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# APPLE SECTOR STUDY

This study report provides information and recommendations which can be useful to orient entry strategies for financial institutions or for the preparation of financial services

# APPLE SECTOR STUDY

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## EXECUTIVE SUMMARY

Apple is one of the main fruits produced in Albania and it is one of the most important fruit products in the Albanian household consumer basket. The domestic apple consumption is dominated by local production; however, imports are significant, while exports are low (when compared to both production and imports). The apple value chain is considered a priority sector considering both import substitution and export potential.

Apple production has been characterized by a growth trend in the recent years exceeding 100,000 MT in 2016 – this growth is motivated by good supply conditions (land, climate and tradition) high domestic demand. The export of apple has increased significantly; however, it remains lower than 2 million USD, while on the other hand imports of apple has decreased by almost four times, but are still higher than exports. The export of apple is expected to increase in the coming year, considering that the domestic production is expected to increase significantly and domestic demand is getting saturated – increasing exports (especially to more attractive export segments) requires better standards and value chain organization, which imply also new investments potential and needs.

The objective of this study report is to provide an overview of the apple sector in Albania by analysing recent developments and the current state, including opportunities, constraints and challenges, with special focus on investments needs/potentials. This study report provides information and recommendations, which can be useful to orient entry strategies for financial institutions or for the preparation of financial services. Potential users of the current study findings and recommendations can be also government institutions, business associations, development agencies, academia and other interested stakeholders.

This study is developed from the technical expertise and financing of the Albania Agribusiness Support Facility (AASF). AASF is a financing framework developed by EBRD in cooperation and with support from the Government of Albania, which started its activities in 2016. The objective of the facility is to motivate Albanian financial institutions to support the agrifood sector. AASF provides access to finance for the agribusiness sector through senior loans and/or portfolio risk-sharing to both MFIs and banks. The final beneficiaries of AASF are farmers and companies that are engaged in primary agriculture, agricultural equipment production and trade, logistics, agribusiness service providers, agricultural processing, wholesale as well as retail traders.

Both secondary and primary information/data sources have been used to meet the study objectives; semi-structured interviews with value chain actors and sector experts were used as primary source of data collection. Data were analysed using various techniques including descriptive analysis, trend analysis, text analysis, SWOT analysis strategy. The combination of qualitative and quantitative analysis has been crucial to identify/understand trends, gaps and needs for investments.

Several bottlenecks hinder further development of the apple sector, including the necessity to improve cultivar mix, insufficient cold storage capacities, and the weak apple processing industry. Some of these bottlenecks can be addressed through future investments. The study finds that new apple orchard cultivation, increasing cold storage capacities and investing in packing houses represent - among others - important opportunity for investment and financing. New cultivation of apple orchards, including replacement of less market preferred varieties with more market demanded varieties, using very intensive technology - following the recent trends - represent an interesting investment opportunity. Cold storage capacities are improving but still available

at a limited scale. Despite the increase in cold storage capacities, there is still a need to increase such capacities using both simple and controlled atmosphere technology. Packaging houses are needed to improve standards, also considering that the export markets are very competitive and demanding in terms of standards.

In addition to investment related financial needs, there is a need for short term financing too. There is a time lag between the moment that the operational expenditures occur and the sales. Thus, there is a time window for short term loans that could be covered by banks to the benefit of both sides. At present, consolidators having invested in cold storages are the most active value chain actors and the most likely potential clients for crediting/financial products, including value chain finance.

When designing interventions in the sectors, the following issues are advised to be considered:

- (i) target 'apple home areas' - apple sector has a clear regional distribution and is concentrated in two main areas, namely Korca and Diber qark;
- (ii) support with priority investment intended to improve safety and quality standards given apple sector export opportunities;
- (iii) use investment co-financing: bank financing combined with public financial support using government support scheme or IPARD II schemes.

# 1. INTRODUCTION

## Background

Agriculture is one of the main sectors of the Albanian economy in terms of employment and contribution to GDP, and is considered a priority sector by the government of Albania. Despite recent growth, Albanian agriculture still faces various challenges including difficult access to credit; the agricultural sector receives only 2% of total credit for the economy.

Apple is one of the main fruits produced and consumed in Albania. Apple production has increased sharply in recent years exceeding 100,000 MT in 2016. The export of apple has increased significantly; however, it remains lower than 2 million USD, while on the other hand import quantities of apples have decreased by almost four times. The export of apple is expected to increase in the coming year, considering that the domestic production is expected to increase significantly clearly exceeding the domestic demand.

This study is developed from the technical expertise and financing of the Albania Agribusiness Support Facility (AASF). AASF is a financing framework developed by EBRD in cooperation with and with support from the Government of Albania which started its activities in 2016.

The objective of the facility is to motivate Albanian financial institutions to support a vital sector of the Albanian economy with widely untapped potential - agriculture and agribusinesses. AASF provides access to finance for the agribusiness sector in two ways: senior loans and / or portfolio risk sharing to both MFIs and banks. The institutions benefit from a first loss risk cover that was made available by the Government of Albania. AASF therefore represents an innovative financial instrument to encourage lending by financial institutions to the whole agribusiness value chain.

The final beneficiaries of AASF are farmers, entrepreneurs and companies that are engaged in primary agriculture, agricultural equipment production and trade, logistics, agribusiness service providers, agricultural processing, wholesale as well as retail traders. Agribusinesses may also benefit from the EBRD Advice for Small Businesses (ASB) program, which provides consultancy on strategy development, marketing, technical restructuring and other key institutional development areas by international and local experts.

## The study objectives

This study's general objective is to provide an overview of the selected value chain in Albania by analysing recent developments and the current state, including opportunities, constraints and challenges, with special focus on investments needs/potentials.

More specifically, the study

- provides an overview of the main production trends, market and international trade trends;
- provides a 'snapshot' of value chain structure, flows and value chain governances with special focus on 'leaders in the value chain'
- synthesizes the main points in a value chain through a SWOT analysis strategy, and
- recommend on the main opportunities for (investment financing, working capital financing, and value chain financing) the financial institutions.



This study report provides information and recommendations, which can be useful to orient entry strategies for financial institutions or for the preparation of financial services.

## **Methodology**

Both secondary and primary information/data sources have been used to meet the study objectives; semi-structured interviews with value chain actors and sector experts were used as a primary source of data collection. Data were analysed using various techniques including descriptive analysis, trend analysis, text analysis, SWOT analysis strategy. Value chain analysis was adopted as general framework for analysis. Details on the methodology are found in the following heading.

## **The target group**

The study is primarily designed for the Financial Institutions, but this study report can serve as a useful background in the decision-making process of other relevant stakeholders such as Ministry of Agriculture (MARD), development agencies, and private sector actors (e.g. companies, associations).

## **What the study is and is not**

The report is a rapid appraisal and deals particularly with the value chain financing need and hence financing opportunities for financial institutions. The study is designed in such a way that it is easy to read in terms of structure/flow and level of information details, suiting to the needs of the reading decision-making (e.g. financial institutions). The study is designed to serve as a 'tool' for executive staff rather than a research study per se.

## **The report structure**

The report is structured as follows: the second section consists of the description of the methodology. The third section provides an extensive analysis of production and international trade trends. Section four describes the value chain structure, flows and actors profile. Section five consists of production technology processes overview to make the reader familiar with main technological processes and relevant costs highlighting timing when such processes/costs occur, as well as harvesting/production (proxy for the timing of sales). Section six provides a SWOT analysis with focus on investments needs/potentials, whereas the last section concludes the main findings of the study.

## 2. METHODOLOGY

### Sector selection

The apple value chain study is part of a set of sector studies provided to financial institutions by AASF for the most important agricultural sectors in Albanian agriculture. Therefore, the first stage consisted of the prioritization of the sectors or subsectors or (group of) products for which there is the biggest demand/potential for growth and investments – considering export market potential or import substitution potential. Two groups of factors were considered when designing the list of products to be analysed: market potential and other factors leading to product competitive advantages. Market potential is examined in two angles, export potential and import substitution potential. Export potential considers revealed export performance combined with international demand for the given product - when exports grow over time and this coincides with increasing international demand this product is said to have export potentials. Import substitution potentials consider potentials to meet domestic demand. Other consideration leading to competitive advantage include supply side factors, such as labour to land ration, tradition and skills also established linkages among actors on the value chain, including also well-established linkages between Albanian actors and international buyers.

The apple value chain specifically was considered a priority sector considering import substitution and export potential.

### Data collection

The study combines qualitative and quantitative methodology. This allows for a better understanding of the status and dynamics of the relevant product chain. The study combines analysis of secondary and primary data collection. For various issues/indicators, analysis was based on the secondary data (including sectorial/ structural data).

The secondary data was retrieved from MARD (Ministry of Agriculture and Rural Development), INSTAT (Albanian Institute of Statistics), UNSTAT COMTRADE (for international trade), FAOSTAT (for production and consumption) and EUROSTAT (for production and international trade), etc. In addition, a review of other relevant studies and reports was carried out. The constraint faced is that for some indicators (related to domestic production and trade) there are no available statistics, while for some others there are no recent statistics. However, regarding international trade, latest data are available and were analyzed. When applicable data from other countries or regions were collected for comparative analysis purpose.

The focus of this value chain report is on apple, but when applicable additional information or comparison regarding other products or group of products (e.g. total fruits) is provided.

The primary data collection consisted of semi structured in-depth interviews carried out with key informants, representing value chain actors and sector experts. A snowball survey was used to identify the main actors and experts for each value chain for the semi-structured interviews (part of the primary qualitative research). In depth interviews with key informed stakeholders (alongside desk research), enabled the obtaining of up-to-date understanding about the main patterns for the key sectors. A limited number of interviews with key informed value chain players / stakeholders were carried out.

**Data analysis**

Regarding data/information analysis, secondary statistical data has been subject of standard descriptive analysis including tables and graphs depicting historical trends. Comparison of production and consumption trends with world, European and some cases with neighbouring countries was done, when applicable/necessary. Regarding VC expert/actors interviews, notes are analyzed by using simple content summarizing approach and qualitative content analysis techniques, with the aim to sum up the most relevant and interesting topics emerged from the interviews. Value chain analysis was adopted as general framework for analysis of value chain structure and (products, financial, and information) flows.

### 3. TRENDS AND PROSPECTS OF THE IDENTIFIED VC

#### 3.1. PRODUCTION TRENDS

##### 3.1.1. Primary production

Apple production has increased sharply in the recent years – this increase is highlighted by both increased cultivation area and increased yields, reflecting improved technologies and expertise (table 1).

Table 1: Production trends of apple in Albania

Apple	2000	2005	2010	2014	2015	2016
MT	12,000	16,000	54,604	82,060	91,736	101,532
Ha	2,300	3,000	3,863	3,863	4,008	4,230
MT/Ha	5	5	14	21	23	24

Source: FAOSTAT (2018)

The production of apple in Albania is relatively small compared to some other countries of the region (like Serbia) and relatively bigger than others like for example Montenegro. However, the growth trend is much higher compared to these countries and compared to EU too, which has witnessed saturation in the recent past (as shown later in this section).

Table 2: World production trends of apple (000 MT)

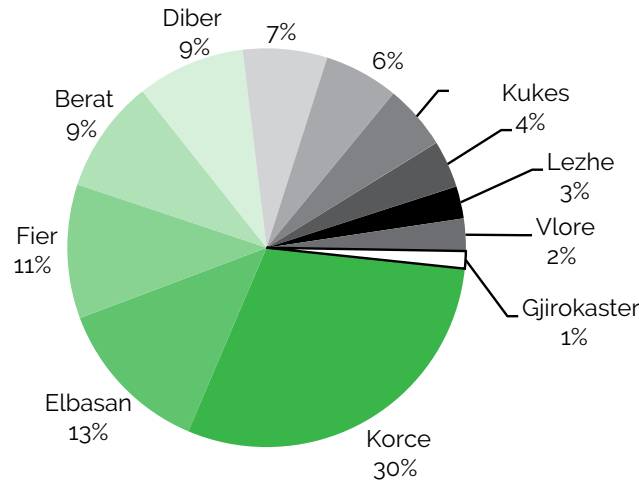
Country	2000	2005	2010	2014	2015	2016
Albania	12	16	55	82	92	102
Montenegro	:	:	2	3	3	6
Serbia	:	:	240	336	356	328
Macedonia	84	86	121	96	137	101
EU	14,138	11,367	10,548	13,098	12,794	12,591
World	59,127	61,907	71,192	85,500	86,222	89,329
Europe	17,691	14,953	13,867	17,491	17,147	17,296
Eastern Europe	6,001	6,447	5,727	8,312	7,871	8,632
Southern Europe	4,102	3,987	4,034	4,378	4,569	4,257

Source: FAOSTAT (2018)

Regional distribution

Fruit production is concentrated in the region of Korça with about 23% of the number of fruit trees and 30% of the total production of fruits, followed by the regions of Elbasan, Berat, Fier and Dibër - all these regions together account for more than two thirds of total apple production in Albania.

Figure 1: Regional distribution of fruits production quantity (2016)



Source: INSTAT (2017)

Production from Korça region represents more than half of the total apple production in Albania – the region (qark) has about 1.4 million apple trees. In the area of Korça there is a strong tradition of producing apples – more than 75% of fruit trees in this region consists of apple. Favourable soil and climatic conditions and production know-how have enabled this region to become a leader in apple production, which is recognized by consumers.

Within the region (qark) of Korca, the district (old local governance organization classification) of Korça has about 1 million apple trees, followed by Devoll (about 25% of the total area cultivated with apples in the region); Pogradec and Kolonja (part of the region of Korça) have smaller surfaces cultivated with apples. Also in Diber, apple is the most important fruit, making up for 43% of the total number of trees.

Table 3: Distribution of the fruit trees by region

Municipality	Fruit trees			Apple			
	No. of trees	Share	Cumulative	No. of trees	Share	Cumulative	Apple/ fruit
Korçë	1,761,991	23%	23%	1,391,931	54%	54%	79%
Fier	1,084,801	14%	37%	167,181	7%	61%	15%
Elbasan	1,016,251	13%	50%	183,879	7%	68%	18%
Tirane	955,079	12%	63%	219,884	9%	76%	23%
Dibër	586,414	8%	70%	254,593	10%	86%	43%
Durrës	575,233	7%	78%	128,924	5%	91%	22%
Berat	499,958	7%	84%	43,924	2%	93%	9%
Shkodër	359,908	5%	89%	32,296	1%	94%	9%
Lezhë	322,626	4%	93%	43,524	2%	96%	13%
Vlorë	188,445	2%	96%	36,583	1%	98%	19%
Gjirokastër	167,566	2%	98%	24,563	1%	98%	15%
Kukës	151,551	2%	100%	39,550	2%	100%	26%
Total	7,669,823	100%		2,566,832	100%		

Source: INSTAT (2017)

The main varieties produced are Golden Delicious, and two cultivars of the Red Delicious apple (Red Chief and Starking), both referred to as “Starking” by local consumers, which together account for half of all apple trees.

In Korça, market and post-harvest infrastructure has improved: there is a wholesale market and a growing number of cold storage facilities ( analysed in details in the relevant section) – this infrastructure is much better than in most regions of Albania.

3.1.2. Processing

Apple processing is rather underdeveloped. There are however two apple juice producing companies, located in the two main apple production areas, namely Korca and Dibra. In addition, there is reported production of dried apple and marmalade – however, the main form of (commercial) processing is apple juice.

Regarding apple juice production, there are no available statistics, but according to the interviews, the yearly average production and sales of apple juice for a single processor (as mentioned before, there are two producers of apple juice) is below half a million of litters of apple juice. However, there are strong oscillations in production and sales of apple juice from year to year due to primary apple production oscillations, processing technology and managerial problems.

3.2. INTERNATIONAL TRADE TRENDS

The export of apple has increased significantly; however, it remains lower than 2 million USD. The export of apple is expected to increase in the coming year, considering that the domestic production is expected to increase significantly while domestic demand is saturated.

Import prices are higher than export prices – this reflects differences in quality, variety and timing of import vs. exports (all these factors affect apple prices) – furthermore, part of the apple which is exported is destined for processing (that is one of the reasons behind low prices for exported apple). Export price of apple has been at the level of 0.1 to 0.3 \$/kg, while import prices have fluctuated from 0.3 to 0.9 \$/kg (Table 4).

Table 4: Import and exports of apples, Albania by year

Year	Exports			Imports			Export/ Import	Export/ Import
	ooo\$	MT	\$/ kg	ooo\$	MT	\$/kg	Value	Weight
2000	:	:	:	8,316	29,600	0.3	:	:
2005	:	:	:	17,810	41,075	0.4	:	:
2010	101	1,108	0.1	18,165	20,933	0.9	1%	5%
2014	1,063	3,053	0.3	9,143	12,264	0.7	12%	25%
2015	1,778	9,458	0.2	8,652	13,928	0.6	21%	68%
2016	1,656	6,288	0.3	7,674	12,145	0.6	22%	52%

Source: UNSTAT (2018)

Greece is the main exporting partner with 61% of total apple exports followed by Kosovo with 17% of apple exports – part of the exports to Greece is low quality apple destined for processing (since processing capacities of apple are weak in Albania, as mentioned above). According to the interviews, part of the apple exported to Greece, is re-exported to Egypt. Albanian exports of apple are subject to high tariffs in Egypt – according to the interviewees, Egypt may reduce or waver such tariffs only if Albania does the same for potatoes imported from Egypt (which are subject to high tariffs too).

Regarding imports, Italy is the main foreign supplier providing slightly above 50% of the total imports, followed by Greece, which accounts for about 43% of total imports. The most expensive apple come from Italy, at around 0.7 \$/kg, due to quality and out of season supply.

**Table 5:** Import and exports of apple, Albania by partner country, in 2016

Exports					Imports				
Country	ooo \$	MT	Share (MT)	\$/kg	Country	ooo \$	MT	Share (MT)	\$/kg
Total	1,656	6,288	100%	0.3	Total	7,674	12,145	100%	0.6
Greece	730	3,149	50%	0.2	Italy	4,312	6,628	55%	0.7
Kosovo		1,367			Greece	3,167	5,205	43%	0.6

Source: UNSTAT (2018)

### Seasonality of international trade

Exports of apples take place mainly during the production/harvesting season, with a culmination in October. Import of apple takes place mostly during March – June, when the availability of domestically produced and stored apple reduces significantly. When domestic apple enter into production, imports are very low, confirming the competitiveness of Albanian apple (in the domestic market). On the other hand, the data show that the potential for further import substitution, which can be achieved with further increase and improvement of cold storage capacities combined with better production and post-harvest technologies and know-how.

Table 6 below shows the export dynamics for 2017, including average prices at which apple are exported. Part of the apple is exported at very low prices, because some is used / exported for processing.

**Table 6:** Exports of apples 2017

Category	Jan.	Feb.	Mar.	Sep.	Oct.	Nov.	Dec.
Quantity (MT)	509	431	302	1,947	3,689	902	683
Value(000Euro)	107	54	38	333	666	339	228
Price (Euro/kg)	0.21	0.13	0.13	0.17	0.18	0.38	0.33

Source: EUROSTAT (2018)

Table 7 below shows the import dynamics for 2017, including average prices at which apple are imported.

**Table 7:** Imports of apples 2017

Category	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Quantity (MT)	577	1,193	2,413	4,183	2,405	751	163	66	34	27	134	481
Value(000Euro)	311	651	1,314	2,291	1,323	416	90	41	22	17	86	314
Price (Euro/kg)	0.54	0.55	0.54	0.55	0.55	0.55	0.55	0.63	0.66	0.64	0.64	0.65

Source: EUROSTAT (2018)

In addition, tables in Annex show the dynamics of import and exports also by partner countries.



3.3. MARKET

3.3.1. International market

Albania has negative trade balance for apple. The export of apple, though insignificant, has been growing by 37% between 2012 and 2016 (Table 8).

Table 8: Apple export performance

Product label	Value export- ed in Product label 2016 (USD thou- sand)	Trade bal- ance 2016 (USD thou- sand)	Annual growth in value between 2012-16 (%)	Annual growth in value between 2015-16 (%)	Annual growth of world imports between 2012-16 (%)	Ranking in world exports
All products	1,962,117	-2,707,173	-2	2	-4	133
Agricultural products	196,002	-478,351				
Apple	1,618	-4,245	37	-9	0	57

Source: International Trade Centre (2018). <https://www.trademap.org>

Export of apples occurs under stable international demand for this product. In world exports, Albania ranks 57th for the world export of apple.

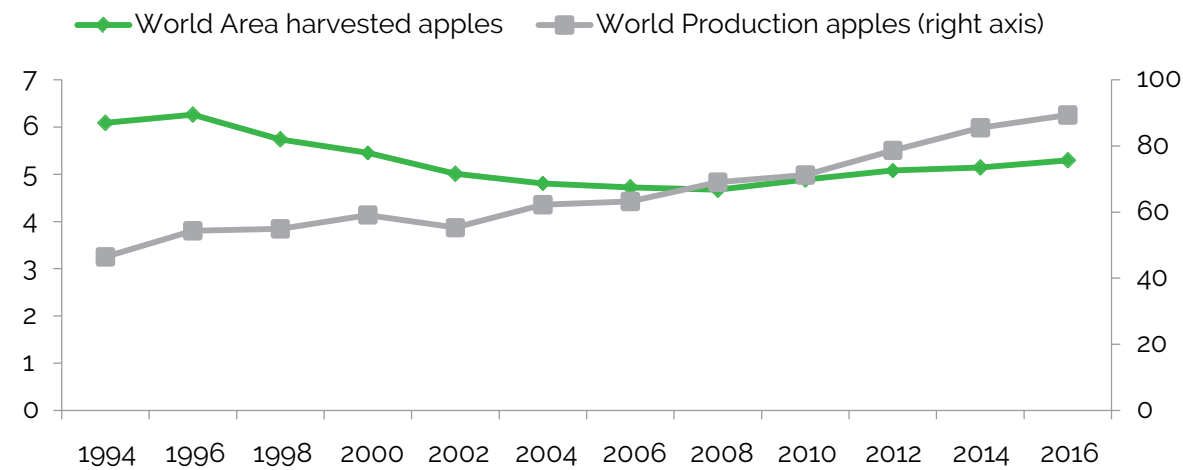
Albania exports are represented by low quality apples, as mentioned above, (apples destined to processing) with very low prices; and decent quality apple with better prices targeting Arab and Russian market are re-exported through intermediary countries, according to the interviews.

International production and trade trends with focus on EU<sup>1</sup>

Apple is not only one of the most produced fruits in Albania but also in the world. China, USA, Turkey, Poland and Italy are the leading countries in the production of apple. During the last two decades, the world production of apple has increased significantly – dramatic increase of production in China is one of the main factors behind the global growth. The increase of production has taken place despite the decrease in cultivates area – naturally, the reason for the production increase is the increase in yield (Figure 2).

1 This subsection is partially based on "EC (2017). EU Agricultural Outlook for the Agricultural Markets and Income 2017-2030"

Figure 2: World production of apples



Source: FAOSTAT (2018)

Apple production in EU was marked by decrease and oscillations during 2000ies, followed by increase in 2010ies triggered by increase in yields. Increasing yields combined with a reduction in production area are expected to lead to a stabilisation of apple production in the EU in the future. The consumption of fresh apples is expected to stabilise, while the consumption of processed apples is likely to decline slightly.

The apple average yield is expected to be 17 % higher in 2030 compared to the average yield in the last decade; the impact on production will be offset to a large extent by a decrease in area. Modernisation of the apple sector is the main driver of yield increase, particularly Poland. The main thrust of modernization is the grubbing up of old orchards and partially replacing with new planting of varieties that correspond to new consumer preferences and new production methods, including natural adaption to climate change effects. Interestingly, modernization of existing apple tree plantations, namely replacement of least preferred varieties with more preferred varieties is observed recently in Korca, too.

With the increased EU standards of living, consumers seem to favour more trendy products such as tropical fruit, which are regularly offered in supermarket shelves next to the more common and relatively cheap apples (this trend may be observed in Albania too, in the future, as income is expected to increase).

The recent decline in consumption of processed apples in the EU is expected to continue, in particular for juices, which take up most of the EU's processed apples. This decline in demand is expected to create surplus of processed apples on the EU market. The lower domestic demand is expected to lead to a lower level of EU imports

Thus, it may be concluded that EU market does not represent a feasible potential for Albanian exports, while competition from EU apples and apple juice will become stiffer as EU producers will face growing pressure to channel production to exports (with the modest decline of consumption by EU consumers).

3.3.2. Domestic market

Market supply structure

The domestic supply (as proxy for the domestic consumption) is dominated by domestic production in Albania. The share of import to domestic supply or consumption has reduced by almost half while the share of exports to total production has increased remarkably from 2% in 2010 to more than 10% in 2015.

Table 9: Supply balance of apple in Albania (000 MT)

Category	2005	2010	2015	2016
Production	16	55	92	102
Import	41	20.9	13.9	12.1
Export	:	1.1	9.5	6.2
Supply	57	74.4	96.3	107.9
Import/supply	72.0%	28.1%	14.5%	11.2%
Export/production	:	2.0%	10.3%	6.1%

Source: Author calculations based on data from INSTAT, EUROSTAT and UNSTAT (2017)

Consumer demand and preferences

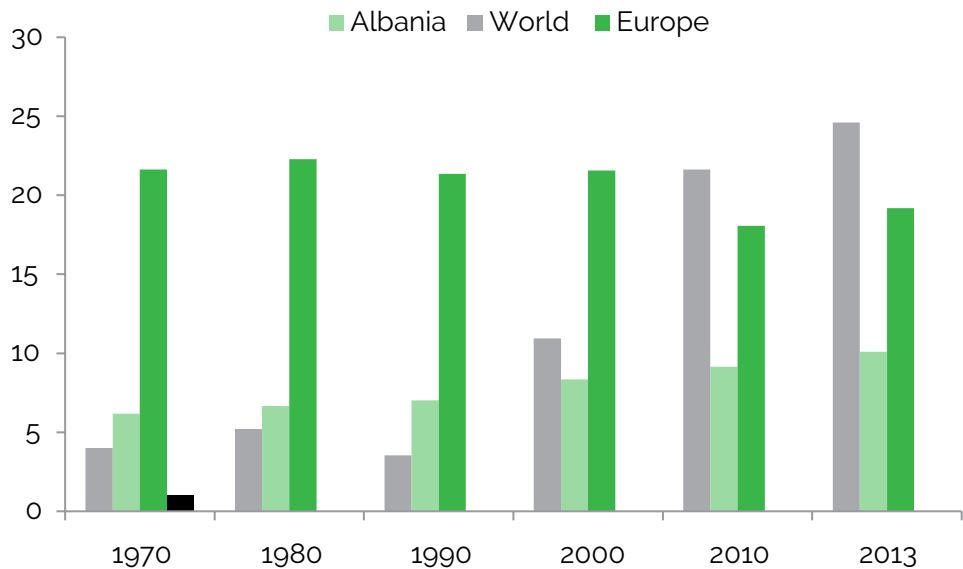
After the transition into the market economy, which began in early 1990s, Albanian consumers demand for fruits increased significantly. As part of the liberalization of trade and combining expanded retail, production and postharvest/storage capacities, and with increase in income and standard of living for the Albanian population, consumption of fruits has more than doubled when compared with the pre-transition period. Indeed, the increase of the local production capacities and storage (which is especially relevant for apple) was instrumental to enabling increase of consumption, making available fresh products for consumer for longer periods of time at lower costs/price<sup>2</sup>.

Apple apparent consumption per capita per year in Albania (24.6 kg) is higher than the global average consumption (10.1). After Albania, Serbia (23.1 kg) has the highest consumption per capita of apple from Balkan countries, while Macedonia (7.3) has the lowest consumption per capita, according to FAOSTAT (2018), which are shown also in the Annex.

Thus, the domestic market is not expected to absorb more (local) production of apple – instead, as shown by the experience of the EU, consumption of apple may even decrease in the future in Albania (following similar pattern).The absorption capacity of the local market for apple may further decrease, implying that exports are indispensable to channel the growing production surpluses.

2 Zhllima, E., Imami, D., & Merkaj, E. (2012). Food consumer trends in post socialist countries: the case of Albania. *Economia agro-alimentare*.

Figure 3: Apparent consumption of apples in Albania and other countries and world regions (Kg/capita)



Source: FAOSTAT (2018)

The origin of production tends to be quite an important factor for most Albanian consumers. According to various study, most consumers choose their products based on origin (domestic versus imports). Previous study has shown that there is a clear preference for domestic versus imported apples for most Albanian consumers. Apple variety and fruit size are quite important attributes in marketing<sup>3</sup>.

Most Albanian consumers view organic products as safer and healthier compared to other (conventional) products. However, most consumers are not familiar with organic certification (requirements). The market for organic food in Albania is still small, but the consumers' preference for organic food represents a potential for market development. The perceptions on a link between organic food and health-related issues represent an important advantage for the production of organic food, and can be capitalized in marketing promotions and investment by producers/traders<sup>4</sup>.

Safety standards

There are gaps in food safety standards throughout the downstream food value chain. Albania faces serious problems with the national food safety control system in terms of legislation, infrastructure, institutional capacity, control and enforcement, which affect real and perceived safety risks for consumers. The problems in the Agricultural Health and Food Safety System have been identified by several studies<sup>5</sup>. Food safety standard is a major concern perceived by Albanian con-

3 Skreli, E., & Imami, D. (2012). Analyzing consumers' preferences for apple attributes in Tirana, Albania. *International Food and Agribusiness Management Review*, 15(4).

4 Imami, D., Skreli, E., Zhllima, E., & Chan, C. (2017). Consumer attitudes towards organic food in the Western Balkans-the case of Albania. *Economia agro-alimentare*.

5 Verçuni, A., Zhllima, E., Imami, D., Bijo, B., Hamiti, X., & Bicoku, Y. (2016). Analysis of consumer awareness and perceptions about food safety in Tirana, Albania. *Albanian Journal of Agricultural Sciences*, 15(1), 19.

sumers. Several studies<sup>6,7</sup> document/highlight the concerns of average consumers about food safety.

The Albanian Government considers food safety and consumer's health protection a policy priority in its EU approximation agenda. The main law in Albania on food safety is Food Law No 9863<sup>8</sup>, (dated 28.01.2008). It sets requirements for production and circulation of safe food to some extent in line with EU provisions.

MARD has introduced National Minimum Standards (NMS) in accordance with EU practices. Good Agricultural Practice (GAP) should correspond to the type of farming that a farmer would follow in the region concerned, entailing at minimum, compliance with general statutory environmental requirements. During recent years, food safety and the NMS have been reformed through amendments and new laws. Compliance with NMS is a requirement also to access specific support grants support, most notably IPARD II.

Despite legal and institutional changes, many farmers still lack information or awareness related to standards. It is not common for farmers to require/make any type of lab analysis (e.g. for soil or irrigation water), thus it is not a surprise that many orchards perform poorly.

The growing pressure from "export market" and EU approximation to improve standards will imply growing demand for investments along the value chain to meet the standards.

6 Imami, D., Chan-Halbrendt, C., Zhang, Q., & Zhllima, E. (2011). Conjoint analysis of consumer preferences for lamb meat in central and southwest urban Albania. *International Food and Agribusiness Management Review*, 14(3).

7 Zhllima, E., Imami, D., & Canavari, M. (2015). Consumer perceptions of food safety risk: Evidence from a segmentation study in Albania. *Journal of Integrative Agriculture*, 14(6), 1142-1152.

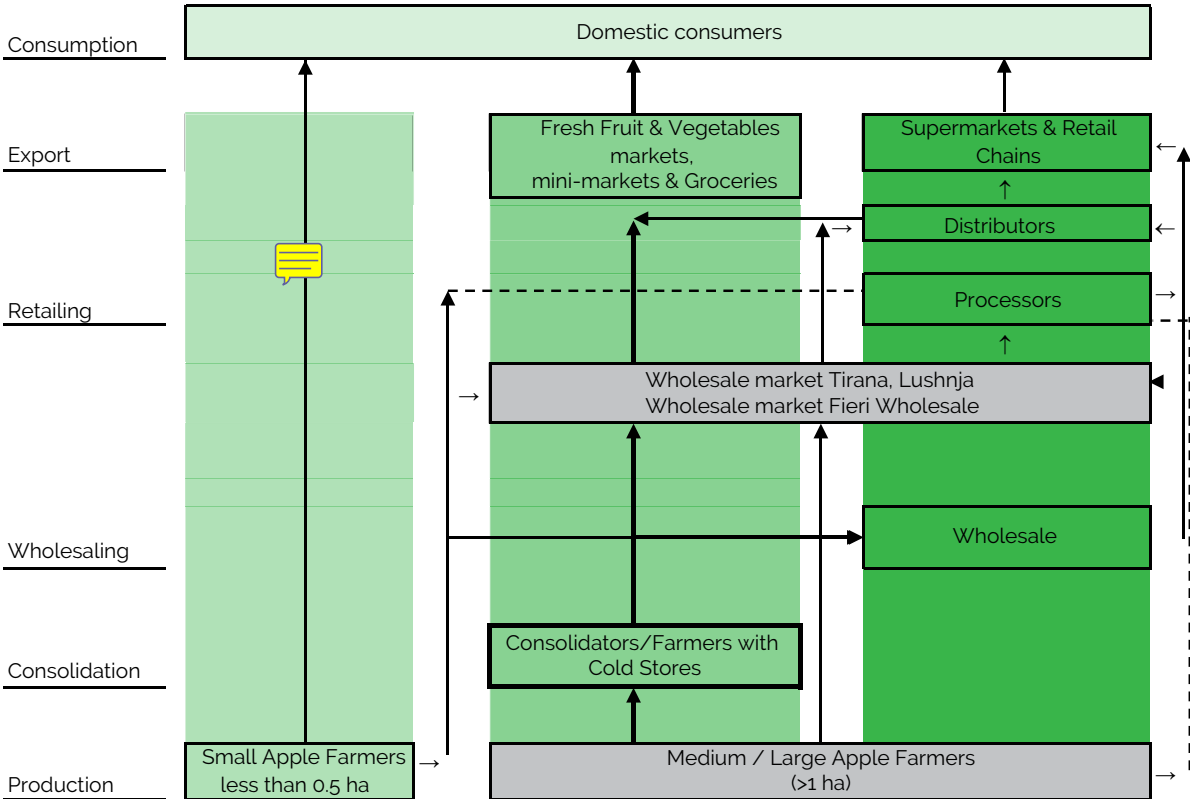
8 All Albanian legislation can be found (in Albanian) in <http://ligjet.org>.

## 4. VALUE CHAIN STRUCTURE AND KEY ACTORS

### 4.1. VALUE CHAIN STRUCTURE AND ACTORS PROFILE

The Figure 4 depicts the maps the milk value chain including the main actors and distribution channels from farmers to end use consumer.

**Figure 4:** Apple value chain map



Source: Authors elaboration

The three main groups of actors in the apple value chain are farmers, consolidators (cold storage operators) and wholesalers. Description of the profiles of the main actors (summarized below) is followed by the description of the value chain flows and value chain governance.

#### Farmers

Most apple farms are rather small. Only 571 apple farms are reported to have more than 3 dn (or 0.3 Ha)<sup>9</sup> of orchard, and less than 400 farms have orchards larger than 5 dn (table 10).

<sup>9</sup> In Albania, dynym is widely used as unit for land size. 1 dynym = 0.1 Ha.

Table 10: Apple commercial farms, for 2017

Apple farms categories	Number	%
Between 3 and 5 dn	185	32.4
Between 6 and 10 dn	235	41.2
Between 11 and 20 dn	127	22.2
Over 21 dn	24	4.2
Total	571	100

Source: MARD data processed by authors.

Farmers having less than 0.5 ha (or 5 dn) have low production levels, which does not justify investments in postharvest and marketing – usually they are not efficient and have limited capacity to make investments in new orchards or technologies. Yields among farmers in this category are estimated to be significantly lower (up to 50%) when compared to the potential yields depending on the variety and region.

There are still few specialized producers with orchards larger than 1 ha (150 reported farmers) that tend to operate as commercial orchards. Such farmers typically invest in certified saplings of good genetic quality, prepare the soil on an annual basis, apply fertilizer and use irrigation in most cases. There are only several good examples of modern apple farmers, with drip irrigation or even fertigation<sup>10</sup> and sometimes chemical thinning which could serve as demonstration orchards to other growers.

The typical apple commercial farmer main assets are orchard, irrigation systems (well and drip irrigation), agricultural machineries (tractors and spraying pumps). The most advanced commercial farmers have invested in fertigation systems, a limited number of large farmers have also invested in cold storages.

Apple sector exhibits a clear regional specialization with Korca having 285 commercial farmers (slightly less than half of commercial farmers) and Diber having 172 commercial farmers or close to one third of all commercial farmers(for more details refer to tables in annex).

Consolidators

There are 60 reported cold apple consolidators (cold storage operators) (Table 11) with a total capacity of 13,955 MT.

10 Fertilization: plant fertilization/nutrition through irrigation

Table 11: Cold storage capacities by size

Categories	Number	% to categories
Between 15 and 50 MT	14	23.3
Between 51 and 200 MT	26	43.3
Between 201 and 500 MT	14	23.3
Over 500 MT	6	10.0
Total	60	100.0

Source: MARD processed by authors.

23.3% of cold storage facilities have a capacity between 15 MT and 50 MT, and the same proportion have a capacity between 201 and 500 MT. The majority of cold storage (43.3%) facilities have a capacity between 201 MT and 500MT, and only 10% of cold storages have capacities larger than 501 MT.

The cold storages are concentrated in Korca qark (region), namely Korca and Bilisht municipalities – 75% of cold storage facilities and 88% of installed capacity is concentrated in Korca qark.

Consolidators are usually medium to large farmers who have invested in cold storage facilities. Many cold storage owners both in Korça and Dibër – particularly in Korça – are farmers but have storing capacities larger than apple production from their own farms; and therefore they buy fruits from local producers.

Marketing operations at consolidator level are limited. Development of export alternative – a rather realistic and needed one - calls for substantially improved marketing standards. For instance, the recent trends of exports urged the investors to establish sorting/grading/polishing lines and complement the cold storage with weight measurement equipments and transport equipments. Before, these lines are used only occasionally the reason being that domestic market is not really demanding in terms of marketing standards. Currently there are at least 5 facilities, 3 of which located in Korça, that have complete post-harvest lines (including pre-cooling, cleaning, sorting, grading, packaging, storing and cold storage) and two of them have Controlled Atmosphere Technology.

Collection points do also suffer from improper practices and lack of equipments. In many cases Albanian farmers suffer to accomplish or do not give importance to quality standards. Farmers having long term agreements with collection points tend to follow protocols. While another (major) part scarcely respect the standards required for the storage. During the harvesting there is only a visual/quick sorting or grading of products; packaging is usually very poor (although a packing industry is developing); boxes are often too large; there is no circulation/recycling of packing materials and opportunities for cooling / storage are limited.

Wholesalers

While apple consolidators, farmers who have invested in cold storages, are the leading actor in the apple value chain, large wholesalers, such as Doni Fruit or Koni may also be considered as apple value chain actor; recently, they have shown growing interest in apple export. These large wholesalers have invested in storages capacities, including cold storages, while new large investments are expected in the near future (for more details, see the following subsection on investments).



### *Processors*

There are only two apple (juice) processing companies, located in the main apple production areas, namely Korca and Dibra. They have invested significant amounts of money in apple juice production using up to date technology – one of them has reported to have invested more than 1 Million EUR (for the factory including processing line). Both companies have benefited from government or donor projects grants.

Both businesses face substantial challenges however related to poor management, technology and market challenges. As mentioned earlier, according to the interviews, the yearly average production and sales of apple juice for a single processor is below half a million of liters of apple juice. However, there are strong oscillations in production and sales of apple juice from year to year.

## 4.2. VALUE CHAIN FLOWS AND CHAIN GOVERNANCE

### **Product, financial flows, and information flows**

*Product flow* - Analyses of apple product flow suggest that there are four main channels through which produce flows from farmer to consumer or export. The first channel (grey area in the Figure 4) indicates farmer direct sale. Direct sale on the farms is still small but may be promising if direct sale on farm combined with tourism would be promoted. The second channel (green area) represents the product flow from farmers to consolidators and downstream to wholesale market, wholesalers or retailers; small quantities of produce are exported. This is currently the main channel. The third channel has wholesalers as main actors. Only a small portion of apple goes through channel. Distribution to retail system from wholesalers is limited mostly to supply to supermarkets. For the bulk of produce, there are retailers who buy the produce at wholesale market or wholesalers storages. Small quantities of apple are also exported by wholesalers. The fourth channel represents product flow through still emergent or "latent" processing industry. In fact, there are only two apple processing (apple juice producing) companies in this channel. The rest of processing industry uses small quantities of apple to produce compote and quite important quantities of other fruits (cherries, plums, peaches, etc.).

*Financial flows* - The main type of financial flows concerns the payment to farmers by wholesalers and local consolidators for the produce supplied to them by farmers. While the payment by wholesalers is mainly at the time of transaction, the payment by local consolidators tend to have some delays (refer to Figure 6 for more information). The reasons for such a different behavior is due to at least two reasons, namely financial capacity and trust. Wholesalers have better financial capacity and they are distant to farmers; in contrast, local consolidators tend to have lower financial capacity and are closer to farmers, therefore there is more trust between them and supplying farmers.

*Information flows* - Information flow in the value chain concerns mainly technological information. Apple cold storing requirements make communication between buyers (mainly cold storage operators) and farmers a must. To produce fruits that may be properly stored the farmers has to follow strict guidelines in terms of pruning, plant nutrition, irrigation and time of harvesting. While most of cold storage operators are farmers as well (and therefore they flow these guidelines for their own production), cold storage operators instruct their farmers-suppliers to follow these guidelines.

**Value chain governance**

The apple value chain organization is at an early stage. Though farmers sell more to the same buyer than to different one, the coordination between farmers and other actors downstream is weak. Written contracts are not common. Though the oral contracts are rather common, they do not always imply well-established relationships.

Value chain leadership is rare (some anecdotic cases of people ready to take some chain control are emerging), however local consolidators are obviously the key actor in the value chain likely to assume leadership role. The recent massive investment in cold storage facilities has made apple cold storage operators a real factor which will – most probably – play a structuring role in the apple sector in the years to come.

## 5. PRODUCTION TECHNOLOGY PROCESSES

The main technical challenges in the fruit value chain are summarized below.

Poor quality of inputs (including propagation material) negatively affects the production of apples in many areas. The practice of choosing rootstocks and varieties without controlling consistency between crop requirements and soil and climatic conditions has caused serious problems in many new plantations, especially in the lowlands, where the production base is expanding more quickly.

In addition, improper agronomic practices may increase fruit production costs, while making such fruits less healthy and “less organic” as well as creating problems for exports. On the other hand, know-how in harvesting and post-harvest practices and availability of logistics highly affect performance.

The monthly supply in the domestic market is conditioned by the two main factors: (i) monthly production, (ii) stored production (as well as imports). The influence of each of these factors depends on the seasonal structure of production and the shelf life of products. In the case of apples, total supply is more a function of stocks than of monthly production; domestically produced apples are available on the market from the end of July to the end of February of the next year (apples from storages).

Table 12 provides the calendar of potential market availability where narrow colours describe the production season while open colours the maximum time of storage in cold storages (as based on technology parameters)

Table 12: Market availability

	Jan - Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Month											
	Storage period										
	Production/harvesting season										

Source: Expert assessment

Apples are subject to various treatments / services throughout the year. Chemical treatments against diseases and insects have a very high cost (usually there are applied 16-18 spays against diseases and pests). It is highly recommended that all treatments be according to the production needs determined by monitoring and analysis (integrated management) and assuring safe produce. Another major cost consists of fruit thinning which is a process of fruitlets removal to achieve better quality of apples- the process is done by hands and therefore is of high cost.

Below the monthly dynamics of apple production processes, which are related to expenditures (which is indicative because there may be variation depending on a number of factors), are displayed.

**Table 13:** Calendar of apple production processes according to the months

Processes	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
1. Winter pruning												
2. Support system maintenance												
3.Basic & complement fertilizer												
4. Green pruning												
5. Fruit thinning												
6. Chemical treatments, spraying												
7. Irrigation												
8.Harvest												

Source: Expert assessment, based on desk review and interviews

There is a time lag between the moment that the expenditure occur and the sales – in the past, that was often covered by input suppliers who tended to wait farmers for delayed payments, but field interviews showed now, that after experiencing growing debts from farmers, inputs suppliers are less likely to accept sale based on late payment. Thus, there is a time window for short term loans that could be covered by banks.

## 6. SWOT ANALYSIS STRATEGY AND FINANCING NEEDS

### 6.1. SWOT ANALYSIS STRATEGY

The following SWOT analysis strategy is conducted with the objective of identifying financing opportunity in the apple sector.

Table 14: Apple sector: SWOT analysis strategy

STRENGTHS (+)		WEAKNESSES (-)
A dynamic apple sector with rapid growth		Heterogeneity of orchard plantations without sufficient technical and marketing guidance
Existence of clusters - particularly in Korca region (followed by Diber), where there is a high concentration of production capacities, storage, know-how and traders.		No risk mitigation tools
Important investments in cold storages		Limited investment in controlled atmosphere and marketing lines
A significant layer of commercial rather visionary farmers		Low apple processing capacity
		Incomplete/out dated fruit processing technology
		Part of the plantations, have unsuitable apple varieties (to climate/soil or market conditions)
OPPORTUNITIES (+)	S (+) / O (+) STRATEGY	W (-) / O (+) STRATEGY
Export/domestic demand in case cultivar, volume and standards requirements are met	Planting/replanting of apple orchards at relatively large size with cultivars required by export/domestic market, including organic apple	
	Support cold storage modern technology (controlled atmosphere)	
	Support marketing lines for sorting, grading, washing, packaging and mechanized palletizing	
Small quantities of third quality apples allocated for processing at farm level	Support small apple processing at farm level and other small equipment that will make possible on farm sale	
Large quantities of third quantity of apple allocated for processing		Invest in apple processing capacity: juice, cider, by carefully considering the business model
Favourable government and donor (EU) policy for the sector		

THREATS (-)	S (+) / T (-) STRATEGY	W (-) / T (-) STRATEGY
Exposure to natural disasters (hail)		Hail nets
Fierce competing for existing fruit processing industry		Complete/modernize fruit processing technology
Overinvestment in cold storage facility without due attention to sector competitiveness	Consider investment in cold storage in tandem with standards improvements (marketing lines)	

## 6.2. FINANCING NEEDS

### 6.2.1. Investment trends and financing needs

#### Investment trends

Typical investments undertaken by apple farmers include planting fruit trees, buying agricultural machinery, and developing small scale irrigation. These are also typical planned investment for a near future<sup>11</sup>. Evidence suggests that some farmers are replanting their orchards replacing some apple cultivars (Ida red) with cultivars demanded in the market using very intensive technology – up to 3,000 trees per ha. In rare cases, more innovative farmers have also invested in more advanced modern fertigation technology, consisted of nutrition programmed equipment and underground irrigation system.

During recent years<sup>12</sup>, the number of cold storage units has substantially increased, especially in the region of Korca, where the new production trends and the recurrent farm gate price crises during production peak boosted investments demand in cold storages; the total number of cold rooms has almost tripled.

#### Investment financing needs

Following the SWOT analysis strategy and investment trends, investment financing needs are summarised in the Table 15.

11    FAO (2013). "Agri-food chain organization in Albania – the case of MAPs and fruits".

12    At the end of 2006 there were only 12 working cold and deep-freezing storage facilities with a capacity of 80 m<sup>3</sup> or more, which were mainly located in Tirana and Korca while there were no facilities in the North East of the country, a single one in Shkodra WAM (Wholesale Agriculture Market) and another in Fier.

Table 15: Apple investment financing needs

Type of investment	Apple farmers	Consolidators	Wholesalers	Processors
1. Orchard planting/replacement (replanting)				
2. Organic orchards conversion or new (organic) plantations				
3. Fertigation: wells/irrigation canals, drip irrigation, dosatrones or other programmed dosing equipment				
4. Solar panel systems – energy for water pumping in apple orchards				
5. Agricultural machinery, including tractors and mechanized spraying pumps				
6. Simple processing lines for apple juice, puree and dried apple at farm level				
7. Hail nets				
8. Post-harvest and product conditioning facilities and equipment and other equipment				
9. Cold storages facilities				
10. Support to controlled atmosphere type of technology				
11. Sorting, grading, cleaning, packaging lines and labelling lines – mainly export intended				
12. Fruit processing: fruit drying line				
13. Fruit processing: fruit juice				
14. Fruit processing: cider production				
15. Simple/artisanal fruit processing (women groups)				
16. Fruit processing facilities construction/renovation				
17. Current fruit processing industry technology improvement				

While areas suitable for (additional) apple cultivation may be limited, particularly in Korca, there is a good opportunity to support orchard replanting (replacement) in line with the current trend of replacing less demanded with cultivars with a larger market potential, using very intensive planting technology - higher number of trees per ha and more intensive plant nutrition.

Despite the increase in storage capacities, there is still much room for supporting investment in cold storages - current cold storage capacities cover only less than 50% of apple production that can be stored (best apple quality), for the case of apple alone (the main product that is stored for longer time periods)<sup>13</sup>. Expert assessment support that investment to increase cold storage capacities with current technology should be preferred to controlled atmosphere technology. Re-

13 According to interviews.

cent apple imports at very low prices coinciding with placing in market an Albanian apple coming from storages with controlled atmosphere make this kind of investment rather risky.

While apple export to EU market is rather unlikely, to get e better prices in other export markets (Russia, Egypt, etc.), sorting, grading, cleaning, packaging lines and labelling lines may be supported.

Although important investments have been made in terms of cold storage, postharvest technology is not yet optimized leading to shorter storage and increased losses; though there are no regular records or quantitative analyses on post-harvest losses of fruit in Albania. A complete pre-cooling system is missing in (almost) all companies. Moreover, practices for cleaning/washing and calibration are improper. The operators lack equipment for monitoring the temperature and relative humidity (both in terms of equipment and management). Other likely investment to support in apple sector are summarized the Table 15.

**Box 1:** Public support schemes for Albanian agriculture

There are two major public support schemes for Albanian Agriculture, namely Annual National Support Schemes (ANSS), and EU like Rural Development Programme, IPARD. While the latest aims at enhancing competitiveness and implementing EU (safety, quality and environment) standards and targets the most competitive businesses, ANSS has multiple policy objectives and a broader coverage.

Objectives and measures for ANSS-2018 area summarized below:

- Increase of competitiveness by providing support to investment (new fruit tree plantations, investments in agro processing and marketing), supporting innovation technologies, and certification and insurance
- Vertical and horizontal and business formalization
- Diversification of rural activities.

While the ANSS have traditionally provided support for meeting multiple policy objectives, including increased competitiveness, recently there has been a growing attention towards meeting the standards. National subsidy schemes have traditionally been changing from year to year (often drastically). The budget allocated for ANSS for 2018 is Euro 20 million. For investment support, similar scheme of partial grant policy (at least 50% public support) is valid.

Another major Program is EU like Rural Development Programme, IPARD, which enables support for investment aiming at improving competitiveness and meeting national and EU standards, through co-financing investment by a grant (e.g. 50% however the exact value depends on a number of criteria). It is expected that IPARD calls for applications (which will also highlight the details of the eligibility criteria) will start in the second half of 2018. For this programme a budget has been approved of 71 Mill Eur from EC and 24 Mill Eur grant from Albanian government (75% EU: 25% Albanian government), so there is a 94 Mill Eur grant available for investments at farm and processing level during 2014 – 2020.

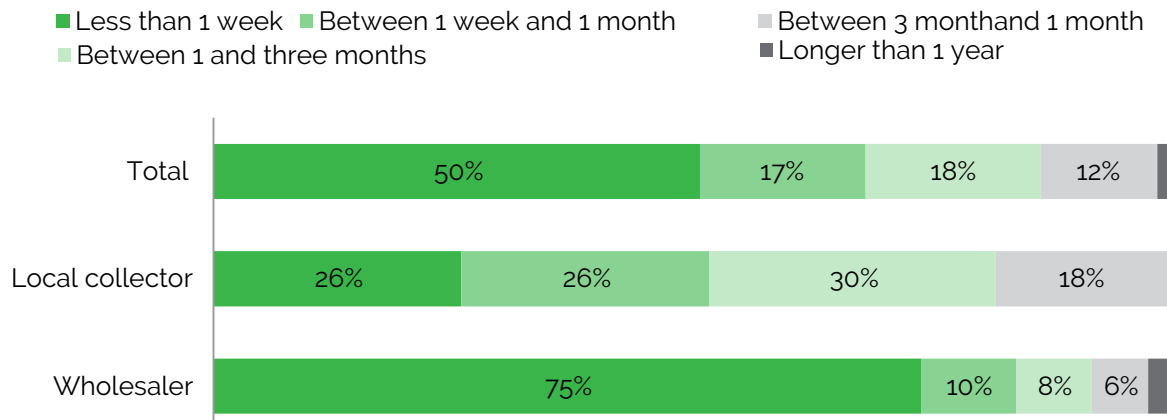


6.2.2. Working capital financing needs

Working capital financing trends

The farmer-buyer transaction is mostly based on short-term payment - in 2/3 of cases (67%) the buyer pays the farmer within one month. In 18% of cases, the buyer pays the farmers between one and 3 months and in 12% of cases, the buyer pays farmers between 3 months and one year (Figure 5).

Figure 5: Farmer payment by the buyer in the apple sector



Source: Author elaboration using value chain coordination data base (2014)

There are quite significant differences however between local consolidators/collectors (cold storage operators) and wholesalers. While the lasted to pay the farmer immediately - in 75% of cases they pay the farmers within a week, cold storage operators tend to have some delay in paying famers - in slightly less than half of cases (48%) they pay the farmers after own month and in 18% of cases after three months. This is due, first to the liquidity problem in the side of cold storage operators and, second on trust relations between farmers d cold storage operators.

Working capital financing needs

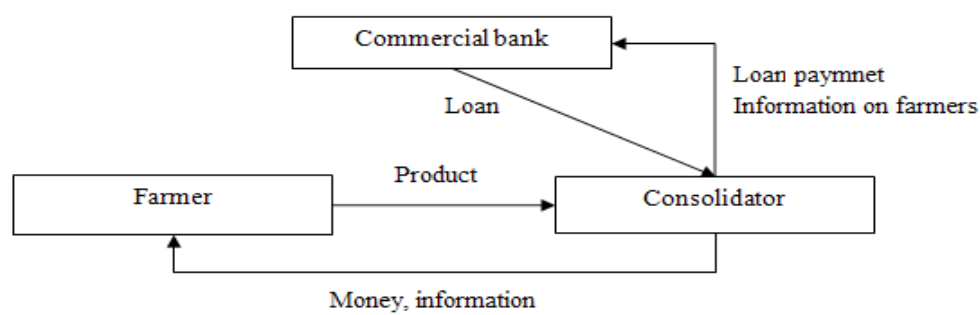
The farmers payment behaviour in relation to wholesalers and consolidators highlight the whole-saler need for short term financing - they tend to pay the farmers immediately since they have a location and trust distance (when compared to collectors/consolidators). This kind of short term financing, benefits wholesaler. On the other hand, the delay in payment from consolidators support the latest need for short term financing as well; in this case the financing would benefit the farmers.

As mentioned earlier, there is a time lag between the moment that the expenditure occur and the sales –inputs suppliers nowadays are less likely to conduct sales based on late payment. Thus, there is a time window for short term loans that could be covered by banks.

6.2.3. Value chain financing

The (product, financial and informational) flows between local consolidators and farmer contains potential for value chain financing. The Figure 6 below synthesizes the way the value chain financing may be designed.

Figure 6: Value chain financing an apple sector



Source: Designed by the authors

There are quite established relationships between farmers and local consolidators in the apple sector. Many local consolidators are local farmers who have invested in cold storage facilities. Farmers sell the product to local consolidator who tends to make late payment to the farmers. In order to make timely payment to the farmers, the consolidator may avail a short-term loan at a commercial bank and transfer the money to farmers' bank account - the money transfer to farmers' bank accounts is a recent phenomenon in Albania. Once the consolidator sells the produce, he pays back the loan. It is important however to emphasise that the consolidator may provide the bank with relevant information on farmers, including when the money has been transferred to their bank account.

## 7. CONCLUSIONS

Fruits represent an important agrifood sector in Albania – most farmers are somehow engaged in fruit production. Apple is one of the main fruits produced and consumed in Albania. Apple production has increased sharply in recent years from ca 12,000 MT in 2000 to 54,000 MT in 2010 and exceeding 100,000 MT in 2016 – this increase is driven by both increased cultivation area and increased yields, reflecting improved technologies and know-how.

Domestic market and the supply conditions (soil and climate, human capital and tradition) have been the main drivers of apple sector development. Domestic demand will continue to support apple sector development subject to improved cultivar mix to meet consumer preferences – thus there is a potential to target high quality – higher price consumer segments, but the potential for increasing overall local consumption is bleak. The export of apple has increased significantly; however, it remains lower than 2 million USD. The export of apple is expected to increase in the coming year, considering that the domestic production is expected to increase significantly. Import of apple has decreased by almost 4 times since 2005 – this achievement is dedicated to the significant increase in domestic production and improvement in storage capacities.

The study informs financial institutions and other actors interested in the support of the sector on the main investment opportunities. The current study finds that new apple orchard cultivation, increasing cold storage capacities and investing in packing houses represent - among others - important opportunity for investment and financing.

New cultivations of apple orchards, including replacement of less market preferred varieties with more market demanded varieties, using very intensive technology - following the recent trends - represent an interesting investment opportunity.

Cold storage capacities are improving but still available at a limited scale. The absence of cold storage facilities and the consequent high losses of products has been for years the first cause of a high trade deficit in apples. Despite the increase in cold storage capacities, there is still need to increase such capacities – according to interviewed experts, there is a potential to increase storage capacities with additional 15,000 MT. There are different views regarding most viable cold storage type/technology (e.g. simple vs. controlled atmosphere).

Packaging houses are needed to improve standards, also considering that, in the future, the increase of production will increase pressure for exports (considering that the domestic market is already saturated), and the export markets are very competitive and demanding in terms of standards.

The strengthening of consolidators, a category of traders involved both in input trading (sold to farmers) and in wholesale trading of products (purchased from farmers), is slowly contributing to improve the situation. At present, consolidators are the most active value chain actors and the most likely potential clients for crediting/financial products, including value chain finance.

Apple sector is considered a priority sector for Albanian government - the sector has been included in all public financial support schemes, including recent support schemes. The current partial grant policy has important implications for financial institutions - they have the opportunity to finance up to 100% of the investment value out of which 50% short can term loan (the part to be reimbursed after implementing the investment) and 50% loan term loan for the part to be paid by the beneficiary.

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## 9. ANNEX

Table A.1: Regionalization map (2018)

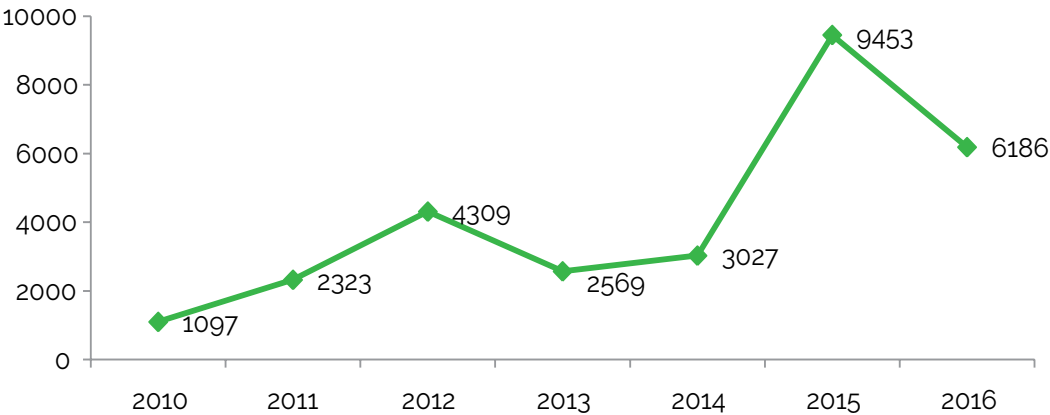
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Table A.2: World Yield Trends of Apple (MT/Ha)

Country	2000	2005	2010	2014	2015	2016
Albania	5	5	14	21	23	24
Montenegro	:	:	21	20	20	32
Serbia	:	:	10	14	15	14
Macedonia	9	9	9	10	10	10
EU	19	19	20	24	24	24
World	11	13	15	17	17	17
Europe	11	11	14	18	17	17
Eastern Europe	5	7	8	12	12	13
Southern Europe	20	21	22	26	24	24
Western Europe	35	40	40	41	41	38

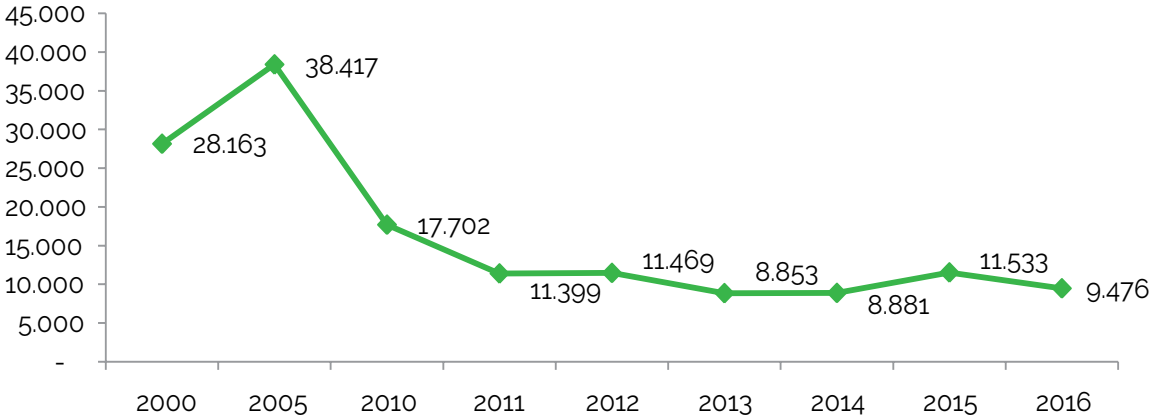
Source: FAOSTAT (2018)

Figure A.1: Dynamics of the Albanian exports of apple



Source: UNSTAT (2017)

Figure A.2: Dynamics of the Albanian import of apples



Source: UNSTAT (2017)

Table A.3: Structure of monthly exports of apple (2017)

Country	Jan.	Feb.	Mar.	Aug.	Sep.	Oct.	Nov.	Dec.
Serbia	4%	5%			39%	39%	32%	51%
Kosovo	33%	17%	4%	29%	12%	28%	40%	38%
Bulgaria	43%	74%	72%		8%	2%		
Total (MT)	509	431	302	46	1,947	3,689	902	683

Source: EUROSTAT (2018)

Table A.4: Structure of monthly exports of apple (2017)

Country	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Italy	60%	59%	51%	55%	57%	70%	53%	78%	73%	47%	30%	49%
Greece	39%	39%	48%	45%	43%	30%	23%	13%	27%	25%	70%	51%
Total (MT)	577	1,193	2,413	4,183	2,405	751	163	66	34	27	134	481

Source: EUROSTAT (2018)

Table A.5: Apparent consumption of apples in Albania and other countries and world regions (Kg/capita)

Country	2000	2005	2010	2011	2012	2013
Albania	12.2	15.0	21.6	22.1	23.6	24.6
Montenegro	:	:	53.2	43.4	22.2	20.9
Serbia	:	:	5.3	4.8	13.2	23.4
Macedonia	10.7	15.1	5.2	13.9	11.9	7.3
World	7.8	8.6	9.1	9.4	9.9	10.1
EU	26.3	22.2	18.0	17.6	17.5	18.4
Europe	20.1	20.4	18.1	18.0	18.5	19.2
Eastern Europe	15.1	17.7	18.0	18.0	19.8	19.0
Southern Europe	19.2	18.1	14.2	13.2	13.0	15.8
Western Europe	27.9	22.3	17.9	18.7	17.5	19.8

Source: FAOSTAT (2018)

**Table A.6:** Distribution of apple farms by size and qark

	Between 3 and 5 dn	Between 6 and 10 dn	Between 11 and 20 dn	Between 21 and 50 dn	Total	% to qark
Berat	12	3	1	0	16	2.8
Diber	105	47	8	3	163	28.5
Durres	10	14	2	0	26	4.6
Elbasan	4	3	0	0	7	1.2
Fier	0	0	2	1	3	0.5
Gjirokaster	1	0	0	0	1	0.2
Korce	21	141	106	19	287	50.3
Kukes	11	8	2	0	21	3.7
Lezhe	6	5	2	0	13	2.3
Shkoder	3	2	0	0	5	0.9
Tirane	11	11	1	0	23	4.0
Vlore	1	1	3	1	6	1.1
Total	185	235	127	24	571	100.0
% to size	32.4	41.2	22.2	4.2	100	

Source: Ministry of Agriculture and Rural Development







Tiranë, 2019