Market Intelligence Fact Sheet (Format for results of RMA)

Ararat Marz

First selected crop

Botanical name of the crop - Armeniaca vulgaris L.

English name - Apricot

Local (Armenian) name - Tsiran (Ծիրան)

Photo 1 (full plant/tree)	Photo2 (harvested fruits)
	
Photo 3 (processed product A)	**Photo 4 (processed product B)**
	

1. Historical origin and cultivation history in project sites

Apricot in Armenia has been cultivated since ancient times. It was long believed that apricot originated here. Its scientific name – *Prunus Armeniaca* (Armenian plum) derives from that assumption. An archaeological excavation in Garni in Armenia found apricot seeds in an Eneolithic-era site. However, Vavilov Centre of Origin locates the origin of apricot's domestication in Manchuria, and other sources say that apricot was first cultivated in India in about 3000 BC. Alexander the Great first introduced apricot to Greece, and Roman General Lucullus (106–57 B.C.) also exported some trees –cherry, white heart cherry, and apricot – from Armenia to Europe. Subsequent sources were often confused about the origin of the species. Loudon (1838) believed it had a wide native range including Armenia, the Caucasus, the Himalaya, China, and Japan.

2. Conservation status now

According to latest classification apricots are divided into the following groups – Armenian, North Caucasian, Middle Asian, Chinese and European. In Armenia about 150 varieties of apricot are known; however, only about 50 varieties are being actively cultivated. The most demanded varieties of apricot are Yerevani (Shalakh), Sateni and Spitak.

Although a number of apricot tree varieties grow in Armenia, two varieties - Yerevani and Sateni, are mostly cultivated. The share of Yerevani in Ararat and Armavir Marzes is about 85% of all orchards. The main Ararat Valley variety – Yerevani, is one of the most important and truly indigenous Armenian varieties, and is recognised as the symbol of Armenia. Yerevani, also known among local population as Shalakh - named after its distinctive pineapple aroma, is famous for its balance of sugar and tartness, and has a juicy and creamy texture. It is well-adapted to the country's arid climate and has almost constant high yields. Subspecies of Yerevani variety were derived to withstand the transportation and increase the shelf life of the product. They have stable high yield. Today the apricots in grocery stores labelled "from Armenia", particularly in international markets, are usually not the authentic Yerevani apricots. In Armenia, production of Yerevani apricot is limited to mostly domestic consumption, with each family in the Ararat Valley owning a few trees for personal use. Instead, the international market is being flooded with hybrid apricots being marketed under the Yerevani name. Thankfully, international development organisations and local producers are recognizing the value of such plants, and acting accordingly to protect the species. By continuing to cultivate this local apricot variety, Armenian farmers are not only preserving their local culture, but also protecting the environment. As a conclusion we can say that the most demanded varieties of apricot are Yerevani (Shalakh), Sateni and Spitak.

As per dried fruit Sateni is the most suitable variety. This variety has high productivity as well. In general the fruits are large, have tasty appearance and the best flavour qualities.

However, as it was mentioned by dried food producers, the current production of Sateni is still not enough for satisfying the demand for dried apricots in the market both local and international. Farmers who plant new orchards are aware of the fact that 20% of the planted trees should be of other variety. As far as Yerevani is the most popular for fresh consumption and most suitable variety for export, farmers tend to plant only this variety. On the other hand there are very rare cases when farmers establish orchards consisted of only Sateni variety. On the external borders of their orchard they tend to plant wild apricots sapling for pollination as the saplings of wild apricots are lower in price, almost half of Sateni. Thus the producers of dried apricots experience difficulties at procurement of Sateni variety in the necessary volumes.

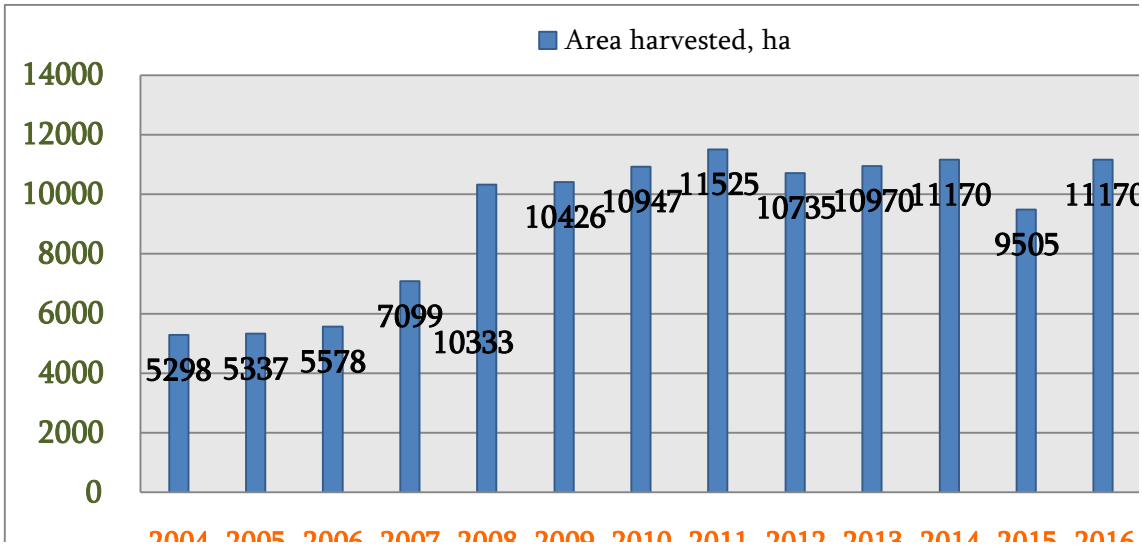
Varieties growing in Nor Ughi and Surenavan communities are Yerevani (Shalakh) and Sateni (Aghjanabad) .

	Nor Ughi		Surenavan	
	2016	2017	2016	2017
Total land (ha)	40	40	350	400
Yield (t/ha)	5	6	8	10
Price/kg (AMD)	500-700	600	500-800	500-700

Surenavan community has 600 ha new apricot orchards that are not fruitful now, but upcoming years will provide productive harvest.

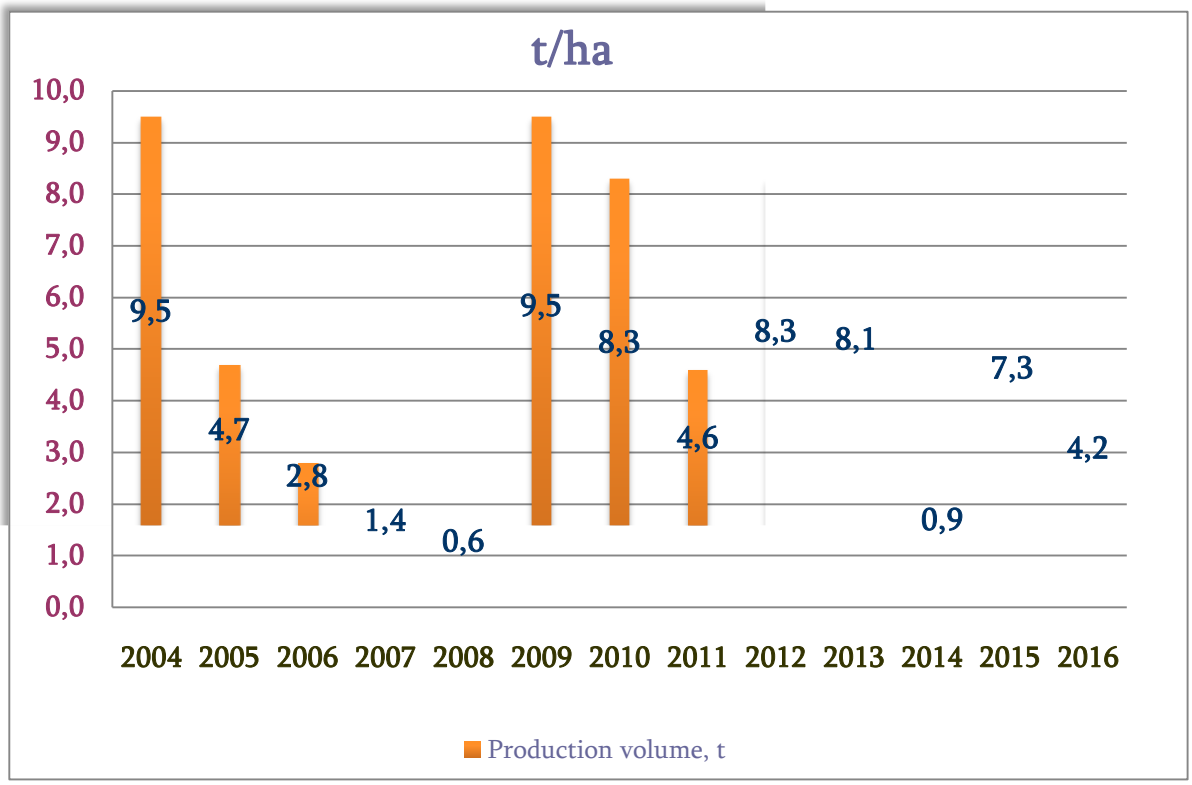
Accurate statistics are not readily available in Armenia, so all figures are the incorporation of several sources of information as well as findings of direct interviews with value chain participants.

Figure 1: Areas under cultivation in 2004-2016 in Armenia



Source: Ministry of Argiculture of RA

Figure 2: Apricot production volumes and yield per hectare in 2004-2016 in Armenia



Source: Ministry of Agriculture of RA

3. Nutritional values and unique traits

Apricots are rich in nutritional content. The impressive health benefits of apricots are due to the content of vitamins, including vitamins A, C, K, E, and niacinin significant amounts, as well as a number of other essential vitamins in trace amounts (less than 5% of daily requirement). Apricots also have a good mineral content, which includes potassium, copper manganese, magnesium, and phosphorous. They are a very good source of dietary fiber, like most fruits.

Here you will know about apricot nutritional value in detail (Table 1.)

Apricots (*Prunus armeniaca*), fresh.		
Nutritive Value per 100 g. Total-ORAC umol TE/100 g-1115.		
(Source: USDA National Nutrient data base)		
PRINCIPLE	**NUTRIENT VALUE**	**PERCENTAGE OF RDA**
Energy	50 Kcal	2.5%
Carbohydrates	11 g	8.5%
Protein	1.4 g	2.5%
Total Fat	0.4 g	1%
Cholesterol	0 mg	0%
Dietary Fiber	2 g	5%
VITAMINS		
Folates	9 µg	2%
Niacin	0.600 mg	4%
Pantothenic acid	0.240 mg	5%
Pyridoxine	0.054 mg	5%
Riboflavin	0.040 mg	3%
Thiamin	0.030 mg	2.5%
Vitamin A	1926 IU	64%
Vitamin C	10 mg	16%
Vitamin E	0 mg	0%
Vitamin K	3.3 µg	3%
ELECTROLYTES		
Sodium	1 mg	0%
Potassium	259 mg	5.5%
MINERALS		
Calcium	13 mg	1.3%
Copper		
Iron	0.39 mg	5%
Magnesium	10 mg	2.5%
Manganese	0.077 mg	3%
Phosphorus	23 mg	3%
Zinc	0.2 mg	2%
PHYTO-NUTRIENTS		
Carotene-α	19 µg	—
Carotene–ß	1094 µg	—
Crypto-xanthin-ß	104 µg	—
Lutein-zeaxanthin	89 µg	—

Here are best apricot benefits for health.

1. Anti-Cancer
2. Remedy For Constipation
3. Heart Health
4. Treatment Of Anemia
5. Aids In Weight Loss
6. Beneficial For Eyes
7. Relieves Asthma
8. Bone Health
9. Relieves Fever
10. Beneficial In Pregnancy
11. Maintains Electrolyte Balance
12. Provides Vitamin B17
13. Relieves Arthritis
14. Fights Colds And Flu

Skin Benefits of Apricots

15. Heals Damaged Skin
16. Reduces Wrinkles
17. Maintains Skin Elasticity
18. Removes Blackheads
19. Treatment Of Skin Disorders
20. Removes Blemishes
21. Skin Moisturizer
22. Improves Skin Tone
23. Nourishes Skin
24. Exfoliates Skin

Hair Benefits Of Apricot

27. Great Conditioner
28. Treatment Of Scalp Problems
29. Promotes Hair Growth

4. Uses and derived products

There are several varieties of apricots out of which one or two are available in our local supermarket or fruit stand. These small fruits are very versatile and can be enjoyed both fresh and dried though fresh ones have higher vitamin C content. Dried apricots are more long lasting and are generally preferred by dieters as a snack. Moreover, they are more nutritious than their fresh counterparts.

Dried apricots: The benefits of dried apricots stem from the fact that the drying process strips the fruit of its water content, without altering the nutritional value. As a result, the nutritive value of apricots is concentrated into a much more potent form, enhancing its benefits. Dried apricots are long lasting and are consumed widely as a nutritious snack.

Apart from being consumed as they are, these fruits are a delicacy that can be used in a number of ways and recipes.

Other derived products are Apricot marmalade and jam, apricot leather wraps. Apricots are also used in production of alcoholic beverages, cosmetics.

There are six large processing plants in Armenia every year procuring apricots from farmers - Tamara Fruit CJSC, Beer of Yerevan CJSC, SIS Natural LLC, Euroterm CJSC (Noyan Factory) and Karolina Group LLC (Ararat Food Factory),. They produce jams, juices, compotes, dried apricots14, and apricot vodka. Some pharmaceutical companies, like Vitaline, produce cosmetics and vitamins. Interestingly, the procurement prices of fresh apricots for jams, compotes and dried apricots are almost the same as the prices for fresh apricots in agricultural markets in Yerevan. Apricots for jams and compotes should be firm, matured, but not overripe, and big. The apricots for production of puree and distilleries are sold at lower – about 40% of fresh apricots price in agricultural market. Four plants in Armenia – Artashat Cannery OJCS, Euroterm CJSC, Borodino Armenian Cannery and Etchmiadzin Cannery produce apricot puree, mainly for export.

5. Agricultural production

Apricots are mostly grown in Armavir, Ararat, Aragatsotn and Kotayk Marzes of Armenia. As of 2010 about 88% of apricot orchards are located in 4 Marzes of Armenia - Kotayk, Armavir, Ararat and Aragatsotn. According to National Statistical Service the planting area of fruit and berries plantations in these 4 Marzes is 25,006 ha, of which more than 30% are apricot orchards.

Table 2.

Marzes	Share in the tatal area, %	Area, ha
Ararat	31,2	3,092
Aragatsotn	10,7	1,061
Kotayk	8,5	841
Vayots Dzor	5,3	520
Other marzes	1,6	148

The prevalence in cultivation of apricots over other stone fruits in the mentioned 4 Marzes speaks for recognition by farmers of higher liquidity level of the apricots against the other fruits.

For domestic consumption apricots are picked in the stage when the sugar content in the fruit starts to deteriorate quickly even when the appropriate storage conditions are

preserved. Thus after picking the apricots should be kept in cool storages or in places of retail sales for a very short period of time (usually not more than 2-3 days). Apricots are suitable for immediate consumption as table fruits and unlike pears or apples they are not suitable for long keeping. For longer distance exporting apricots should ripen off the plant.

Collection, packaging and transportation

The harvesting period of apricots in Armenia starts in the second half of May. In its early stages of ripening period the harvesting is usually organized by the farmers together with their family members only.

Starting from the second half of June and up to the second half of July, farmers having large orchards hire seasonal labourers. Generally fruit collection is organized by the farmers/farm managers and it lasts for 1-5 days depending on the size of the orchard. The workers' wage is about 5000 AMD/day. One picker collects about 600 kg daily. The sorters earn more – about 6000 AMD/day. They put apricots in wooden boxes or cardboard if it is not intended for export. Usually sorters range the apricots in the boxes as eggs are put in the plastic boxes to decrease the losses during transportation. Exporters provide farmers with their own 12 kg storage capacity wooden boxes and often send their workers to sort/pack the fruits. Fruit sorters do not mix different quality apricots with each other. Fruits are packed separately.

Table 3: Description of apricots' grades

Grade	Characteristics
First	Large fruits, not damaged, firm fresh, mature to withstand transport
Second	Small or large well matured fruits
Third	Mostly damaged and too mature fruits used in processing

Transportation of fruits generally is organized by Local Wholesale Procurers (LWPs)/retailers for the regional market, by exporters for international markets and by farmers for the processors procurement sites. After fruits are transported to the wholesale sites, apricots can be kept there about 2-3 days in case if there is no cool storage.

6. Demand and consumer interests

In 2017 the first grade apricots were being sold for 500-800 AMD/kg; second quality – 400-600 AMD/kg; and third quality 250-350 AMD/kg. Longer shelf-life and hardness are also important factors affecting price. Yerevani is considered to be the best apricot variety that withstands transportation and still does not lose its flavour and

nutritious substances. In 2012 in agricultural markets of Yerevan Yerevani apricots were being sold from 300 to 1500 AMD/kg depending on harvesting season.

The production costs below are calculated for existing farms that are supposedly already fenced and irrigated. The production costs calculated for one hectare of apricot orchards are growing until year 10. After that the production costs do not fluctuate and become stable. The negative balance between cost and income is maintained until year 10. After the tenth year the apricot production cost increases for not more than 2% annually. In the meantime, the trend is changing for larger areas. Regardless the size of the orchard fixed costs of production are the same, but the operational costs are decreased on larger areas. The maximum production efficiency can be achieved using 1 set of agricultural machinery on 40 hectares.

Table 4: Apricot production cost breakdown, AMD

Years	1	2-5	6-9	≥ 10
Investment (a)	110.500	179.000	367.000	424.000
Operational costs (b)	209.000	207.000	277.000	220.000
Labour days invested (c)	46	59	90	130
Costs of labour (d)	184.000	231.220	244.320	256.000
Total costs (e=a+b+d)	503.500	617.220	888.320	900.000
Yield (kg) (max 15t/ha) (f)	0	156	2.340	8.580
Cum. yield (g)	0	0	2.496	11.076
Gross Income (h)	0	54.600	819.000	3.003.000
Cum. income (i)	0	0	873.600	3.822.000
Investment flow (i-e)	-503.500	-617.220	-14.720	2.922.000
Cost price (AMD/kg) (h/f)	0	350	350	350

7. Value Chain Map

Farmers sell fruits to local wholesale procurers/bulk buyers and retailers right from their orchards. Local wholesalers and retailers visit farmers in harvest season. Some wholesalers would buy the whole yield while others ask only for high quality fruits. Usually no prepayment is done.

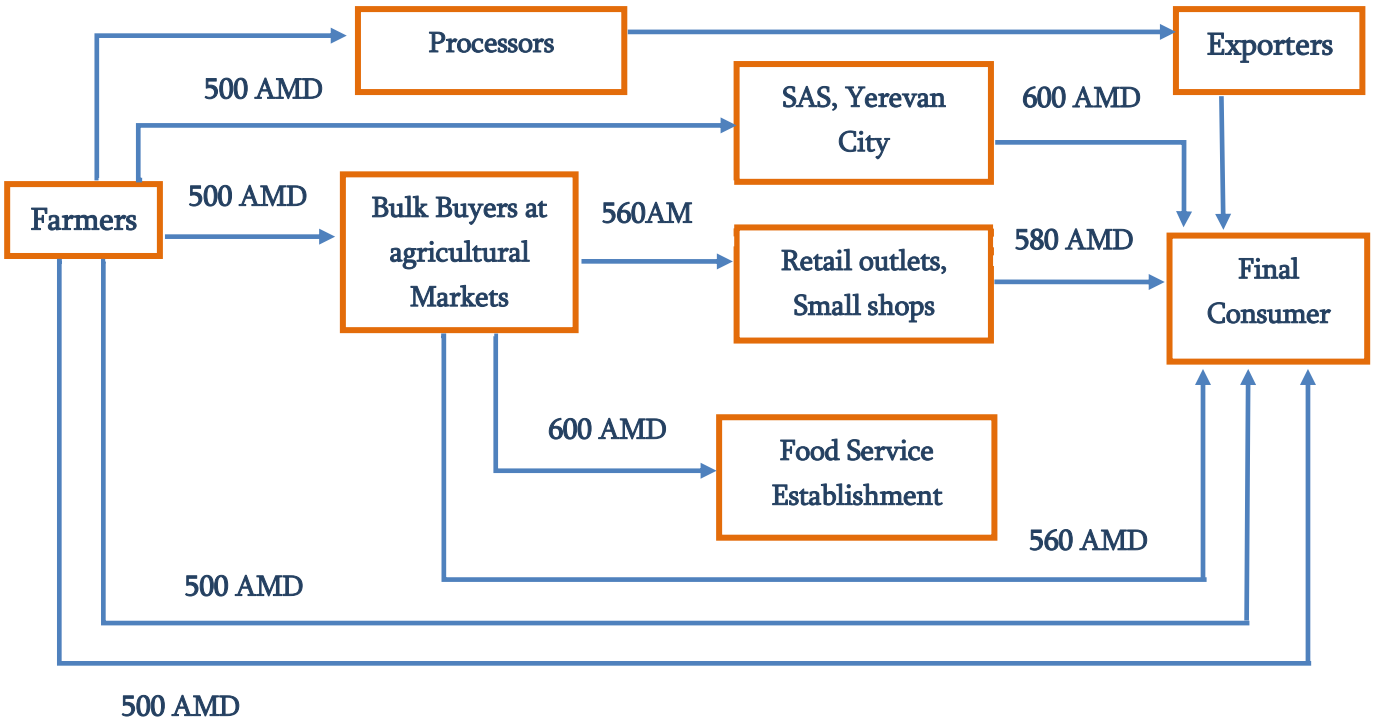
Then the farmers are responsible for harvesting, packaging and employing labour. The labourers are employed for one or a few days to pick the whole harvest, depending on the size of the orchard and expected yield. They are not very careful in picking or sorting the fruit – everything is harvested including un-ripened fruits. Other labourers

are hired to sort the fruits and they are paid more than pickers – 6000 AMD/day in comparison to 5000 AMD/day for pickers.

Typical costs across the value chain from farm gate to regional market are:

- The farm gate price in 2017 – 500 AMD/kg;
- Labour cost – 30 AMD/kg for pickers and 20 AMD/kg for sorters;
- Transportation costs: generally trucks transporting fruits are operating on liquefied petroleum gas (LPG) instead of petrol and the cost to rent such truck (load capacity 1200 kg agriproduce) is 20,000 – 25,000 AMD.

Figure 3: The fresh apricot movement



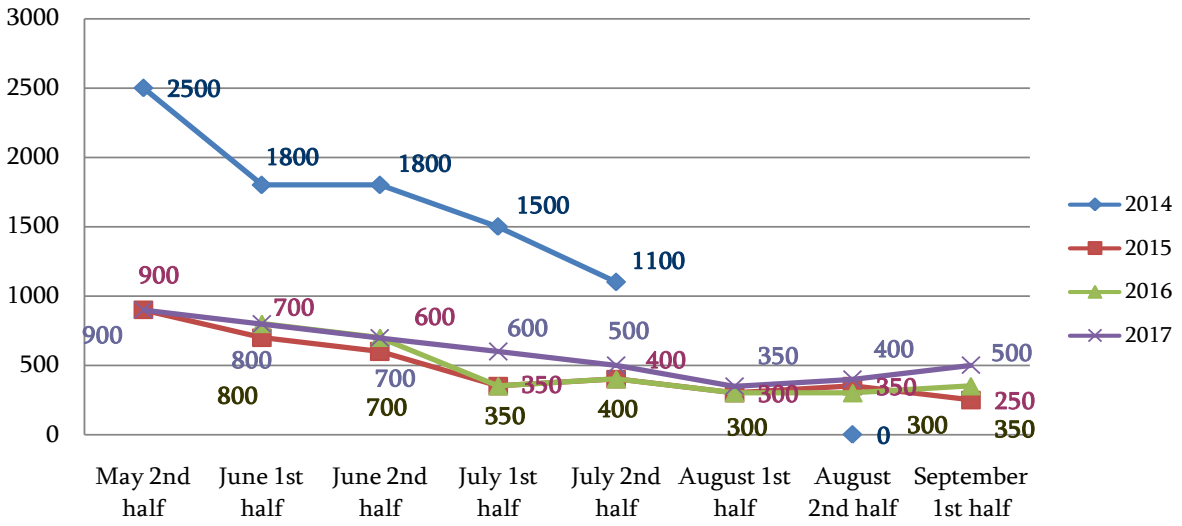
Many middlemen operate in Yerevan's three main agricultural markets (green market) – Malatia, Komitas and Armenian agricultural market (GUM). Farmers usually have their warehouses in these markets and they sell their produce at night-time to local middlemen. Middlemen usually purchase big volumes then during daytime sell the smaller lots to retailers and/or final consumers.

On average wholesalers add about 20% on the farmers' price. In the meantime many consumers (especially low budget ones) visit those wholesale markets during night time to buy apricot at lowest price from farmers. Usually there are no losses to the physical product; the net profit of the middlemen is usually low but they operate on high turnovers. Besides the sales of fresh fruits, the middlemen selling apricots in agricultural markets where there

are no cool storages, make additional profit "converting" later on the leftover (non-sold) fresh into dried ones. They take home the quantity of apricots that they did not manage to sell in the market in 2 or 3 days and dry it.

Below is presented price trend of Yerevani variety apricots during last three years in agricultural markets in Yerevan by months.

Figure 4: Price trends of Yerevani apricot in last four years, AMD



Retailers

Two major retailers in Yerevan – SAS and Star, have their own representatives who buy fresh apricots from farmers, no middlemen is present in the chain. Another retailer – Yerevan City, asks farmers to transport their fruits to its warehouses. At green market price of 300 AMD/kg the retailers ask about 400 AMD/kg of apricot. So the retailer's margin comprises about 25%. Retailers tend to sell higher quality products so that their profit margin is high. Prices fluctuate during the season – higher prices in the beginning and end of the season and lower in the mid-summer.

Retailer farmers

Another seller of fresh apricots to final consumers in green market is farmer. They bring apricots to agricultural markets and sell it usually overnight. Since there is no cool storage in agricultural markets farmers can't keep the apricots for more than two or three days. After two days selling in the market farmers have to sell the damaged fruits at the lowest prices that go for production of home-made jams and/or juices.