procurement prices. Reasons for such variation in opinions are different: major factors that affect procurement prices are presented below:

- Procurement volumes;
- Geographical location;
- Total yield volume;
- Quality and sizes of nuts;
- Climate conditions,
- Competitors' and processors' prices, and
- General market conjuncture.

Wholesale procurers procure dry walnut from the end of September till the half of October. Young walnut is procured in the period of June-July. Most famous regions of supply are marzes of Kotayk, Vayots Dzor, Syunik, Aragatsotn and Artsakh.

Similar to practices applied for procurement of other wild products, wholesale procurers make their payments for procured walnut products in two major ways: complete payments at the moment of supply (most often), and advance payments (credits) to villagers/collectors for certain quantity of walnut. This means that wholesale procurers usually possess sufficient financial means for making those payments.

Dynamics of the walnut procurement volumes is not very promising. Volumes decreased significantly since 2009. Details of the procurement volumes are presented in the table below.

Table 27 - Walnut procurement volumes, wholesale procurers, kg

Years	2007		2008		2009	
	Dry walnut	Young walnut	Dry walnut	Young walnut	Dry walnut	Young walnut
LWP1	5,000	1,500	5,000	1,500	3,000	-
LWP2	1,500		700		500	
LWP3	-	4,000	-	4,000	-	-
LWP4	-	3,000	-	5,000	-	-
LWP5	-	2,000	-	2,000	-	2,000
LWP6	500	500	500	500	500	500
LWP7	12,000		12,000		6,000	3,000
WPM8	4,500 ²⁰	-	4,500	-	4,500	-

Notable decrease in volumes may be conditioned by economic and financial crisis, which squeezed sales volumes of processing entities. Respectively, they decreased procurement volumes from local wholesale procurers. Another interesting observation can be made, too. Wholesale procurers usually concentrate their efforts on specific products, i.e. they prefer to use either dry or young walnut.

Quality requirements that wholesale procurers bring forward usually source from processors and retailers who further operate with procured walnut. Surveyed wholesale procurers mentioned the following important quality issues:

- Dry walnut should not be spoiled or blank;
- Dry walnut should be as dry as possible;
- Young walnut should be collected at right time (not earlier or later);
- Young walnut should be cleaned and blacked well and normally processed with lime;
- Young walnut should not be very big and at standard size;
- Kernel should be cleaned well and white;

Respondents also told their preferences regarding the wildness of walnut. Kernel procurers prefer cultivated walnut. On contrary, young walnut is better to be wild collected. More generally, almost all wholesale procurers prefer wild collected walnut; it is of better taste, not cultivated with chemicals, oil content is high, etc. The only shortcoming of the wild collected walnut is the small size.

WPMs usually do not make further processing of walnut. They simply sell it at higher price. On contrary, LWPs conduct various processes and transform the product. In case of procuring dry walnut they either sell it as it is, or clean and get kernel. They lose in weight, but win in price. Besides, selling kernel is much easier than dry walnut. In case of procuring young walnut, wholesale procurers conduct initial processing, i.e. cleaning, blacking, and processing with lime and species. Besides, the product is classified, standardized, selected, etc.

Making the abovementioned processes wholesale procurers face some costs and spend efforts, but they increase the value and price of walnut products notably. Meantime, initial processing is not the

²⁰ 150 kg daily

only way of gaining profit. Sometimes wholesale procurers simply store (initially processed) walnut for some period (about one month) and sell it at higher price.

WPMs usually sell walnut they procure to final consumers at the market applying some 20% of a commercial surplus. For dry walnut this profit comprises **160-240 AMD per kg** and this amount can be almost completely attributed to the value of the walnut. For the kernel the profit margin is higher – 25%-30%. In absolute figures it comprises 500-750 AMD per kg of the kernel. The value added comprises **200-300 AMD for 1 kg of dry walnut**.

Wholesale procurers add at least 25%-30% commercial surplus on the price of the young walnut, if they simply resell walnut to processors. In absolute figures the profit margin (identical to the value added in this case) comprises **50-120 AMD per kg of young walnut** (sales price comprises **250-520 AMD per kg of young walnut**). In case of initial processing sales price is doubled (totaled to 500-1,000 AMD per kg) with profit margin of 15%-20%. Detailed calculation of the value added in the stage of initial processing is presented in the table below.

Table 28 - Calculation of the added value for young walnut processed initially

Sales price, AMD/kg		Profit margin		Profit, AMD/kg		COGS, AMD		Young walnut price, AMD/ kg		Young walnut share in COGS		Value added, AMD/kg	
500	1,000	15%	20%	75	200	425	800	200	400	47%	50%	35	100

Thus, the value added on the young walnut at the stage of initial processing comprises **35-100 AMD per kg**.

It was already mentioned that volumes of walnut procurement slightly decreased in the recent period. That tendency was reported to continue. Procurement plans of wholesale procurers are presented in the table below.

Table 29 - Planned volumes of walnut procurement, wholesale procurers, 2010, kg

Year	LWP1	LWP2	LWP3	LWP4	LWP5	LWP6	LWP7	WPM8
2010	~ 5,000	1,000	not yet decided	1,500	not yet decided	1,000	not yet decided	3,000

At the moment of the survey some important wholesale procurers did not yet decided their procurement volumes. Those volumes strongly depend on plans of wholesale procurers.

3.5.2.3 General processing

Processors usually procure two types of products. Young walnut for preparation of sweet preserve is the interest of canneries. Drying businesses procure kernel (or dry walnut with the purpose of unshelling it) and use it for preparing sweet dry food called “sweet sujukh” (kernel covered with a thick layer of fruit syrup). Price details of walnut procurement are presented in the table below.

Table 30 - Procurement of walnut by processors

Processor	Procured from	Procured in fresh condition			Procured in dried condition		
		Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total	Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total
Alishan (young)	Collectors			100%			-

walnut)	Wholesalers	350	400				
Byurakn (young walnut)	Collectors			100%			-
	Wholesalers	200	250				
A. Ohanjanyan Cannery (young walnut)	Collectors	300		100%			-
	Wholesalers						
Maga Cannery (young walnut)	Collectors		200-250	100%			-
	Wholesalers		200-250				
Borodino (young walnut)	Collectors		200-230	20% 80%			-
	Wholesalers		200-230				
Nectar-Bonus (young walnut) (kernel)	Collectors	300-400		10%	800		90%
	Wholesalers						
Tamar-Tatik (dry walnut) (kernel)	Collectors		500-1,000	80%		2,500-3,000	20%
	Wholesalers		800-1,000			3,000-4,000	
Chir (kernel)	Collectors			-		2,500-4,000	100%
	Wholesalers						

Procurement prices declared by processors are generally in line with those declared by collectors/villagers and wholesale procurers. Most of processors are canneries and procure young walnut for production of sweet preserve. Producers of dry food procure kernel for production of “sweet sujukh”.

Processors have different opinions regarding to dynamics of procurement prices for various walnut prices. Canneries told that young walnut prices have not changed much during the recent 2-3 years. Even some decrease can be observed. On contrary, dry food producers procure kernel at 20%-50% higher prices than 2-3 years ago²¹. This dynamics also illustrates changes in the market: sales and consumption volumes of walnut preserve squeezed in the recent period, but dry food products keep their volumes in the market and even enhanced.

Aside from general market conjuncture walnut procurement prices are affected also by other factors. Processors mentioned the following important ones:

- Prices assigned by other participants (retailers, wholesalers, and other processors) in the market;
- Weather and climate conditions;
- Yield of the certain year;
- Size of the walnut, and
- Quality of the product and appearance (especially for kernel);

Quality issues were addressed by processors separately. Major qualitative requirements for the walnut products they procure are the following:

- (Young) Walnut should not be damaged by hail,
- (Young) Walnut should be well but not over ripe;
- (Young) Walnut should not be faded and withered;
- (Young) Walnut should be of medium size (not very big and not too small);
- (Young) Walnut should be soft;
- (Dry) Walnut should be easy to break and unshell;

²¹ Some of processors declared the change of the kernel price up to twice. But this case is more exception than usual practice.

- (Dry) Walnut (and kernel) should have proper fat/oil content; and
- Walnut should not be worm-eaten or damaged by insects.

Processors do not reject to procure walnut due to area of supply. Conformity with quality requirements is enough for making procurements. Meantime, some regions (even communities) are famous with their walnut products and are preferable for processors. Among the others processors named marzes of Kotayk (Garni), Vayots Dzor (Shatin), Aragatsotn (Ashtarak), Syunik, and Tavush. Collection seasons are adequate to those reported by collectors and wholesalers.

Procurements are made both from villagers/collectors and local wholesale procurers. Some processors even collect walnut on their own, with their internal costs and efforts/staff. Almost all processors declared they pay to suppliers in two ways: they either make complete payment at the moment of supply or pay in advance (credit suppliers) if certain quantity of agreed quality products should be supplied.

Although processors usually concentrate on processing of certain types of walnut (young, dry, or kernel), they usually procure other types of walnut products (at least in small quantities). That is why; they declared their procurement volumes in previous 2-3 years in combined figures. That information is presented in the table below.

Table 31 - Walnut procurement volumes, processors, kg

Year	Alishan	Byurakn	Ohanjanyan Cannery	Maga Cannery	Borodino	Nectar-Bonus	Tamar-Tatik	Chir
2007	10,560	-	3,000	20,000	12,930	70	3,000	60
2008	-	-	3,000	20,000	2,500	70	5,000	150
2009	-	3,000	3,000	20,000	-	70	8,000	120

There is an important issue to be addressed at this stage of analysis. Processors do not always know whether the walnut they procure is cultivated or wild collected. After the certain stage it is impossible to identify. Processors confirmed that wild-collected walnut is preferable for being processed to sweet preserve, and cultivated walnut is better for getting kernel (easy to unshell, white, and bigger).

Figures in the table attest that although some processors squeezed their procurement made in 2007, others entered the market and keep the volumes of the procurements more or less stable. Again, everything depends on the market demand; processors need to have opportunities for selling their products for increasing the procurement volumes.

Processors declared their major practices applied for processing procured walnut products. Most often they produce sweet walnut preserve, sweet “sujukh”, and, walnut oil (rare practice). Calculation of the COGS, declared profit margins, and finally, the value added on different walnut products at the processing stage are presented in the tables below.

Table 32 - Calculation of the value of walnut processed to sweet preserve

Sales price, AMD/kg		Profit margin		Profit margin, AMD/kg		COGS, AMD/kg		Young walnut price		Young walnut share in COGS		Value added	
1500	1800	15%	25%	225	450	1,275	1,350	200	400	16%	30%	31	119

Table 33 - Calculation of the value of kernel walnut processed to sweet “sujukh”²²

Sales price, AMD/kg		Profit margin		Profit margin, AMD/kg		COGS, AMD/kg		Kernel price, AMD/kg		Kernel share in COGS		Value added, AMD/kg	
4,050	4,725	25%	25%	1,013	1,181	3,038	3,544	2,500	3,000	82%	85%	833	1,000

Nectar-Bonus, small but quite prospective local processor, practices the production of walnut oil. The value added via that process was not possible to calculate due to lack of some pricing information. Nevertheless, this product is considered to be quite interesting. 1 liter of walnut oil can be produced via the processing of 2 kg of kernel, or about 5 kg of dry walnut.

As it is illustrated in Table 32 and Table 33 the value added via processing of walnut to sweet “sujukh” is significantly higher. Meantime it should be remembered that this product is received after initial processing of dry walnut and transformation coefficient is about 40%. In other words, it would be more accurate to calculate the value added for 1 kg of dry walnut, which means that value added for “sujukh” should be divided to 2.5 and will comprise **333-400 AMD per kg of dry walnut**.

For the purpose of selling their products processors use all possible channels and networks of retail trade. First of all they supply their products to shops and supermarkets around the country. Some of processors are more successful, and established effective and efficient distribution networks. Others are not smart enough for establishing partnership with the most effective retail networks or for supplying their products to all regions.

Hotels and restaurants are also good target for selling walnut products. Meantime, sales volumes at these entities are not impressive for the final products processed from the walnut. Besides, selling at hotels and restaurants processors make no marketing, since products are served without any packaging or labeling.

Some processors succeeded to export their walnut products. Targeted/penetrated markets were Canada, Turkmenistan, Ukraine, France, USA, and Russia. Export volumes are more or less substantial only for the last two markets. This may be conditioned by availability of large Diaspora and cultural closeness.

Plans of production and, respectively, the procurement of walnut completely depend on market trends of selling processed walnut products. Some processors were not very successful in selling their products (including walnut preserve), and collect a lot of stock. Now they are made to dump prices for getting rid of those products. Procurement plans of surveyed processors are presented below.

Table 34 - Planned volumes of walnut procurement, processors, 2010, kg

Year	Alishan	Byurakn	Ohanjanyan Cannery	Maga Cannery	MAP	Nectar-Bonus	Tamar-Tatik	Chir
2010	50,000	30,000	1,500	Not yet decided	50,000	70	10,000-15,000	300

Comparison of the historical and planned procurement volumes results in positive picture. Although Borodino completely rejects to procure, some others keep their procurement volumes, and other newcomers are going to enter the market with significant volumes.

²² Mainly based on the experience and figures of Tamar-Tatik

3.5.2.4 Retail trade outlets

Two types of retail traders are involved in the sale of walnut products. *Retailers at agricultural markets* usually sell dry walnut and kernel. Young walnut (initially processed) is also traded but much rarer. Retailers at agricultural markets procure walnut products either from villagers/collectors or from WPMs. Major supplying regions are marzes of Kotayk, Aragatsotn, and Vayots Dzor. Retailers at the markets procure dry walnut at the price of **600-1,000 AMD per kg**. Procurement price for kernel comprises **1,500-2,000 AMD per kg**. The young walnut is procured at the price of 7 AMD per nut, which comprises less than **400 AMD per kg**. Retailers at agricultural markets usually procure walnut products at their places (when they are supplied by villagers), or from wholesale markets of GUM, Bangladesh, or other.

Shops and supermarkets usually sell walnut preserve; big networks also sell kernel from time to time. Walnut preserve is supplied by processors, i.e. canneries operating locally. The most famous brands are Alishan, RagMac, Tamara-Fruit, and Aygi (Byurakn Cannery). Procurement prices are adequate to those declared by processors as sales prices. Average prices of walnut preserve vary in the range of **1,500-1,800 AMD per kg**. Supply (i.e. transportation) of walnut preserve is conducted by processors.

Retailers engaged in the trade of walnut products at agricultural markets declared some 10-15% increase in procurement prices during the last 2-3 years. Opinions of shops and supermarkets divided: some of them cannot see any difference; others declare 10%-30% increase for the recent 2-3 years. Actually, such inflation is adoptable and can be understood.

While procuring walnut products retailers at agricultural markets usually make complete payments. They usually procure small volumes, i.e. stock for only 1-2 days, and should not pay big money. Besides, they may procure walnut products from various suppliers and must finish deals on spot. Shops and supermarkets usually make orders of walnut preserve. Again, procurement volumes are not big, and many shops immediately pay for procured products. At the same time, processors readily supply products with delayed payment schemes (i.e. crediting shops and supermarkets). This is quite common practice in Armenia, which is applied especially by big retail networks.

Retailers do not really care whether procured walnut products are (processed from) wild or cultivated. At this stage of the value chain simple re-selling process takes place. If the product (dry walnut, young walnut, and kernel) is of higher quality, it is procured and resold at higher price and vice versa. In case of shops and supermarkets that sell canned products, wildness of walnut plays no role, at all.

Retailers at agricultural market declared that their commercial surplus for re-selling procured walnut products comprises 30%-50%. Thus average sales price **for dry walnut comprise 1,200-1,500 AMD per kg, for young walnut – 500-600 AMD per kg, and for kernel - 2,200-3,000 AMD per kg**. Profit margins comprise **400-500 AMD per kg of dry walnut, 100-200 AMD per kg of young walnut, and 700-1,000 AMD per kg of the kernel**. Since mentioned products are not affected during the process of being procured and sold, all the profit margin can be attributed to walnut products and be considered as value added at the retail trade stage.

Shops and supermarkets sell walnut preserve, and usually apply 8%-20% of commercial surplus. In absolute figures the commercial surplus comprises 120-360 AMD per kg of sweet walnut preserve (i.e. average sales prices comprise 1,620-2,160 AMD per kg of sweet walnut preserve). Meantime this profit margin cannot be completely attributed to the value of walnut, since the young walnut share in the cost of preserve comprises only 16%-30% (see Table 32). Respectively, the value added per **1 kg of young walnut varies in the range of 19-108 AMD**.

Walnut products are not consumed every day, they are considered to be higher-price products. All final products, i.e. kernel, sweet preserve, or sweet “sujukh”, are of luxury nature and consumed on celebrations or special days. Besides, certain seasonality exists for consumption of walnut products: they are more consumed in winter season – especially on Christmas and New Year celebrations.

Retailers bring no other reason for trading with walnut products except of the market demand. Trading with walnut products is profitable, and having those products on shelves allows securing better assortment and attracting consumers.

3.5.2.5 *Hotels and restaurants*

Hotels and restaurants mainly procure sweet walnut preserve. Other products (kernel, “sujukh”) are procured in very small quantities, for being used in various recipes and securing the assortment. Hotels and restaurants procure walnut preserve both from processors and retail trade outlets. In rural regions there are cases when hotels and restaurants prepare sweet preserves themselves.

Nevertheless, most often hotels and restaurants procure and serve sweet walnut preserve of already mentioned brands – Alishan, ArtFood, RagMac, etc. Procurement prices of sweet walnut preserve vary in the range of 1,620-2,160 AMD per kg. Procurement volumes completely depend on the size and location of certain entity. Surveyed hotels and restaurants told they procure and serve from 20 to 120 kg of the sweet walnut preserve during the year.

The majority of surveyed hotels and restaurants told that prices for walnut products slightly increased for 5%-15% during the recent 2-3 years. Some entities that used to prepare main walnut products cannot see any changes, others (like Congress hotel) suddenly faced strange leap of sweet walnut preserve, but general situation is more or less stable.

Overwhelming majority of respondents told that complete payments for procured products are made immediately, on the moment of supply. Again, there are some exceptions; bigger entities (like hotels) prefer to collect bills and make payments once in a month, or in different regularity. Such approach is usually affordable, since crediting practices in Armenia are quite common and periods are short.

All activities of hotels and restaurants are directed to meeting clients’ requirements and their satisfaction with the quality of services provided. As respondents explained, clients never ask for any wild product, and they (the entity) currently pays no attention to this issue. If clients start asking for wild products, hotels and restaurants will try to find such products and supply their clients.

Similarly, there is almost no qualitative requirement for sweet preserves. For kernel and sweet “sujukh” bigger and whiter nuts are preferable. Meantime, use of the last two products is so rare, and volumes are too small.

In many hotels and restaurants sweet walnut preserve (like other preserves) is not calculated as separate product and is not involved in bills. Quite often the cost of preserve is included in the bill of tea, and the price of tea is taken 350-500 AMD per cup. In cases when the preserve is calculated, hotels and restaurants apply commercial surplus of (at least) 50%-100% on the price of their procurement. This means they sell the sweet walnut preserve at the price of 2,430-4,320 AMD per kg and earn 810-2,160 AMD per kg. About 30% of this profit can be attributed to the young walnut, i.e. the value added will comprise approximately **243-648 AMD per kg of the young walnut**.

It was already mentioned that sweet walnut preserve is quite demanded among Armenian consumers. Many visitors of hotels and restaurants used to finish their breakfast or dinner with a cup of tea with a

small plate of sweet walnut preserve. Hotels and restaurants are well aware of the requirements of their clients and usually have a stock of this preserve.

Besides, hotels usually serve at least 2-3 types of sweet preserves for the breakfast for meeting clients' requirements the best. Sweet walnut preserve is usually one of those preserves in Armenia. In other words, this product is used for keeping the assortment.

3.5.3 Walnut Sector Map

Sector Map of the walnut seems to be more complicated in comparison to other wild products. Actually the movement of 4 different products is combined in one general matrix of functions and market participants. This situation can be explained by existence of various types of primary products that are all together treated as walnut.

The process starts from young walnut, which is used for the preparation of sweet preserve. It is sold at all stages of movement of walnut products.

Kernel is received from the initial processing of dry walnut and sold either to producers of dry food (for the production of sweet sujukh), or to final consumers.

Different primary products make the combination of functions and market participants somewhat complicated on the one hand. On the other hand, such situation creates a lot of opportunities for creating promising value chains. Special attention

should be paid to intensiveness of various processes. Values added (presented in the next chart) may be substantial at different stages, but intensiveness of those stages may be weak.

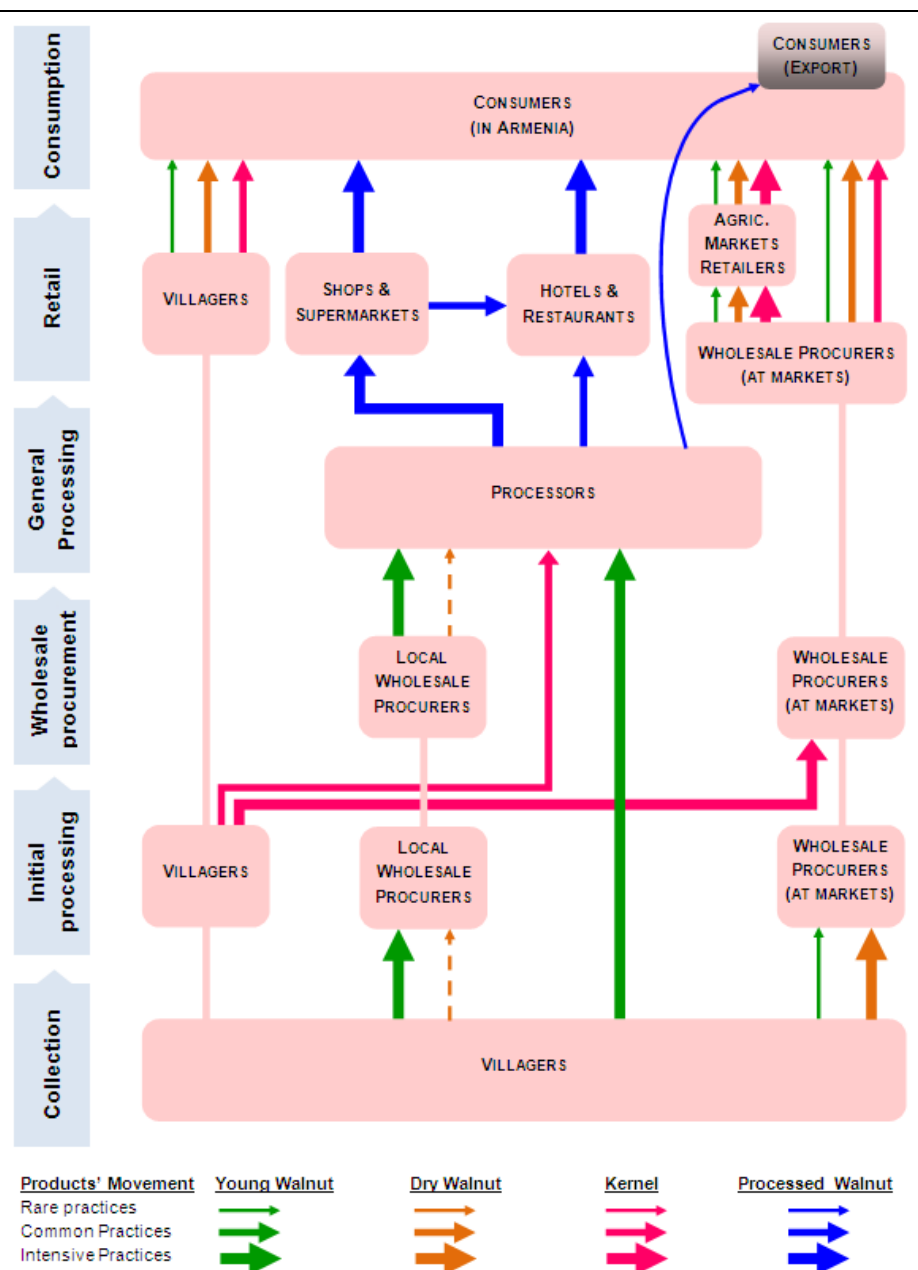


Chart 9 - Walnut Sector Map

3.5.4 Walnut Value Chains

The analysis of the value chains of the walnut products comes to continue and complement the information provided in the Sector Map. Moving ahead through the various stages of the Value Chains walnut products add on specific values for fresh walnut. Specific information is illustrated in the chart below.

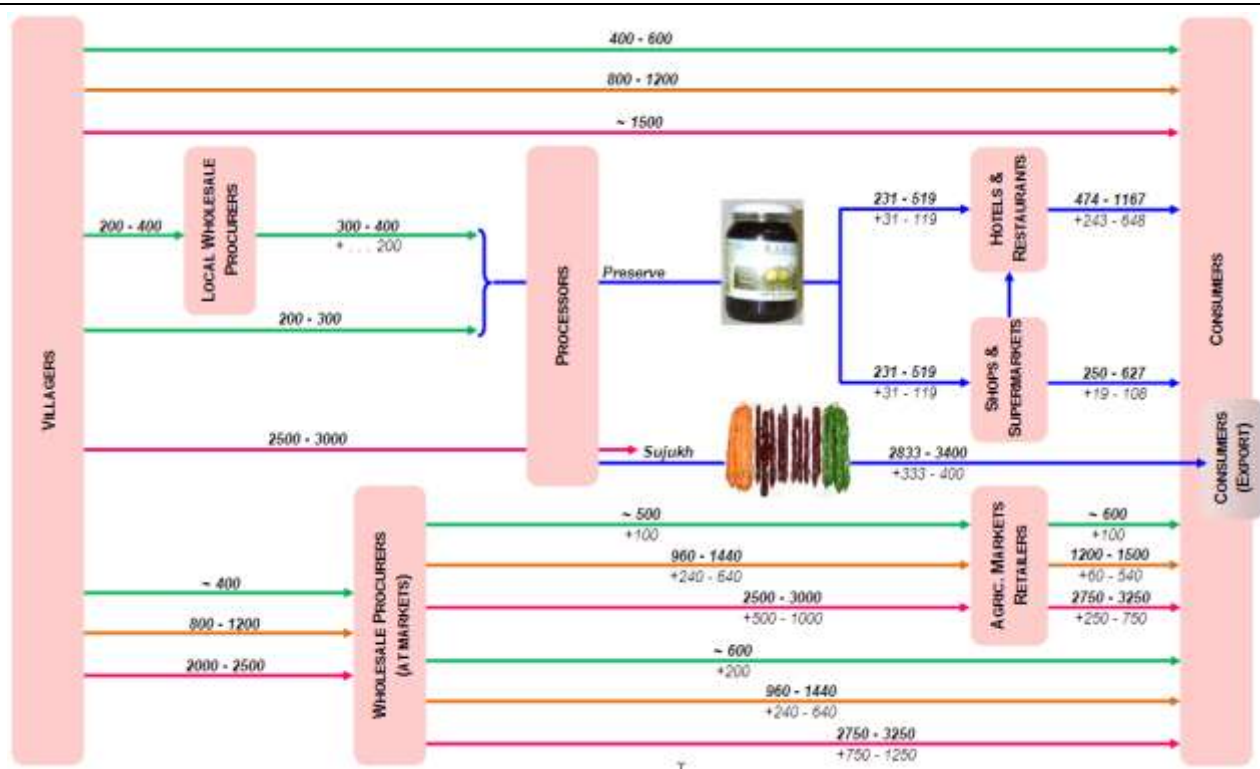


Chart 10 - Walnut Value Chains, AMD

The highest value is generated by kernel. Although initial processing requires a lot of efforts from villagers/collectors but the sales price is high enough to compensate those efforts. Meantime, the kernel is a seasonal product. In Armenia this product is sold in very big volumes at the end of December, when all Armenian households are getting prepared for celebrating the New Year holidays.

Similar to other wild products, the processed walnut (i.e. the sweet preserve) generates a lot of value at the stage of being consumed at hotels and restaurants. The reason is the same; all products in these entities cost much higher than they are sold at retail trade outlets.

Walnut Value Chains, Added value flows in average % (calculated on the base of average for figures provided in Chart 10)							
	LWP	WPM	Processors	Shops % supermarkets	H&R	Agric. market retailers	Consumers
LWP	-	-	50% YW	-	-	-	-
WPM	-	-	-	-	-	25% YW 30%-53% DW 25%-40% Ker	50% YW 30%-53% DW 37%-50% Ker
Processors	-	-	-	15%-30% Pr.	15%-30% Pr.	-	13% Sujukh
Shops % supermarkets	-	-	-	-	8%-30% Pr.	-	8%-30% Pr.

Hotels & restaurants	-	-	-	-	-	-	105%-125% Pr.
Agric. market retailers	-	-	-	-	-	-	20% YW 6%-37% DW 10%-25% Ker

Where: YW – Young walnut, DW – Dry walnut, Ker. – Kernel, Pr. Sweet preserve

3.6 CORNELIAN CHERRY

3.6.1 Introduction – Selected For

Cornelian cherry was selected to be the next possible biodiversity product due to the same major reason – it is widely used by many traders and processors quite intensively. About half of the survey participants are using this fruit. Besides, in certain regions (that are rich of forests) it grows in sufficient quantities. Collection of this fruit by local rural population is common practice for many households.

More importantly, cornelian cherry can be processed to other products that are proposed in the market at higher prices, i.e. there are opportunities for higher value chains. This fruit is not unique, it is known also in foreign markets and there is no need for introducing it as new product, although the effective promotion would be really useful.

3.6.2 Analysis of Specific Functions

3.6.2.1 *Collection*

Collection of the cornelian cherry is conducted in rural regions usually neighboring to forested areas. Main locations of collection are mountainous and riverine forests, bush lands, and homestead gardens, where cultivated trees of cornelian cherry are growing. Collection of cornelian cherry does not require special skills or knowledge; it is usually conducted by all household members including women and children. Collection is usually conducted in the period of August-October, depending on location. In some warmer localities collection of cornelian cherry starts even in July.

Aside from being used/consumed in fresh condition, cornelian cherry is also used by villagers/collectors (as well as by processors) for production of sweet preserve, compote/juice/beverage, dried food, alcohol drinks (mainly vodka), and other specific products. Consuming of cornelian cherry products is quite usual ay Armenian households, and it is a favorite product of Armenian housewives.

Current assessment did not address volumes of collection of cornelian cherry; villagers were not involved in the survey. Meantime, various informed sources, such as collectors themselves, employees of ArmForest, told that currently only small portion of cornelian cherry available is collected and consumed. In case of increase of the sales/procurement volumes collection quantities may be increased significantly.

Commercialization level of cornelian cherry collection is quite high in comparison to other products. In selected pilot areas it reaches to 40%-50%. This figure is quite promising for agricultural product of not everyday use. Almost 75% of cornelian cherry is left for being used in households is consumed after processing. Similarly, about half of collected cornelian cherry is sold again in processed condition.

Since villagers/collectors were excluded from the survey, we can't make well-grounded judgment on the prices of the cornelian cherry product at the stage collection. This information can be justified only via the survey participants that procure this product from the collectors.

3.6.2.2 Wholesale procurement

The procurement of cornelian cherry is again conducted by two types of procurers, i.e. *LWPs* and *WPMs*. The survey identified that both types of wholesale procurers procure only fresh cornelian cherry. *LWPs* procure cornelian cherry at the average prices range of **100-200 AMD per kg**, and *WPMs* suggest **250-500 AMD per kg**. In the second case it is supplied by collectors/villagers to the facilities of *WPMs*. Besides, the price suggested by *WPMs* may significantly vary depending on the season. At the very end of the season this price may grow up to 1,500 AMD per kg, although this cannot be considered as average price.

Procurement prices suggested by wholesalers can be affected by different factors. Most important of them are presented below:

- Quality issues, i.e. size, appearance, freshness, etc.;
- Procurement prices of other market participants, i.e. competitors, processors;
- Climate and weather conditions;
- Yield volume and supply quantities.

Procurement prices suggested by wholesale procurers for cornelian cherry were declared to stay unchanged or even were slightly reduced for about 10%. This decrease took place mainly in 2009, when the financial and economic crisis affected the activity of the processing companies harmfully.

Wholesale procurers procure their products only from villagers/collectors. Procurement period coincides with the period told by collectors, i.e. months of August-October. The most known areas of the procurement of cornelian cherry are Kotayk, Lori, Syunik, and Tavush. Actually, all mentioned areas are quite rich with forests, where the cornelian cherry can be collected.

Procurement volume of cornelian cherry is more or less stable. Some internal changes (from one procurer to another) can be observed, but in general figures do not change much.

Table 35 - Cornelian cherry procurement volumes, wholesale procurers, kg

Year	LWP1	LWP2	LWP3	WPM1	WPM2
2007	-	10,000	5,000	7,500	1,000
2008	3,000	10,000	7,000	6,500	1,000
2009	0	10,000	10,000	7,500	1,000

WPMs usually trade on daily basis; they procure certain volume of cornelian cherry and usually sell it at the same day. Otherwise the product loses quality and appearance.

Cornelian cherry procurement plans for 2010 are almost adequate to historical trends.

Table 36 - Cornelian cherry procurement plans for the 2010, kg

Year	LWP1	LWP2	LWP3	WPM1	WPM2
2010	1,500	not decided yet ²³	20,000	6,000	1,000

²³ Actually, the answer was "unlimited quantity" if there is a demand

Usually, wholesale procurers apply two types of payments for procured cornelian cherry. They either make complete payments at the moment of supply, or make advance payments and order concrete quantity of cornelian cherry of certain (usually high) quality. Of course there are some exceptions, but they are quite rare.

Wholesale procurers of both types request almost the same qualitative features for product they procure. In almost all cases they are related to the quality. Here are some of important requirements:

- Fruits should be well but not over ripe (pulpy grown);
- Fruits should not be damaged and crushed;
- Fruits should have good appearance;
- Fruits should not be damaged by hail.

Wholesale procurers usually prefer to procure wild collected cornelian cherry. In comparison to cultivated fruit it is better for its aroma and taste, has some healing features, and is much cheaper. On contrary, cultivated cornelian cherry has better appearance and has bigger fruits.

Wholesale procurers usually do not process procured cornelian cherry. In rare cases wholesalers separate the product from leaves and stems and clean. If cornelian cherry is not well ripe they store it in a sunny place for further ripening. Aside from that wholesale procurers provide only transportation. Most often, the product is simply procured and transported to processors and agricultural markets.

LWPs usually sell cornelian cherry they procured from collectors/villagers to processors. LWPs apply commercial surplus of 20%-50% depending on quality of product and the season. WPMs sell their products either to retailers at agricultural markets or directly to final consumers. Commercial surplus is almost the same. Fresh cornelian cherry is sold at the average prices range of 200-300 AMD per kg. The average value added on fresh cornelian cherry comprises about **100 AMD per kg**.

3.6.2.3 General processing

Cornelian cherry is used by processors in quite notable volumes. Like in other cases this biodiversity product can be processed to various products generating a lot of additional value. Major processed products are sweet preserve, compotes and juices, vodka and other products can be mentioned.

Processors procure cornelian cherry both from the villagers/collectors and wholesalers. Applied procurement practices and prices are presented in the table below.

Table 37 - Procurement of cornelian cherry processors

Processor	Procured from	Procured in fresh condition		
		Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total
Alishan	Villager – collector			100%
	Wholesale trader	100-200	150-250	
A. Ohanjanyan Cannery	Villager – collector	200-250		100%
	Wholesale trader			
Tamara-Fruit	Villager – collector			100%
	Wholesale trader	v	v	
Maga Cannery	Villager – collector			100%
	Wholesale trader		100-120	

Borodino	Villager – collector		400	20%
	Wholesale trader		400	80%
Tamar-Tatik	Villager – collector			100%
	Wholesale trader		400	
Byurakn	Villager – collector		100	100%
	Wholesale trader		250	

As the table attests procurement prices applied by processors vary in the range of 100-400 AMD per kg. Meantime, three different categories of this product can be diversified. Cornelian cherry used for preparation of sweet preserve is procured at the price of 100-150 AMD per kg. Fruit for the production of juices is procured at about 250 AMD per kg. Dry food producers pay up to 400 AMD per kg of cornelian cherry that is of exclusive quality (although in rare cases). Cornelian cherry is usually supplied to processors facilities, and wholesalers' share in supplies is really much more.

Processors' opinions on dynamics of procurement prices divided. Half of them declared that prices stayed unchanged, another half indicate 20%-25% increase during the recent 2-3 years. Meantime, Alishan, who procures cornelian cherry mainly from Lori and Tavush regions, decreased procurement prices for 20%. Procurement prices are affected by several factors mentioned below:

- Yield of the year;
- Expectations of the suppliers;
- Competitors' procurement prices;
- Size and appearance of the fruit;
- Quantity that can be supplied at once (bigger quantity is procured at higher price).

It was already mentioned that procurements from wholesalers are more practiced by processors. This can be understood, since processors prefer to have established relations with smaller number of suppliers that are aware of their requirements, and secure the supply of necessary quantities.

Processors usually apply two types of payment schemes for cornelian cherry they procure. They either pay completely and at once, at the moment of supply, or make advance payments and make orders of certain quantity of cornelian cherry. The second scheme is applied mainly with partners/suppliers who processors cooperate for the long time with.

Procurement of cornelian cherry is conducted in the period of August-September although some variations are possible. In general this period coincides with the period declared by collectors and wholesalers. Major areas of cornelian cherry supply are Syunik, Tavush, Lori, and Artsakh. All these regions have notable forest territories and supply of wild collected cornelian cherry in big quantities is quite realistic.

Processors were asked to estimate their volumes of cornelian cherry procurement for the recent 3 years. Unfortunately, it is impossible to divide the total volumes of procurement into different types of cornelian cherry (used for production of various products), although some information is still available. Processors' answers have been combined in the table below.

Table 38 - Cornelian cherry procurement volumes, processors, kg

Year	Alishan	Ohanjanyan Cannery	Tamara-Fruit	Maga Cannery	Borodino	Tamar-Tatik	Byurakn
2007	3,240	3,000	?	500,000	1,136	200	-
2008	2,530	3,000	15,000	50,000	-	200	-
2009	-	3,000	15,000	200,000	-	300	5,000

Figures declared by Maga Cannery are really different. It is the biggest processor of cornelian cherry in Armenia. Meantime, the major part of procured cornelian cherry this processor uses for the preparation of vodka.

Although processors procure cornelian cherry for the production of various products, requirements to this product are almost the same. Generally, all processors wish to procure high-quality products, but the term “high-quality” is to be further specified. More particularly:

- Cornelian cherry should well but not over ripe (especially for the preparation of the sweet preserve);
- Cornelian cherry should be collected right on time;
- Cornelian cherry should not be crushed and jammed, or turned sour;
- Cornelian cherry should be collected not shaken down;
- Cornelian cherry fruits should be cleaned from leaves and tails;
- Cornelian cherry fruits should not be damaged by hail;
- Stones of the cornelian cherry are better to be small;
- Size of the cornelian cherry fruits should not be very small

Various processors have different preferences regarding to wild collected cornelian cherry. Usually, they procure both types of cornelian cherry but use them for different purposes. Some processors (like Tamara-Fruit) procure only organic products. For the production of sweet preserve processors usually procure cultivated cornelian cherry; wild collected fruit changes its colour which is not good. For the production of juices and compotes wild collected cornelian cherry is more preferable due to better taste and aroma, and its stone is smaller.

Processors of cornelian cherry currently use this fruit for the production of sweet preserve, juice and beverage, and dried food. Transformation of fresh cornelian cherry and values added on it during that process are presented in the tables below.

Table 39 - Calculation of the value added of fresh cornelian cherry processing to sweet preserve

Average sales price, AMD/kg		Profit margin		Profit, AMD/kg		COGS, AMD/kg		Cornelian cherry price, AMD kg		Share in COGS		Value added, AMD/kg	
1,560	1,820	10%	20%	156	364	1,404	1,456	150	200	11%	14%	17	50

Table 40 - Calculation of the value added of fresh cornelian cherry processed to juice

Average sales price, AMD/kg		Profit margin		Profit, AMD/kg		COGS, AMD/kg		Cornelian cherry price, AMD kg		Share in COGS		Value added, AMD/kg	
1,200	1,400	10%	15%	120	210	1,080	1,190	200	250	19%	21%	22.2	44.1

Table 41 - Calculation of the value added of fresh cornelian cherry processed to the dried food

Average sales price, AMD/kg		Profit margin	Profit, AMD/kg	COGS, AMD/kg	Cornelian cherry price, AMD kg	Share in COGS	Value added, AMD/kg
2,500	2,500	10%	250	2,250	800	36%	89

Since 1 kg of dry cornelian cherry is produced from 8 kg of fresh fruit, the value added presented in the table above should be divided to 8 for the calculation of the value added on the 1 kg of fresh cornelian cherry. The figure is about **12 AMD per kg**.

Processors sell the cornelian cherry products via all possible networks. Shops and supermarkets are the first and most important way of selling cornelian cherry products. Actually, the major quantity of products is sold via these retail entities. Sometimes, processors supply retail network via wholesale markets, such as Surmalu, Petak, etc.

Hotels and restaurants are the next market for selling the products locally. Sales volumes here are not very big for cornelian cherry products, but their supply is necessary for the processors.

Some processors succeed to export their products. Targeted and penetrated foreign markets are USA, Canada, Russia, Ukraine, Turkmenistan, and others. Actually, it was not the cornelian cherry that was specifically exported. These products were delivered among others in one consignment, but, nevertheless, were presented to foreign consumers.

Like in case of other wild products, procurement volumes of cornelian cherry also completely depend on the market situation; intensiveness of demand for cornelian cherry products. Currently, some big processors intensively negotiate with their clients/partners and suppliers; they have not yet decided on volumes. Meantime, others have already finished discussions and know volumes they are going to procure. Planned volumes of the procurement of cornelian cherry by processors for the 2010 are presented in the table below.

Table 42 - Planned volumes of cornelian cherry procurement, processors, 2010, kg

Year	Alishan	Ohanjanyan Cannery	Tamara-Fruit	Maga Cannery	Borodino	Tamar-Tatik	Byurakn
2010	20,000	1,500	Not decided yet	Not decided yet	-	3,000	up to 200,000

Special attention is to be paid to leaders of the market, i.e. Maga Cannery, Byurakn, Alishan, and Tamara-Fruit. These companies are keeping stable high volumes of procurements and the tendency to grow. At the same time, situation may change and new decisions can be made. Processors usually mention that they are ready and have enough financial resources to procure much more if they have market for the processed products.

3.6.2.4 Retail trade outlets

Two types of retail traders are involved in sales of cornelian cherry products. Retailers at agricultural markets usually procure fresh cornelian cherry from WPMs, wholesale markets in Yerevan, or villagers /collectors, and sell it to final consumers. Main regions of supply are Tavush and Kotayk, although retailers are not always aware of the origin of the product they sell.

Shops and supermarkets are supplied by processors and sell processed cornelian cherry products, such as sweet preserve, juices and other beverages. The most known brands are Alishan, RagMac, Tamara-Fruit, and SAVA. Although some of processors have their own firm-shops, they sell only tiny volumes via them. Almost all processors have established their own distribution networks for the purpose of delivery of their products to retail network.

Retailers at agricultural markets procure fresh cornelian cherry at the price of **200-400 AMD per kg** depending on the season and quality of fruits. The average (approximated) procurement price of sweet preserve produced from 1 kg of cornelian cherry that is supplied to retail network comprises **1,560-1,820 AMD**. Similarly, average (approximated) procurement price of the juice produced from 1 kg of the cornelian cherry that is supplied to the retail network comprises **1,200-1,400 AMD**.

Retailers at the agricultural markets declared that procurement price of fresh cornelian cherry stayed unchanged for the recent 2-3 years. Although representatives of some shops and supermarkets agreed with this statement, their majority thinks that prices for the processed cornelian cherry products have grown during the recent 2-3 years for 10%-20%. In other words, they think that processors screwed up their sales prices.

Retailers at the agricultural markets pay to their suppliers exclusively at the moment of supply. They get products and pay to suppliers the whole amount. This is legitimate, since these retailers make their procurements from different suppliers, and not all of them are in long-term relations with retailers. Shops and supermarkets pay to their suppliers differently. Sometimes they pay at the moment of supply. More often, the suppliers are paid at the moment of the supply, but the payment is made for the previous consignment delivered one week or one month ago.

Both types of retailers do not express big interest in wildness of cornelian cherry. Retailers simply procure what is suggested (regardless of being cultivated or wild collected) and sell at higher price. Shops and supermarkets are keen to secure wide assortment. The wider is the assortment of products on their shelves, the better are their clients served. Actually, retailers do not have any qualitative requirements, at all. At least, they did not express any during the interviews.

Retailers at the agricultural markets sell cornelian cherry at the average prices range of 400-500 AMD per kg²⁴. During the season prices can go down to 300 AMD or up to 600-700 AMD per kg, but those prices are not representative for the whole season.

Shops and supermarkets sell sweet preserve and juice prepared from cornelian cherry. They declared that commercial surplus they apply for these products comprises 5%-13%. This means that sweet preserve prepared from 1 kg of the cornelian cherry is sold at the price of 1,638-2,056 AMD, and the surplus comprises 78-236 AMD. Attribution of the cornelian cherry share (14%, see the Table 39) to those figures will result in the value added of **11-33 AMD per kg of the fresh cherry**.

Commercial surplus applied to juice prepared from cornelian cherry is the same. This means that juice prepared from 1 kg of cornelian cherry is sold at the price of 1,260-1,582 AMD, and the surplus comprises 60-182 AMD. Attribution of cornelian cherry share (21%, see the Table 40) to those figures will result in the value added of **13-38 AMD per kg of the fresh cherry**.

Retailers at agricultural markets state that final consumers like cornelian cherry and procure it. This product is easy to sell. This is the only reason of selling this product. Consumers use it both for the immediate fresh consumption and for further processing to sweet preserve.

²⁴ Prices were monitored for the agricultural markets of Yerevan

Major reason for selling cornelian cherry products expressed by representatives of shops and supermarkets are twofold: wish to have wider assortment, and demand for those products expressed by final consumers (especially in the winter period). Some of respondents also mentioned that cornelian cherry has some healing characteristics, but these judgments are subjective nature and need to be further justified.

3.6.2.5 *Hotels and restaurants*

Although cornelian cherry products are used at hotels and restaurants like some other processed wild products, these entities stay an important ring in the value chain of this fruit. Entities involved in the survey told about using of mainly processed products, i.e. cornelian cherry sweet preserve and juice.

Hotels and restaurants procure processed cornelian cherry really differently. Some entities are directly supplied by processors (the most known brands are Alishan, Noyan, and Ayyi). Other hotels and restaurants procure from shops and supermarkets. Meantime, there are some entities (especially in rural regions) where cornelian cherry is procured from villagers and processed in-house (although this practice is quite rare).

Similarly, procurement prices of cornelian cherry products vary quite notably. Sweet preserve produced from 1 kg of cornelian cherry, hotels and restaurants procure from villagers, costs about **1,000 AMD**. Products supplied by processors are procured at the same prices which are suggested to shops and supermarkets, i.e. **1,560-1,820 AMD** for the quantity of sweet preserve produced from 1 kg of cornelian cherry. Procurement price of the juice produced from 1 kg of cornelian cherry that is supplied to retail network comprises **1,200-1,400 AMD**.

In case of procuring the sweet preserve and juice from shops and supermarkets, procurement prices are the following: **1,638-2,056 AMD** and **1,260-1,582 AMD** respectively for sweet preserve and juice produced from 1 kg of cornelian cherry.

Procurement quantities vary depending on season (winter period is much more intensive), region and location of the specific entity. On average, procurement volumes comprise 40-120 kg per year. This figure is less useful for analytical purposes since it is impossible to divide it between sweet preserve and juice, and it is really different for various entities.

Respondents' opinions regarding to dynamics of prices divided. Half of hotels and restaurants cannot see any substantial changes, but others indicate some increase of 5%-15% in the prices of cornelian cherry products during the recent 2-3 years.

Respondents from hotels and restaurants actually skipped issues related to quality and wildness of cornelian cherry products. Their business simply does not relate with those issues. They are using processed and packed cornelian cherry products in quite small quantities, and have no specific requirements.

Hotels and restaurants do not use cornelian cherry products much. Actually, it comprises several jars/bottles per month. Amount that is to be paid for the procurement of that quantity is also not much, and many entities prefer to pay immediately, at the moment of supply. Meantime, bigger entities (especially in Yerevan) sometimes apply delayed payments for products they receive from processors.

Hotels and restaurants sell procured cornelian cherry products adding on their commercial surplus (or gross profit margin). There is no common practice for this; each entity decides its profit margin

individually. For example some hotels and restaurants include the cost of cornelian cherry sweet preserve in the bill for the breakfast or dinner; others sell it in combination with tea without calculating it as a separate cost row.

Anyhow, some respondents were smart enough to calculate the sales price of cornelian cherry products. Thus, the juice produced from the **1 kg of the cornelian cherry is sold for approximately 2,000-2,200 AMD**. Commercial surplus comprises 800 AMD approximately. Attribution of fresh cornelian cherry's share (21%) to that profit results in value-added of **168 AMD**. Sales price of cornelian cherry sweet preserve comprises **3,100-3,250 AMD per the quantity of the sweet preserve produced from 1 kg of the cornelian cherry**. Commercial surplus comprises 1,194-1,462 AMD. Attribution of fresh cornelian cherry's share (14%) to that profit results in value-added of **167-205 AMD**.

Reasons for using/serving cornelian cherry products are of commercial nature mainly. The major reason is demand for cornelian cherry products (especially the sweet preserve). This reason can be further detailed as keeping wide assortment, meeting the clients' requirements, including this product in the list of obligatory products, etc. Only in one case the respondent mentioned that cornelian cherry sweet preserve is very useful against the chill. At the same time, it was noted that this product is not as required as the sweet preserves of other wild products, such as blackberry or walnut.

3.6.3 Cornelian cherry Sector Map

Sector Map of cornelian cherry products illustrates the combination of sector participants and functions they used to conduct. Some functions are conducted by several participants; and some participants undertake several functions. Again bottom-up approach was adopted for illustrating the whole process of cornelian cherry movement, starting from collection to final consumption and exports.

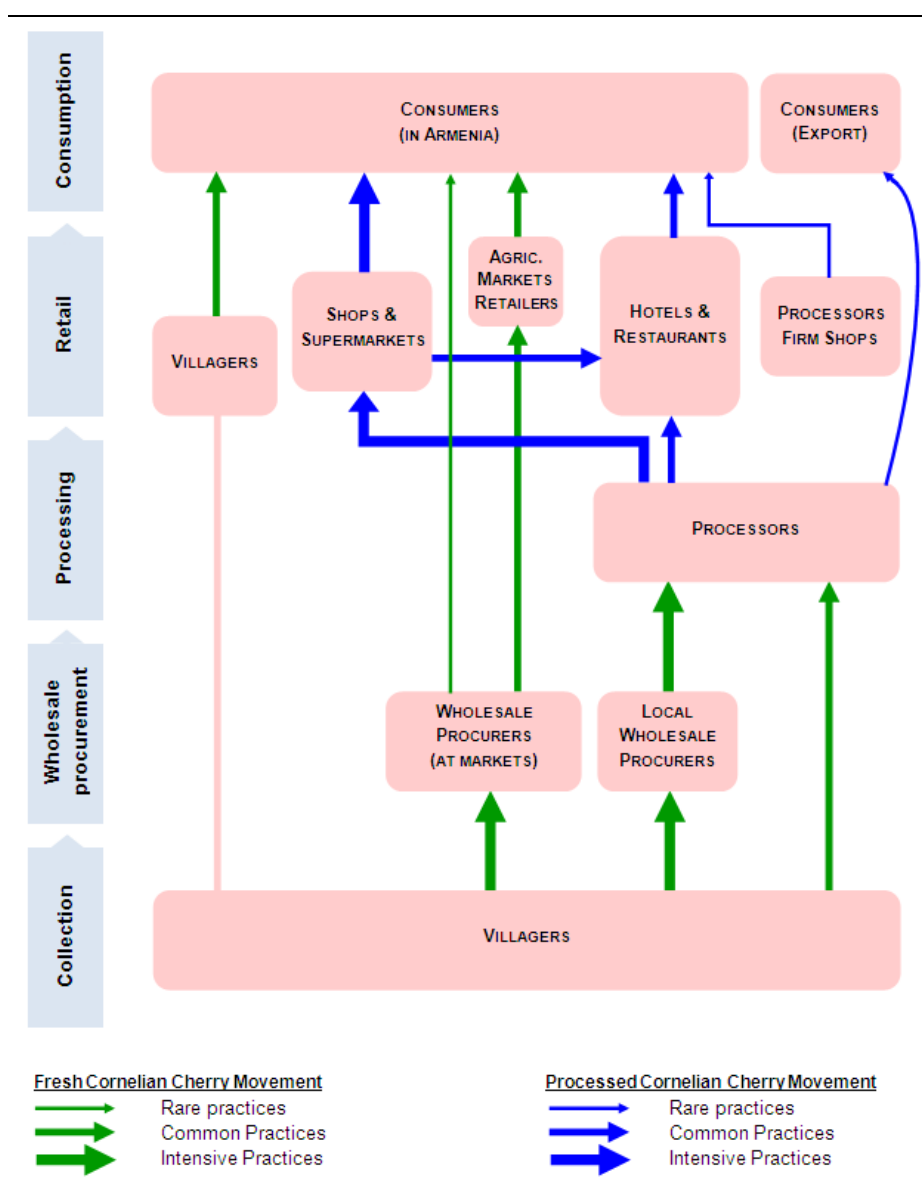


Chart 11 - Cornelian Cherry Sector Map

Cornelian cherry Sector Map is less complicated in comparison to other wild products. The reason is the availability of only fresh product at initial stages. Again the thickness of arrows measures intensiveness of applied processes.

Although the Sector Map is almost completely self-explanatory, some comments will not be useless. Fresh cornelian cherry is collected only by villagers and is supplied to final consumers (not so intensively), WPMs, LWPs, and processors (not so intensively). Processors produce sweet preserve and dried food, and sell it via retail networks. Small quantity is exported (mainly dried food).

Some functions that appeared in previous cases did not met here. Collection is conducted exclusively by villagers. There is almost no initial processing. Dried products are not sold locally.

3.6.4 Cornelian Cherry Value Chains

In order to measure opportunities related to all cornelian cherry products it is necessary to analyze intensiveness of each process in combination with values added at each stage of products movement. The chart of the Value Chains illustrates those values.

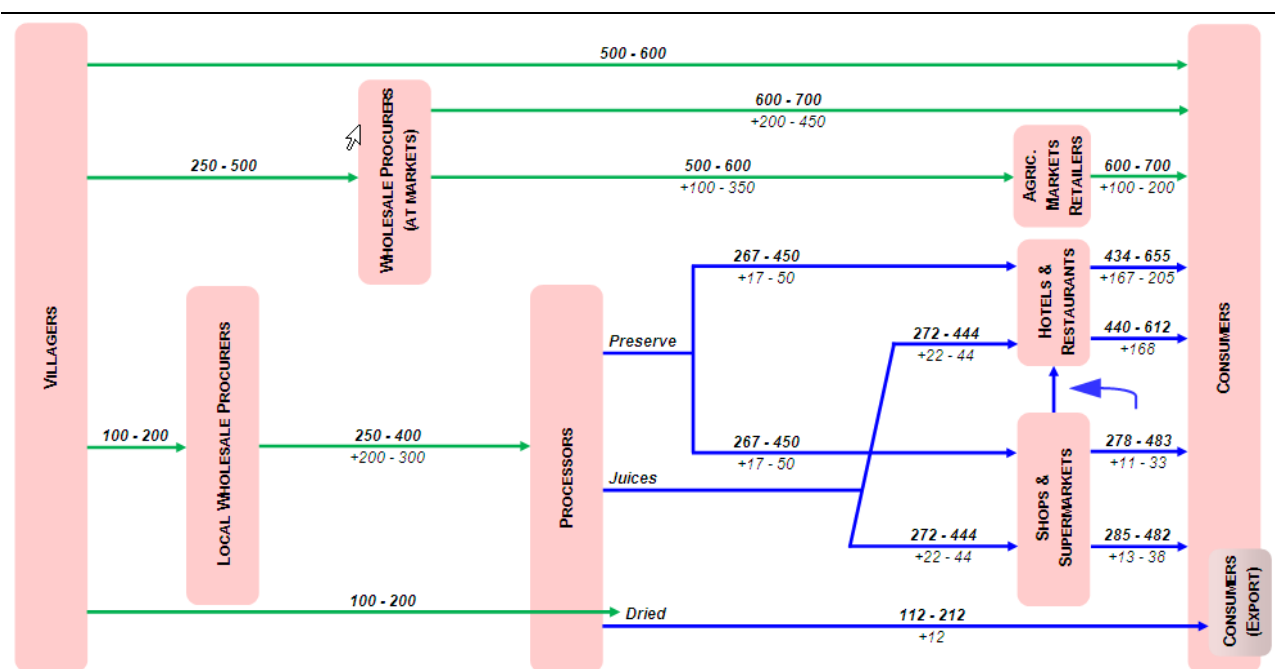


Chart 12 - Cornelian Cherry Value Chains, AMD

The highest values are added on the stage of retail sales, generated by shops/supermarkets and hotels/restaurants. Meantime, it would be better if more attention is paid to export opportunities. Although the value added is not very high, but it may provide real opportunities for large-scale production.

Walnut Value Chains, Added value flows in average % (calculated on the base of average for figures provided in Chart 12)							
	LWP	WPM	Processors	Shops % supermarkets	H&R	Agric. market retailers	Consumers
LWP	-	-	100%-150% Fr.	-	-	-	-
WPM	-	-	-	-	-	40%-70% Fr.	80%-90% Fr.

Processors	-	-	-	7%-13% Pr. 9%-11% Jui.	7%-13% Pr. 9%-11% Jui.	-	6%-12% Dry
Shops % supermarkets	-	-	-	-	4%-7% Pr. 5%-8% Jui.	-	4%-7% Pr. 5%-8% Jui.
Hotels & restaurants	-	-	-	-	-	-	45%-63% Pr. 5%-8% Jui.
Agric. market retailers	-	-	-	-	-	-	20%-33% Fr.

Where: Fr. – Fresh, Pr. – Sweet preserve, Jui. – Juice

3.7 APPLE AND PEAR

3.7.1 Introduction – Selected For

Wild collected apple and pear were considered as the next biodiversity products to be involved in the current survey. These two products have been joined due to many common features they have. They are usually used for the same purposes (i.e. are processed in similar ways); sometimes they are even mixed and processed together. Besides, collectors/villagers also treat (collect, transport, sell, or process) these two fruits together. Even more, it may be even right if medlar is also combined with apple and pear.

Wild collected apple and pear have been involved in the survey for the same reason as other biodiversity products: they are intensively used at various stages of the value chains. These products are used by the majority of different respondents that were involved in the survey.

3.7.2 Analysis of Specific Functions

3.7.2.1 *Collection*

The collection of apple and pear is conducted by all members of rural households. This process does not require any sophisticated skills and knowledge and can easily be carried out by not only adult male members of households, but also by women and children. The apple and pear are usually collected at mountainous and riverine forests, sometimes in bush lands, too. At the same time, both fruits are also cultivated at homestead gardens and orchards in rural communities.

Collection of apple and pear is conducted in the months of August-October depending on region and specific types of fruits. Regional separation should not be made, since apple and pear can be collected in all regions where forests are in place. During the research and seminars conducted in selected 8 communities at the end of 2009, population of those communities told that collection volumes comprise tiny share of available fruits. Collection volumes can be multiplied several times.

Collectors/villagers use apple and pear for both consumption and sales. In both cases collected fruits maybe used in fresh or processed conditions. Apple and pear can be (are) processed into sweet jam and preserve, juice and compote, dried products, and vodka. Based on generalized and approximated figures it can be concluded that apple is consumed in fresh – up to 5% of the collected volume, consumed in processed condition – 20-45%, sold in fresh condition – 5%, sold in processed condition – 50%-75%. Similarly, pear is consumed in fresh – 5%-15%, consumed in processed condition – 20%-40%, sold in fresh condition – 10%-20%, sold in processed condition – 40%-60%. Major sales markets are local agricultural markets.

3.7.2.2 Wholesale procurement

The number of the wholesale procurers of wild apple and pear is comparatively less than in case of other products. The same statement is true for procurement quantities. Two types of wholesalers are procuring apple and pear in wholesale quantities. WPMs procure from villagers/collectors and pay about **100-120 AMD per kg**. LWPs procure apple and pear at the price of **100 AMD per kg**. In rare cases, when collected fruits are of high quality the price of apple and pear transported to procurers' places reach up to 150 AMD per kg, but this price cannot be taken as basis for further calculations.

Wholesale procurers declared that procurement prices stayed almost unchanged for the recent 2-3 years; some of them even observed slight decrease of 10%. Procurement prices are affected by several factors presented below:

- Yield of the year;
- Climate and weather conditions;
- Competitors' prices
- Quality of the fruits (damaged, worm-eaten, etc);
- Size of the fruits.

Wholesale procurers usually procure apple and pear from villagers who live in rural communities neighboring to forested areas. Regions of Kotayk, Lori, and Syunik were declared to be major suppliers of apple and pear. Procurements are conducted in September and October.

Wholesale procurers usually pay to villagers/collectors at the moment of the supply. They make complete payments and get products. Sometimes, wholesale procurers make orders to collectors and pay them in advance, i.e. pay credits that are repaid when collectors supply them with agreed quantity of apple and pear of certain quality.

Apple and pear procurement volumes were calculated only for few wholesalers. Approximated figures are not very representative for all wholesale procurers of these fruits in Armenia and vary significantly. This is explained by small number of procurers of apple and pear involved in (identified by) the survey. Anyhow, procurement figures of mentioned wholesale procurers are presented in the table below.

Table 43 - Apple and pear procurement volumes, wholesale procurers, kg

Years	LWPs, kg	WPMs, kg
2007	1,000 -7,000	1,000
2008	1,000 - 8,000	1,000
2009	1,000 - 10,000	1,000

Only one LWP (Sisiani-Hats) is procuring apple and pear in notable quantities. Even more, these quantities were growing for the recent 3 years.

Wholesale procurers do not advance many qualitative requirements for procured apple and pear. Fruits should not be over ripe, damaged by hail or crushed/jammed during transportation, should have better appearance. Some procurers pay more attention to the location where the apple and pear were collected. Localities neighboring to industrial/mining regions or neighboring to major highways are not welcomed much.

Wholesale procurers do not really transform procured fruits. They provide more simple activities like cleaning the fruits from leaves and tailings, classification by sizes, storing in a sunny place for better ripening, and, finally, transportation (if any) and sales. *Ceteris paribus*, procured and sold quantities may be considered as identical.

Since procurements of apple and pear conducted by WPMs are not of big volumes, they sell fruits at agricultural markets of Yerevan and other big towns directly to final consumers. Average prices range of selling was declared to be **150-200 AMD per kg**. In other words, the profit margin that is identical to the value added at this stage comprises **50-100 AMD per kg**. LWPs sell procured apple and pear to processors at the price of **150 AMD per kg**.

3.7.2.3 General processing

Wild collected apple and pear is procured by two types of processors: canneries that process those fruits to juice, sweet preserve and jam, and dry food producers. Meantime, the number of procurers is really few. Anyhow, procurement practices and prices are presented in the table below.

Table 44 - Procurement of the apple and pear, processors

Processor	Procured from	Procured in fresh condition		
		Price at suppliers' places, AMD/kg	Price at processors' facilities, AMD/kg	Share in total
Alishan	Villager - collector			100%
	Wholesale trader	100-200	150-200	
Tamar-Tatik	Villager - collector			100%
	Wholesale trader		150-200	
SE Vahe Kostanyan	Villager - collector		150-200	100%
	Wholesale trader		150-200	
Tamara-Fruit	Villager - collector			100%
	Wholesale trader	v	v	

Processors prefer to procure the apple and pear mainly from wholesalers. Only fresh fruits are procured and they have to be transported to processors' facilities. Procurement prices of apple and pear comprise **150-200 AMD per kg** depending on quality of products. Opinions regarding to dynamics of apple and pear prices during the recent 2-3 years divided significantly and almost evenly. Some of them cannot see any changes in prices, producers of sweet preserves mentioned 20% decrease, and producers of dry food increased their procurement prices for 30%-50%. This situation can be explained by procurement of products of various types and quality. Dry food producers should procure much better looking products, than it is needed for sweet preserve or jam.

In particular, processors mentioned the following factors that affect procurement prices of apple and pear:

- Yield of the year;
- Climate and weather conditions;
- Quality of fruits (damaged, worm-eaten, etc);
- Size of fruits.

Since the processors were asked specifically about *wild* apple and pear, they did not address the issue of wildness of these products. Meantime, they advanced some qualitative requirements, for apple and pear they procure. Here are the most important ones:

- Fruits should not be damaged (by insects, hail or other);
- Fruits should not be over ripe;

- Fruits should be cleaned from leaves and tailings;
- Fruits should not be too small; classified and selected product is preferable;
- Fruits should not be jammed and crushed during the transportation.

Some processors mentioned about their plans to change the procurements policy. They are planning to procure only organic products for their processing. Companies like Tamara-Fruit and Sis-Natural passed some stages of certification and currently have to meet certain requirements.

It was already mentioned that procurements of apple and pear are made mainly from wholesalers, although villagers/collectors are not rejected either. Processors simply prefer to make bigger volume procurements, and procure cleaned and selected products in one consignment. More known regions of supply Lori, Tavush, Vayots Dzor, and Artsakh.

Procurement season almost coincides with period declared by collectors and wholesale procurers. Major procurements are made in August-October when wild apple and pear are ripe.

Processors usually pay to their suppliers in two ways. They either make complete payments at the moment of supply, or make advance payments, when they order certain quantity of apple and pear of the certain (usually high) quality. Other schemes of the payments are really rare.

Processors do not procure apple and pear intensively and regularly. They process these products mainly for keeping the assortment wide and meeting requirements of specific clients. That is why; procurement volumes are comparatively small and unequal.

Table 45 – Apple and pear procurement volumes, processors, kg

Year	Alishan	Tamar-Tatik	SE Vahe Kostanyan	Tamara-Fruit
2007	6,740	4,000	-	Rejected to tell the figures
2008	-	6,000	-	
2009	-	10,000	-	

The leader of procurements is Tamar-Tatik. Continuous growth in procurement figures of this Company is promising. Unfortunately, another major player in the market of food processing – Tamara-Fruit, rejected to share its figures.

Aside from sweet preserves and dry food, apple and pear can be processed to alcohol beverages, vinegar, wine, and many other products. Such processing is actually takes place in Armenia, but it is done by small companies, quite irregularly and in small quantities. They are sold only in a local market, with unattractive packaging and suspicious quality. Value chains of these products might be interesting within the frame of the current survey, but not in a way they exist currently. That is why; production of only those products of final consumption (i.e. sweet preserves and dry food), that were declared by sustained companies, were taken into consideration. Calculations of the values added for these products are presented below.

Table 46 - Calculation of the value of apple and pear, processed to sweet preserve

Average sales price, AMD/kg		Profit margin		Profit, AMD/kg		COGS, AMD/kg		Apple/pear price, AMD/kg		Share in COGS		Value added, AMD/kg	
1,286	1,429	15%	25%	193	357	1,093	1,071	150	200	14%	19%	26.5	66.7

Table 47 - Calculation of the value of apple and pear, processed to dry food

Average sales price, AMD/kg		Profit margin		Profit, AMD/kg		COGS, AMD/kg		Apple/pear price, AMD/kg		Share in COGS		Value added, AMD/kg	
2,500	3,000	12%	15%	300	450	2,200	2,550	1,000	1,600	45%	63%	136.4	282.4

The coefficient of transformation of apple and pear to sweet preserve comprises about 0.7 (700 grams of fruits is needed for the production of 1 kg of the sweet preserve). Also, processed products are sold in various packaging, starting from 320 ml volume to 1,000 ml jars. Packaging affects the price of final product significantly. The smaller is the packaging, the higher is the price of sweet preserve produced from 1 kg of apple and pear. That is why; sales prices were approximated and calculated for sweet preserve produced from 1 kg apple and pear.

1 kg of dry food is prepared from 5-8 kg of apples and pears. All these nuances were taken into consideration during the calculation of the value added on 1 kg of fresh fruits. This means that value added that was calculated for dry food should be divided into 5-8, i.e. it comprises **27-35 AMD per kg of fresh apple and pear**.

Producers of sweet preserves sell their products via the network of retail shops and supermarkets. Almost all processors have established their own distribution networks and facilities for this purpose. On contrary, producers of dry food mainly export their products (although in case of the apple and pear the volumes are not very big).

Processors plan to continue the procurement of apple and pear in future. Declared volumes that are presented in the table below are not less than in previous years, which is promising.

Table 48 - Planned volumes of apple and pear procurement, processors 2010, kg

Year	Alishan	Tamar-Tatik	SE Vahe Kostanyan	Tamara-Fruit
2010	5,000	10,000	500	Not decided yet

The leader is again Tamar-Tatik, although Alishan also declared about starting procurements of apple and pear in notable volumes.

Again Tamara-Fruit rejected to share their plans, although they are going to be one of the major players in the market.

3.7.2.4 Retail trade outlets

Two types of retailers are involved in retail trade of fresh apple and processed products. Retailers at agricultural markets procure apple and pear at the price of **150-200 AMD per kg** from either wholesalers or directly from villagers/collectors. Procurement volumes are not significant, and collected fruits are mainly supplied from rural regions neighboring the Yerevan. Kotayk region is more known for these supplies.

Shops and supermarkets are supplied with sweet preserves of wild collected apple and especially pear among other types of sweet preserves. Main suppliers of this product are Tamara-fruit and Alishan. Procurement volumes of apple and pear sweet preserves are small; retail networks procure these products mainly for the sake of having wide assortment. The procurement prices are identical to those declared by processors; i.e. **1,286-1,429 AMD per the quantity of the sweet preserves prepared from 1 kg of apple and pear**.

Retailers at agricultural markets declared that final consumers pay attention to wildness of apple and pear while they procure it. The taste of wild pear is very good for the preparation of compotes, and Armenian housewives practice that. In case of shops and supermarket no special emphasis on wildness of procured products is made. They simply sell products without having any qualitative requirements or preferences.

Retailers at agricultural markets pay to their suppliers immediately at the moment of supply. Delayed payments are not practiced. Instead, shops and supermarkets practice that scheme. They pay for procured products when they receive the next consignment of the same product (or from the same supplier/processor). Retailers of both types declared no changes in their procurement prices during the recent 2-3 years.

Retailers at agricultural markets sell fresh apple and pear at the price of **250-300 AMD per kg**. Thus, they apply a commercial surplus (identical to value added) of **100-150 AMD per kg**. It worths to be mentioned that they sell these products only within the short period in the autumn, since no storing practices are applied. The price of wild collected apple and pear is not so high for keeping them in cold stores and selling out of the season.

Shops and supermarkets apply about 10% commercial surplus on the cost of sweet preserves. In absolute figures it comprises 130-140 AMD per the quantity of the sweet preserves prepared from 1 kg of apple and pear. For the calculation of the value added, the 19% share of apple and pear in the cost of sweet preserve (see Table 46) should be applied. Values added by shops and supermarkets comprise **25-27 AMD per kg of fresh apple and pear**.

Retailers did not mention any specific reasons for selling fresh apple and pear and other products processed from them. This is common for retailers of almost all biodiversity products. Retailers simply meet the requirements of their customers and keep as wider assortment as possible.

3.7.2.5 *Hotels and restaurants*

The situation with procurement of apple and pear products by hotels and restaurants is different than in case of other wild products. Actually, hotels involved in the survey do not use these products. They procure and use apple juice in big quantities, but this product is produced by local processors from imported concentrates.

Only two restaurants (both of them are located out of Yerevan), that were interviewed within the survey declared about using wild apple and pear, but they do not procure finished products from processors. The first restaurant procures small quantity (up to 10 three-liter jars) of wild apple and pear compote from villagers of neighboring communities. The restaurant from Armavir region pays 1,000 AMD per one three-liter jar of the apple and pear compote, which is prepared from 1-1.2 kg of the fruit. The compote is sold at the price of about 1,500 AMD per one three-liter jar.

Another restaurant in Tavush region procures some 200 kg of wild apple and pear from villagers of neighboring communities and processes it to juice and sweet preserve. The procurement price is 200 AMD per kg of fruit. The processed apple and pear is sold in combination with served tea. The cost of sweet preserve is not calculated separately, it is involved in the price of tea.

3.7.3 Apple and Pear Sector Map

Sector Map of the apple and pear seems to be the simplest one among all. The reason for that is the same: these products are not used very intensively and their movement through the various rings of the value chains is not very complicated. In other words, neither volumes of using, nor the intensiveness of practices are high. Nevertheless, these biodiversity products still have enough potential for being further analyzed in the context of creating high value opportunities. This is especially important in the light of existing export demand for organic and FairWild products.

As it can be seen from the chart, fresh use of apple and pear prevails processing. There are several reasons for that, but the major ones are two: preference to consume this product in fresh and the practice of in-house processing of these products within households.

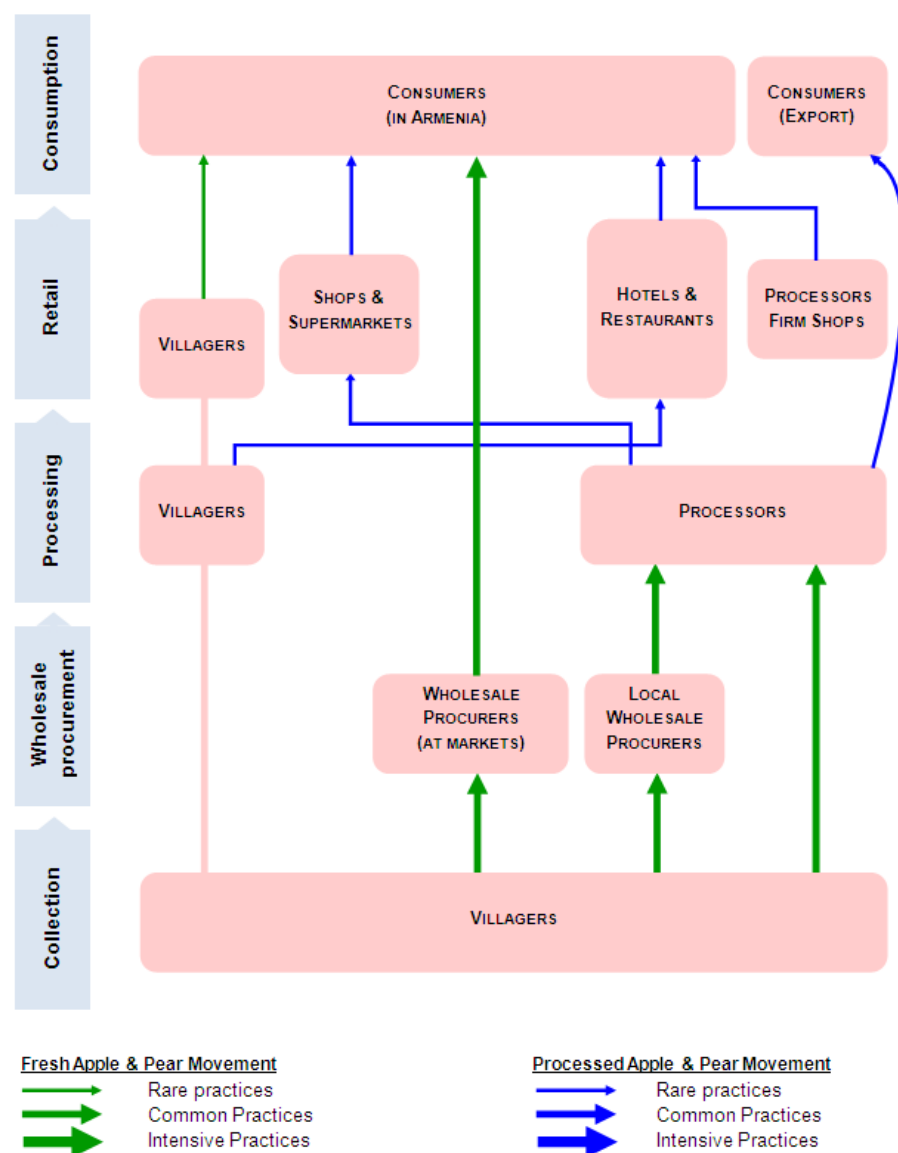


Chart 13 – Apple and Pear Sector Map

Meantime, various processors and wholesale collectors told, that there is demand for especially wild collected apple and pear in European market in semi-processed condition. Survey participants did not have enough capacity to explore this issue, but having certain technical assistance (i.e. in the field of foreign marketing) they will be able to uncover certain opportunities.

3.7.4 Apple and Pear Value Chains

Similar to the Sector Map, the Value Chain analysis is also quite simplified. Meantime, it should be kept in mind, that the chart below illustrates the current situation, but does not address the potential. Generated values are not significant, but utilization of export opportunities may affect the intensiveness of the processes significantly.

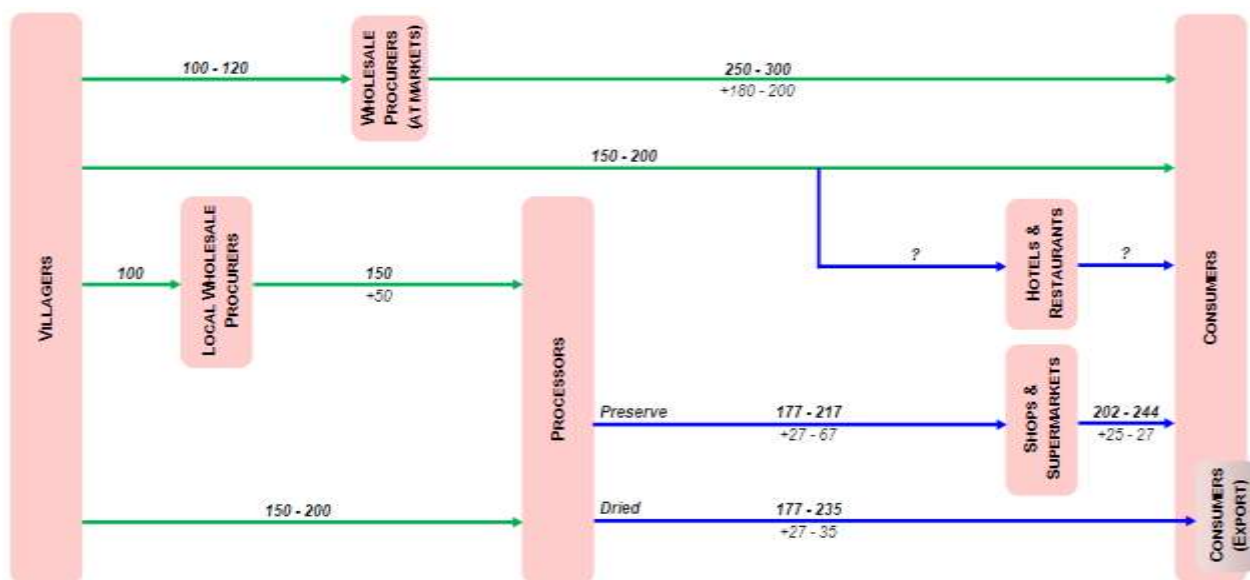


Chart 14 – Apple and Pear Value Chains, AMD

Values added at various stages of the Value Chains are quite similar. They vary in the range of 25-35 AMD per kg of fresh apple and pear processed to other products.

Walnut Value Chains, Added value flows in average % (calculated on the base of average for figures provided in Chart 12)							
	LWP	WPM	Processors	Shops % supermarkets	H&R	Agric. market retailers	Consumers
LWP	-	-	50% Fr.	-	-	-	-
WPM	-	-	-	-	-	-	150%-180%Fr
Processors	-	-	-	18%-44% Pr.	-	-	18% Dry
Shops % supermarkets	-	-	-	-	-	-	12%-14% Dry
Hotels & restaurants	-	-	-	-	-	N/A	N/A
Agric. market retailers	-	-	-	-	-	-	12%-14% Pr.

Where: Fr. – Fresh, Pr. – Sweet preserve

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 IMPEDIMENTS FOR USING WILD PRODUCTS

Survey participants have been asked to uncover factors that impede the use of wild collected biodiversity products. Purpose of addressing that issue is to try to design a set of tools that will be applied for the intensification of that process and ultimate increase of income generated by villagers/collectors. This issue was discussed with two groups of respondents – wholesale procurers and processors. Their answers have been analysed in the chapters below.

4.1.1 Wholesale Procurement

Although LWPs and WPMs operate in completely different market segments their attitude towards problems of using wild products are quite similar. The major problem is the lack of sales opportunities. In particular, wholesale procurers declared the following problems:

LWPs:

- Primary demand for wild products is expressed by processors. They are not very stable in their decisions;
- Demand for wild products is not very big, otherwise they can organize collection of different wild products in much more quantity;
- LWPs pay for procured wild products immediately, but get their payments from processors with significant delays;
- It is very difficult to sell procured wild products to processors. They procure limited quantities.
- LWPs need to have orders. If they are sure about the realization of they will procure much more;
- Processors do procure limited quantity, since they are not able to sell their processed products in bigger quantities.
- Processors are very tough while they negotiate procurement prices; sometimes it is simply impossible to organize the collection of wild products at prices that processors suggest;
- LWPs are made to sell the procured quantity of wild products. Most of them do not possess necessary facilities for long-storing or initial processing;

WPMs:

- Number of procurers (i.e. end-users of the wild products) significantly decreases;
- Demand for *wild* products is not big in general;
- Collectors/villagers do not like working hard and supply more; they prefer to supply less at higher prices;
- There is no stability in the market; sometimes it is very hard to sell anything;

In general, volumes of operations of wholesale procurers ultimately depend on general economic situation and food market conjuncture within the certain period. When demand for fresh and processed (preserved, canned, sugared, salted, dried etc.) wild products is high in the market, volumes and prices tend to grow substantially, and vice versa. Unfortunately, currently the local market is well saturated and demand for these products is not very high. Besides, purchasing power of population significantly decreased due to recent economic and financial crisis, which squeezed the consumption. This means that current volumes of collection and wholesale trade of wild products is quite small and may grow substantially once our country overcomes the crisis.

4.1.2 Processing

Processors' opinion on impediments of using wild collected products is not very different from the attitude of wholesale procurers. Again the major problem is the sale of processed products and general market conjuncture. Specific impediments declared by processors are listed below:

- Sale of processed products (especially sweet preserves) is becoming more and more difficult. The market is almost saturated;
- Difficulties of exporting the processed products: high costs, expensive promotion in export markets, etc.;
- Cost of production increases continuously due to increase of prices for other inputs, i.e. energy, sugar, packaging, and other;
- Inefficient schemes of the payment suggested by potential foreign partners;
- Shortcomings of supply process, i.e. wrong organization of wholesale procurement, lack of quality control, non-reliability, etc.;
- Lack of financial means for procuring more products;
- Seasonal issues: sometimes the procurement of wild products may prevent from procuring the major cultivated products (i.e. cherry, apricot, tomato, etc.);
- Difficulties of obtaining documents from ArmForest regarding to organic features of procured products;
- Irrelevant regulatory framework of the wild products' collection;
- Difficulties in procuring big quantities of specific wild products of stable quality;
- Low profit margin of the preserves;
- In-house production of preserves and juices;

Although the list of impediments is quite long the major problem remains the *market demand*. *Local processors need more support for exporting their products. They are ready to make significant investments, change practices, introduce new products for getting access to foreign markets.*

4.2 READINESS TO COOPERATE WITH TARGETED PILOT REGIONS

The GTZ SBM Task Team in Armenia selected to pilot regions in Syunik (Nerqin Hand, Shikahogh, Srashen, and Tsav communities of the Shikahogh area) and Tavush (Acharkut, Kirants, Sevqar, and Voskepar villages of Kirants area) marzes to start the Project's actual operations. Readiness of the market participants to cooperate with those targeted regions is of crucial importance for designing specific interventions. This issue was also involved in the list of tasks of the current survey and was discussed with wholesale procurers and processors.

4.2.1 Wholesale Procurement

Wholesale procurers were quite responsive to the idea of cooperation with targeted pilot regions. Nevertheless, they advanced some requirements and preconditions that are listed below.

LWPs:

- Cooperation with pilot regions is welcomed if collectors meet quality requirements and ask reasonable price for the collected wild products;
- They will cooperate with targeted pilot regions if there is demand for wild products. If orders are in place wholesale procurers will increase their procurement volumes several times;

- They will cooperate with targeted pilot regions if processors procure initially agreed volumes and pay in time;
- They will cooperate with targeted pilot regions if collectors from those regions supply high quality products;
- They will cooperate with targeted pilot regions if collectors transport products to facilities LWPs;

Negative attitude:

- Pilot regions are quite far (especially in Syunik Marz) and there are many problems for cooperation, such as control, transportation, etc.;
- Local procurers do operate in those regions, it is useless to waste time and other resources for penetrating that regions;

WPMs:

- They will cooperate with targeted pilot regions if they transport products to facilities of WPMs;
- They will cooperate with those regions if they supply regularly, at reasonable prices, and of stable quality;
- They will cooperate with those regions if they are able to sell it without losses;

Almost all respondents expressed their readiness to cooperate, although everybody mentioned the necessity of mutually beneficial conditions of trade. Some wholesale procurers mentioned that they are ready to procure but products should be transported by villagers. In other words, preferable market condition is the main decisive factor for procuring wild products. Regional preferences are not of key importance for procurers.

4.2.2 Processing

It was mentioned several times that processors prefer to cooperate with limited number of wholesale procurers that are able to supply all the needed quantity of wild products. Nevertheless, processors did not reject to cooperate with targeted pilot regions, but advance some conditions:

- They will cooperate with those regions if suppliers meet quality requirements;
- They will cooperate with those regions if the collection is conducted in proper and accurate way;
- They will cooperate with those regions if suppliers request reasonable prices;
- They will cooperate with targeted pilot regions if collectors transport products to facilities of processors;
- They will cooperate with those regions if suppliers meet requirements of organic collection and provide organic certificates;
- They will cooperate with those regions if environment is not polluted there, collection areas are far from industrial units and major highways;
- They will cooperate without preconditions. They have special vehicles that procure wild products in all regions. Sales (demand) of ready products are again decisive.

Negative attitude:

- It would be better to establish procurement and initial processing points at those remote regions;
- Remoteness of pilot regions will prevent effective procurements. Some products will simply get spoilt;
- They need to meet with collectors, negotiate conditions and possibilities;

It was good to comprehend that processors are keen to procure high-quality products. Requirements of organic quality are advanced quite often, which means that processors think that it would help them in further marketing of their products. Meantime, the major problems remain the market and sales opportunities.

4.3 GENDER ISSUES

Gender issues have been addressed throughout the survey. Women are more or less intensively involved in almost all stages of the value chains of wild collected products. Meantime, no proof of the exploitation of women and children or work overload has been detected.

Women and children in rural households are directly involved in collection of almost all wild products that does not require physical force (such as in case of walnut collection). Indirectly, i.e. for the support, they are involved even in hard processes. Sometimes this process of the collection more looks like a tradition and entertainment than income generation. Collection of specific herbs (such as thyme, mint, etc.) is conducted mainly by women. Thus, they actively participate in the process of income generation for their households. Collection of wild products from remote and forested areas is usually conducted by men. They are stronger and are able to stand physical workloads.

In the wholesale procurement stage women are more involved in trade at agricultural markets. Actually they almost share the market with men. Meantime, some of them are quite active also in local wholesale procurement in Kotayk and other regions.

Women are not involved in managing food processing entities very intensively, concerning being on the position of director or chief manager. In fact, this takes place only in cases of Tamar-Tatik and Nectar-Bonus. Both companies are directed by skillful and experienced women for quite a long period. At the same time, women are involved in top management of almost all processing enterprises. They traditionally engage positions of Chief Accountants, Financial Directors, Heads of HR division, Marketing directors, etc.

In the stage of retail trade women are again more involved in the trade at agricultural markets. Their number is notably more in comparison to men. This is also traditional. In shops, hotels and restaurants women do not usually engage top positions. They are mainly selling and serving assessed products.

Although the following statement may sound somewhat subjective, *in Armenia the smallest unit of the community is the family instead of a person. Family welfare is the ultimate target for both men and women. All efforts are directed to that primary objective, and family members (at list in majority of cases) do not tend to exploit other members of their household.*

4.4 OTHER FINDINGS AND CONCLUSIONS

Findings the survey has resulted in can be divided into two conditional groups: *general* and *specific*. *General findings* refer to the whole process of using the biodiversity products at different stages of the Value Chains. *Specific findings* refer to specific products that were identified to have potential of generating high value. Below, snapshot to those findings is made.

General findings:

- The practice of collecting and using wild products in Armenia is not new. It took place in substantial quantities in Soviet period and even much before. Processing of specific wild products was the major profile of some canneries located in remote regions neighbouring forested areas.
- Only tiny portion of wild products that are available is collected currently. According to various sources (collectors, employees of the ArmForest, LWPs, representatives of processing entities, and local inhabitants) the collection volumes used to be much more during Soviet period. Current volumes can be multiplied several times if there are sales opportunities.
- Rural households are traditionally involved in collection of wild products. Collection is conducted by all members of households. In case of some products this process is organized as business, i.e. employees are attracted. Some wholesale procurers and processors prefer to organize the collection of the wild products on their own.
- Wholesale procurers and processors are usually not completely satisfied with the quality of supplied products. Villagers, as well as wholesale processors, lack some knowledge and skills for collection, storage and transportation of specific products. Meantime, accurate collection affects the procurement prices significantly (in case of some herbs - 4-5 times).
- Collection of wild products is conducted with twofold purpose of substitute consumption and sales. Commercialization level is quite low, although some part of products is sold also in processed condition.
- **The major problem for collectors, wholesale procurers, and processors is the market demand and sales opportunities. Market demand for processed products decides processors' volumes of procurement for certain wild (input) products. This creates demand chain that reaches till the first stage of collection and affects the income generation process for collectors. Market demand for processed products, in its turn, is affected by many factors of global nature, such as economic crisis, consumers' preferences, changes in input prices (especially energy), exchange rate fluctuation, and other. On the other hand, there are factors that can be addressed, which will improve the market conjuncture. Among others the better quality, lower price, better promotion and marketing, more convenient and nice packaging and labelling can be mentioned as possible ways of hinting the demand and sales volumes.**
- **Knowledge of the market and assistance in this issue is needed urgently. Local processors (as a vehicle for creating high value chains) lack this knowledge. Some of them succeeded enough to install proper procedures and technologies (such as organic production and quality management systems), but they are few. The major part of processors does not even aware of nuances of market requirements, especially concerning the foreign market.**
- Lack of resources is another impeding factor for intensive use of biodiversity products. Participants of the market sometimes lack sufficient production and storage facilities, and especially financial means for using wild products more intensively. Collectors would be able to conduct initial processing and generate higher value, wholesale procurers would procure and store more products, and processors would widen their assortment and improve the quality if they had access to long-term external financing at affordable conditions.
- Special attention should be paid to sustainability issues. Currently, sustainability of wild collection process completely depends on processors operations. If they make orders, collectors get involved in long-run process, and vice-versa. Meantime, processors have mainly concentrated their efforts to local market due to difficulties of penetrating foreign markets. This means they don't procure big volumes of wild collected products (except of some specific products, such as young walnut or rosehip). Gaining new export contracts (of bigger quantity) will make processors to increase their

production volumes and order more quantity of biodiversity products. Only in this case it will be possible to talk about long-run sustainability issues.

Specific findings:

- Collectors of specific herbs (such as thyme, mint, rosehip and other) need some training on collection processes. Currently they harm plants a lot, and intensification of the use of those herbs may negatively affect the environment.
- Similar to the previous finding, collectors and wholesale procurers conduct some initial processing for herbs, rosehip, and sometimes for other fruits. These operators actually have no knowledge for doing that initial storage/processing and any equipment or technology. Moreover, collectors usually don't have enough financial resources for purchasing those facilities. Not big investments are needed for that purpose, but collectors are not currently able to afford them.
- **Local market can be targeted for selling biodiversity products in fresh and processed condition, but it is too small for securing real income for the market participants. The last statement especially refers to collectors. That is why; it is suggested to concentrate the overwhelming part of efforts on the penetration of foreign markets.**
- Quite often, activities of LWPs are spontaneous and wrong organized. They usually lack finances and proper facilities for being named Collection Points. Establishment of such point would really contribute to increasing the livelihood in rural regions.
- Some processors invest significant efforts trying to export sweet preserves. Unique successful companies (such as Tamara-Fruit, Noyan, Sis-Natural, and Artashes) have penetrated the Russian, other CIS countries' and USA markets. Actually, those exports are based on the existence of large Armenian Diaspora, and quantities are not really significant. These companies have some certificates of organic and similar production, although that certification is conducted by local certifying agency. In order to enhance local companies need to revise their technologies (exclude the use of non-organic sugar, for example) and introduce higher quality products that meet requirements of export markets. Almost the same reference could be made to juices.
- **Local processors should consider exporting semi-final products, since it is easier to meet the regulatory requirements (especially in European countries) for not finished products.**
- It was identified that there is almost "unlimited" export demand for the rosehip. Some processors even suggested joining efforts and organizing some kind of centralized and accurate collection of this product.
- Some processors declared about the opportunities of exporting the kernel to European countries (France, Germany, etc.).
- Processing of herbs into tea generates the highest value. Organic (FairWild) certification, in combination with nice packaging and proper promotion may create fertile ground for exporting this product.
- Small volume of essential oils is produced in Armenia. This product seems to be of good quality and has some demand in external markets.

4.5 RECOMMENDATIONS

Number of recommendations can be derived from the analysis and findings made for identified 7 groups of products. Meantime, it would be a waste of time and money, if the GTZ SBM Program initiate many activities and dilute efforts. Thus, the list of recommendations is going to be quite short. All those recommendations have to be completely **output oriented**, instead of adopting indirect measures and activities.

- Wide scale awareness rising campaign should be conducted in regions that are neighboring to forested areas. This campaign will introduce benefits of proper treatment of biodiversity resources and identify most active regions of using biodiversity products in Armenia. Local NGOs and State Authorities can be very useful for that purpose.
- Special trainings on the collection of different biodiversity products (such as medicinal and aromatic herbs, rosehip, fruits and nuts) should be delivered. This will result in better treatment of the environment, and secure the sustainability of collection.
- Special trainings and seminars should be organized for wholesale procurers (especially those located at remote regions). They have to be introduced necessary requirements of storing, initial processing, and transporting the biodiversity products. The selected (promising) wholesale procurers may be assisted in the establishment of properly equipped facilities for implementation of the abovementioned activities.
- Small loan extending facility can be established (maybe intermediated by selected credit institution) for providing local inhabitants that are engaged in collection of biodiversity products collection and initial processing. Prior to that, it would be wise to screen the regulatory framework of the provision of small loans, and review all available financial services (credits, loans, leasing opportunities, micro-lending, etc.).
- **Major part of the efforts should be concentrated on finding export opportunities for locally collected and processed biodiversity products. Specific sub-project should be designed for penetrating export markets. Shortcomings of locally produced biodiversity products should be uncovered and addressed, improvement suggestions should be made, and targeted measures should be undertaken.**