



**Carrying out selected sectoral analysis as a solid ground for the preparation of IPARD III programme and of Strategy for Agriculture, Rural Development and Fishery 2021-2027**

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## **Fruit and Vegetable Sector Study Report Final**



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## LIST OF ABBREVIATIONS AND ACRONYMS

ALL	Albanian Lek
ARDA	Albanian Rural Development Agency
ATTC	Agricultural Technology Transfer Centre
AUT	Agricultural University of Tirana
BRC	British Retail Consortium
CAP	Common Agricultural Policy
CEFTA	Central European Free Trade Agreement
DCM	Decision of Council of Ministers
DSA	Development Solutions Associates
EC	European Commission
EU	European Union
FADN	Farm Accountability Data Network
FAO	Food and Agriculture Organization
GAP	Good Agricultural Practice
GFSI	Global Food Safety Initiative
GI	Geographical Indication
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis and Critical Control Points
IFS	International Featured Standard
INSTAT	Albanian Institute of Statistics
IPARD	Instrument of Pre-Accession in Rural Development
ISARD	Inter Sectoral Agricultural and Rural Development Strategy
MARD	Ministry of Agriculture and Rural Development
NFA	National Food Authority
NPEI	National Plan for European Integration
VAT	Value Added Tax
VC	Value Chain

## 1. INTRODUCTION

### 1.1. BACKGROUND

Albania is preparing the Instrument of Pre-Accession in Rural Development (IPARD III) Programme for the period 2021-2027. This study provides the analytical background for the design of the Measure 1 (Investment in physical assets of agriculture holdings) and Measure 2 (Investments in physical assets of processing and marketing of agricultural products) as well as can serve as a background for other Measures.

The objective of the sector analysis is to give a quantitative and qualitative description of the sector trends with special focus on the needs for investments and technical assistance. A SWOT analysis is prepared to identify the potential and weak points as a base to provide guidance for the support (namely investments). In addition to the recommendations in the frame of IPARD III program the study also aims to provide other recommendations for the development of the sector. Some of the recommended actions cannot be implemented within the framework of IPARD III but are nonetheless considered as important steps for balanced development in the fruit and vegetable sector.

### 1.2 METHODOLOGY

#### 1.2.1 Primary data collection

The primary data collection consisted of semi structured in-depth interviews carried out with key informants, representing value chain actors and sector experts.

More specifically, there are two categories of primary data:

- a) Semi-structured in-depth interviews.

Interviews with sector experts and operators. The interviewed farmers were all commercial or semi-commercial operators. Whereas processors were of different typology (as shown in the relevant section).

For semi-structured in-depth interviews, there were prepared interview guidelines, which were tested and fine-tuned before implementation.

- b) Structured survey with extension technicians. In this questionnaire, the first section collects information about the respondent's profile. The second section has detailed questions related to farm structure, trends of the number of farms by size, also past trends and expected trends of investments, which is crucial information related to IPARD III program. Another similar section is designed for agri-processing, differentiating by size. In addition, there are two detailed sections on training/advice needs and investments needs. Other questions which address the needs for IPARD III program and for the strategy were added, also in close consultation with the team of the strategy project. Furthermore, some data from a previous extension survey carried out in 2020, in the context of the support scheme for fuel in agriculture, were utilized. Differences in respondents' views may reflect differences in regional patterns, since MARD extension experts are located in different areas and responded in regards to their specific area of coverage.

Semi-structured 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, more in qualitative terms. On the other hand, the findings from the structured survey with extension technicians enabled us to understand sector trends, and to incorporate quantitative assessment.



### 1.2.2 Secondary data collection

The secondary data was retrieved from the Ministry of Agriculture and Rural Development (MARD), Albanian Institute of Statistics (INSTAT), UNSTAT COMTRADE (for international trade), FAOSTAT (for production and consumption)<sup>1</sup> and EUROSTAT (e.g., international trade). 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 analysed.

### 1.2.3 Data analysis

Regarding data/information analysis, secondary statistical data has been subject of standard descriptive analysis including tables and graphs depicting statistic and historical trends. Comparison of production and consumption trends with world, European and some cases with neighbouring countries was done, when applicable/necessary.

Regarding Value Chain (VC) expert/actors' interviews, notes are analysed 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 flows.

### 1.2.4 Limitations of the available data

There are various gaps in the availability and quality of secondary data. The main gaps lie in structural statistics (farm level statistics by structure, processing capacities etc.) and lack of market information.

More specifically, several constraints were found:

- Lack of proper Market Information System in place. Since 2012, the Market Information System was closed within the MARD. Thus, Albania no longer has a Market Information System related to the agriculture sector. So, it was not possible to carry out in-depth price analysis.
- Farm data are missing. In Albania, it is not implemented yet Farm Data Accountancy Network (FADN), no substantial steps have been taken to introduce this system, which is both a requirement by the European Commission (EC) before accession to the European Union (EU) and an important tool for analyzing policy impacts and farm typology. Whereas the annual farm surveys carried out by MARD jointly with INSTAT are not made available.
- Questionable quality of some secondary data, such as unrealistically high reported yields. Inflated production figures result also in inflated consumption figures. More specifically, the high consumption per capita, when calculated based on apparent consumption (production – exports + imports) can result in inflated figures, in case when production (e.g., yields) figure are higher than reality.

Additional needs for information were addressed through field interviews, however, COVID19 deeply impaired field operations – it was often difficult to interview operators especially in case of COVID19 contraction and those who showed special caution. Some of the interviews were done on telephone, although most were done face to face.

### 1.2.5 Information retrieved from the Context Analysis

The sector study is supported by a comprehensive analysis of the external context, which provides background information to the sector analysis, specifically related to: inputs and packaging; services to the value chains; information systems, data, research; collective action and contract farming; food safety and quality infrastructure and mechanisms; EU and national policies and strategies; education and human capital development; Geographical Indications (GI), collective marks, brands, consumer behavior; description of the trends in the

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<sup>1</sup> In the UN related databases (eg. FAOSTAT, UNSTAT COMTRADE), data on Kosovo are not available, therefore, when data from these sources are used, no figures on Kosovo are reported. Since Kosovo is an important trade partner for Albania, in this study report we make more use of EUROSTAT regarding international trade, since it reports data also on Kosovo.

international and domestic markets; access to finance and insurance; licensing system, legal agribusiness definition, public food procurement, fiscal issues; short analysis of the consumers, domestic and international: behaviour, perceptions and preferences regarding product origin and quality.

### 1.2.6 Assumptions for the sector study

The production of fruit trees has been increasing steadily in the recent years – this increase is highlighted by both increased cultivation area and increased yields, reflecting improved technologies and expertise. Also, the cultivated surface and production of vegetables in Albania has been increasing drastically since 2010. There has been an improved performance of the vegetable sector, especially in the case of greenhouse vegetables – the increase of greenhouse area coupled with improved production technologies has resulted in significant increase of production. The domestic production of key fruits and vegetable results to be competitive – imports have declined substantially, and surpluses have been achieved (most notably for greenhouse vegetable). While the role of collection points for the trade, and especially export of fruits and vegetable has increased during the last decade, the fruit and vegetable processing industry remains relatively weak, facing strong competition from imports.

Investment in greenhouse construction represents a main investment at farm level. There is growing interest to invest in orchard replanting (replacement) in line with the current trend of replacing less demanded cultivars with ones with a larger market potential, using very intensive planting technology - higher number of trees per ha and more intensive plant nutrition. Investments in marketing and quality infrastructure, including packaging houses are needed. Cold storages too are needed to preserve the quality in case of exporting to high income EU countries. Investment in storage capacity and mechanisation within collection points are also needed. Despite the increase in storage capacities, there is still much room for supporting investment in cold storages.

Past support has been crucial to achieve growth, however, various needs for investments and technical assistance have not been tackled by previous interventions - some of them can be tackled by IPARD III.

## 2. FARMERS/GROWERS/BREEDERS

### 2.1 GROWERS/FARMERS

#### 2.1.1 Fruits

According to previous studies, most farms have fruit trees, of different types – in most cases, mainly for self-consumption. Thus, only a small share specialises in fruit cultivation and has relatively large orchards with strong market orientation. From the estimates based on the survey with extension surveys, there are about 2,640 farmers that have more than 1.00 Ha of orchards. Even within the fruit production activity, farms tend to be mixed – a typical farmer has different types of fruits. For example, plums in addition to apple, or lemon in addition to mandarins. Below, in the following subsections, is provided more insight on farm profiles by type of fruits (for the main fruits).

#### A. APPLE FARMERS

Most apple farms are small. About 500 farms are reported to have more than 1.00 Ha of apple orchard, marking an improvement in structure when compared to previous assessment with 2017 data (reported by Skreli and Imami, 2019<sup>2</sup>). Below we provide the number of farms above 0.20 Ha (if above 0.20 Ha it can be presumed that there is a market orientation, although note necessarily economically viable).

**Table 2.1: Apple and other pome fruits farms, for 2020**

Area	Number of farmers	Other pome fruits
0.20 - 0.50 Ha	7,601	3,137
0.60 - 1.00 Ha	1,766	231
1.10 - 2.00 Ha	420	31
2.10 - 5.00 Ha	52	1
Above 5.00 Ha	23	1

Source: *MARD extension survey*

<sup>2</sup> Skreli, E., Imami, D. (2019). Apple sector study. Technical report prepared for EBRD AASF.

Farmers having less than 0.50 ha are estimated to have lower yields when compared to both the potential yields and larger farmers. Such small farms tend not to be competitive and can hardly justify investments in postharvest and marketing – usually they are not efficient and have limited capacity to make investments in new technologies.

Larger farms (e.g., above 1.00 Ha orchards) 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. The typical 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, whilst some of the largest farmers have also invested in cold storages, to cover their needs, but eventually evolving also as collection points for fellow farmers (for more details on collection points, see Section 5).

## B. CITRUS FARMERS

The most important crop within citrus family is mandarin, both in terms of production and exports (for more details regarding production trends see the following subsection). Therefore, here we focus on the mandarin farm profiles.

Mandarin producing farmers with market orientation are represented by two groups of farmers: semi-commercial and commercial farmers. Semi-commercial farmers are small growers with orchards typically less than 0.50 ha, who have made limited investments in production technology. Commercial farmers consist of a cluster of farmers having plantations larger than 0.50 or 1.00 ha and many of them are concentrated in Xarre, Konispol municipality (Southern Albania) - these farmers typically use modern production technologies. The Xarre producing cluster is described in more details later in this section.

**Table 2.2: Mandarin farms (2020)**

Area	Number of farmers
0.20 - 0.50 Ha	1,467
0.60 - 1.00 Ha	319
1.10 - 2.00 Ha	121
2.10 - 5.00 Ha	40
Above 5.00 Ha	4

Source: *MARD extension survey*

## C. Other fruit farmers

Other important fruit activities include plums, cherries and other types of stone fruits and pome fruits. For each of these types of fruits (categories) the number of farmers above 1.00 Ha is in the range of 100 – 200 farms. It is common that farmers that produce other stone fruits, especially for plums and cherries are engaged also in production of the main fruits, such as apple. Indeed, there is a strong tradition and concentration of cherries and plums production in the regions of Korce and Diber, where also apple production is concentrated. Thus, the farm characteristics are like the apple farmers, described above.

**Table 2.3: Number of farms by type and size (2020)**

Area	Cherries	Plums	Other stone fruits
0.20 - 0.50 Ha	4,434	4,432	2,904
0.60 – 1.00 Ha	801	496	701
1.10 – 2.00 Ha	127	133	174
2.10 – 5.00 Ha	45	53	26
Above 5.00 Ha	0	3	1

Source: *MARD extension survey*

## 2.1.2 Vegetables

### A. Field vegetable farmers

Similar to fruits, most farmers are engaged in production of field vegetable. According to previous analyses, about two thirds of the farmers produce vegetables – most of them also for self-consumption. Below we show the population of farms of 0.60 Ha and more of field vegetable (thus, with certain market orientation).

**Table 2.4: Structure of field vegetable by size in 2020**

Field vegetables	Field vegetables (first crop)	Field vegetables (Culture crop)
<b>0.60 – 1.00 Ha</b>	4,822	1,817
<b>1.10 – 2.00 Ha</b>	2,035	839
<b>2.10 – 5.00 Ha</b>	291	118
<b>Above 5.00 Ha</b>	71	21

Source: *MARD extension survey*

There are about 50 thousand farmers who produce potatoes and white beans, many for self-consumption. Below are provided figures for those 0.60 Ha or more, thus with clear market orientation. For more information about geographical distribution and production clusters, see the following subsection. Other important field vegetable are onions, cabbages, carrots etc.

**Table 2.5: Farm structure by type of vegetable and by size in 2020**

Field crops	Potatoes	White beans, soybeans
<b>0.60-1.00 Ha</b>	3,389	4,291
<b>1.10-2.00 Ha</b>	735	583
<b>2.10-5.00 Ha</b>	194	160
<b>6.00-10.00 Ha</b>	101	80
<b>Above 10.00 Ha</b>	41	20

Source: *MARD extension survey*

### B. GREENHOUSE VEGETABLE FARMERS

Greenhouse vegetable represents a success story. For this category there has been achieved self-sufficiency and even surpluses years ago, and it is the main category of exported horticulture or food products (for more details see also Section 5). Greenhouse farmers use both heated and unheated greenhouses types – the unheated greenhouses dominate (heated greenhouse vegetable production is not profitable in Albania considering fiscal aspects<sup>3</sup>) also benefiting from climatic changes.

The number of greenhouse farmers in Albania has increased substantially during the last two decades exceeding 8 thousand. While there are many farms (more than 5 thousand) that have up to 0.20 Ha greenhouse, 2,744 farms have 0.20 – 0.50 Ha (who can be considered with market potential and viable, according to previous studies estimates), while there are 710 farmers that have more than 0.50 Ha (who can be considered commercial larger greenhouse farms).

**Table 2.6: Greenhouse tomato and cucumber commercial farms in 2020**

Size	Approximate no. of farms
<b>Greenhouses (up to 0.20 ha)</b>	5,255
<b>Greenhouses (0.20 – 0.50 ha)</b>	2,744
<b>Greenhouses (more than 0.50 ha)</b>	710

Source: *MARD extension survey*

In terms of regional concentration, Berat and Fier are by far the most specialized regions for greenhouse production (details related to regionalization are analysed in the following subsection).

<sup>3</sup> Since in Albania there are no fiscal incentives in terms of subsidies or reduced taxes for fuel for greenhouse heating. This makes running of heated greenhouse very costly and not competitive when compared to other countries in the region, which have much lower fuel costs for agriculture related use including heating.

## C. WATERMELON AND MELON FARMERS

There are two major categories of watermelon producers, namely small commercial farmers and larger, commercial farmers. Commercial growers usually have larger than average areas under production; farmers cultivating above 0.50 Ha of watermelon/melon can be considered as market oriented or commercial ones – there are more than 2,000. About 900 watermelon farms are above 1.00 Ha, of which about 500 above 2.00 Ha (Table 2.7). Larger farms show a strong market orientation. In some areas, such as Divjaka, watermelon / melon production is dominated by protected crop (greenhouse/tunnel) technology, which has implications in terms of timing of harvesting and yields.

**Table 2.7: Watermelon and melon farms, for 2020**

Size	Approximate number of farms	
	Watermelon	Melon
0.20 - 0.50 Ha	4,744	2,643
0.60 – 1.00 Ha	1,168	359
1.10 – 2.00 Ha	409	84
2.10 – 5.00 Ha	111	15
Above 5.00 Ha	392	126

Source: *MARD extension survey*

Recently, there has been an increase in investments in cultivated berries, namely strawberries. There are about 200 farmers that produce strawberries, mainly as a protected crop. While most are small, there are also cases of larger investments/greenhouses, which have export orientation. Many of them are located in the Kafaraj cluster (for more details see the case of Kafaraj cluster later in this section).

**Table 2.8: Strawberry farms, for 2020**

Tunnels	Strawberry
0.2 - 0.5 Ha	156
0.6-1 Ha	42
1.1 - 2 Ha	7
2.1-5 Ha	1
6-10 Ha	2

Source: *MARD extension survey*

## 2.2 PRODUCTS AND PRODUCTION

### 2.2.1 Fruit trees

The production of fruits has been increasing during the last decade – this increase is highlighted by both increased cultivation area and number of newly planted trees and increased yields, reflecting improved technologies and expertise.

**Table 2.9: Production trends of fruit trees in Albania**

Fruit trees	2010	2014	2015	2016	2017	2018	2019
Total (000 trees)	10,190	12,254	12,405	12,594	13,130	13,393	13,822
In production (000 trees)	7,439	9,654	10,185	10,575	10,961	11,120	11,579
Yield (kg/tree)	22.6	22.8	23.6	24.7	24.0	24.7	23.5
Production (000 tonnes)	167.8	220.0	245.0	261.0	262.6	274.3	272.6

Source: *INSTAT (2020)*

### Regional distribution of fruits

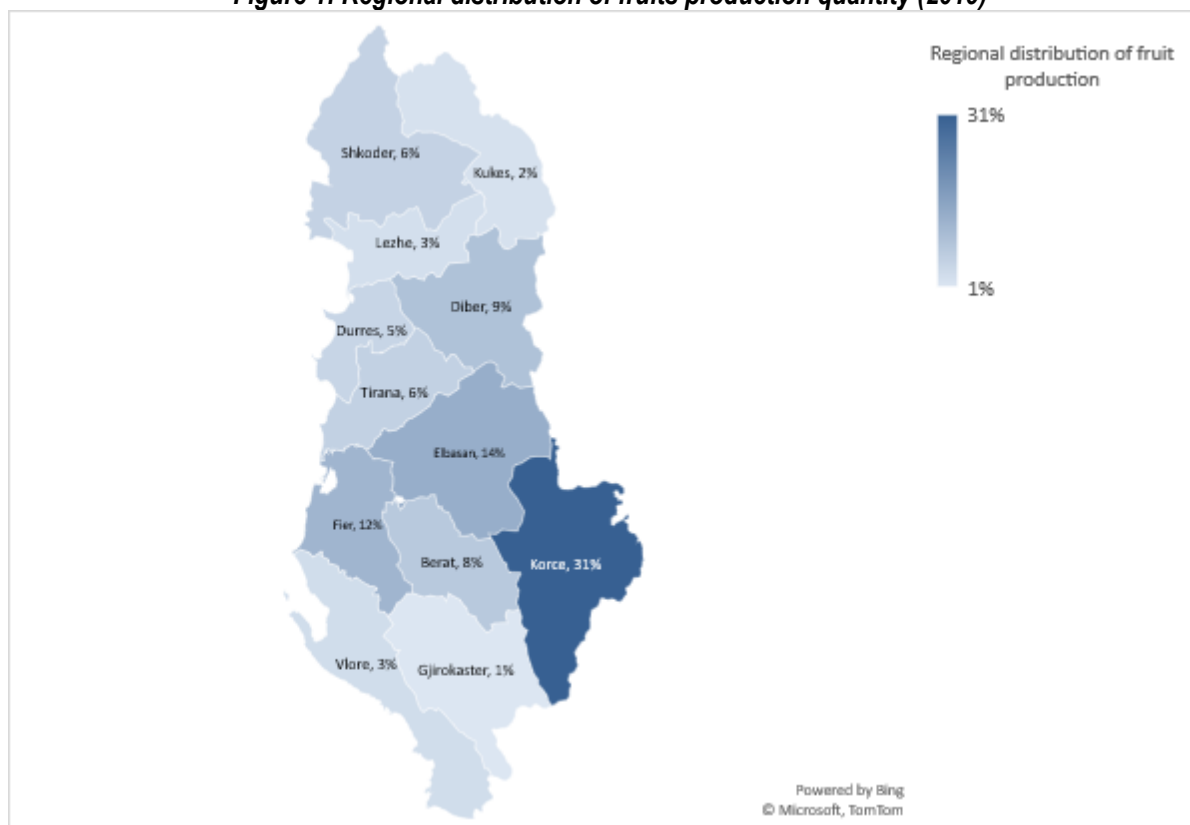
There are almost 14 million fruits trees. The leading region is Korca, with 3.2 Million trees (or almost ¼ of the number of trees for the whole country). Korca is followed by the regions of Fier, Diber (where, similar to Korca, there is a strong concentration of apple orchards) and Elbasan which all together make up more than half of the number of trees of Albania.

**Table 2.10: Distribution of the fruit trees by region (2019)**

Municipality	000 trees	Share	Cumulative
Korçë	3,228	23%	23%
Fier	1,579	11%	34%
Dibër	1,521	11%	45%
Elbasan	1,401	10%	55%
Berat	1,132	8%	63%
Tirane	927	7%	70%
Shkodër	888	6%	76%
Kukës	869	6%	82%
Durrës	810	6%	88%
Vlorë	680	5%	93%
Lezhë	460	3%	98%
Gjirokastrë	326	2%	100%
<b>Total</b>	<b>13,821</b>	<b>100%</b>	

Source: INSTAT (2020)

Fruit production is concentrated in the region of Korça with about 31% of the total production of fruits, followed by the regions of Elbasan, Fier, Dibër and Berat- all these regions together account for more than two thirds of total apple production in Albania.

**Figure 1: Regional distribution of fruits production quantity (2019)**

Source: INSTAT (2020)

**A. APPLE**

Apple production has increased sharply during the last decade, almost doubling. This increase is caused by both increased cultivation area and increased yields, reflecting improved technologies and expertise (Table 2.11).

**Table 2.11: Production trends of apple in Albania**

Apple	2010	2014	2015	2016	2017	2018	2019
MT	54,604	82,060	91,736	101,532	96,338	108,375	105,933
Ha	3,863	3,863	4,008	4,230	4,346	4,294	4,407
MT/Ha	14	21	23	24	22	25	24

Source: FAOSTAT (2020)

The production of apple in Albania is relatively small compared to other countries of the region (like Serbia) and relatively bigger than others like for example Montenegro or North Macedonia, a country with long tradition in apple cultivation. Interestingly, during early transition, when the production of apple in Albania was very low, apple from North Macedonia had a strong presence, while imports cover a small share of the local market (for more details regarding markets and international trade, see also Chapter 5). Overall, the growth trend is much higher compared to other countries in the region and compared to EU too, which has witnessed saturation in the recent past.

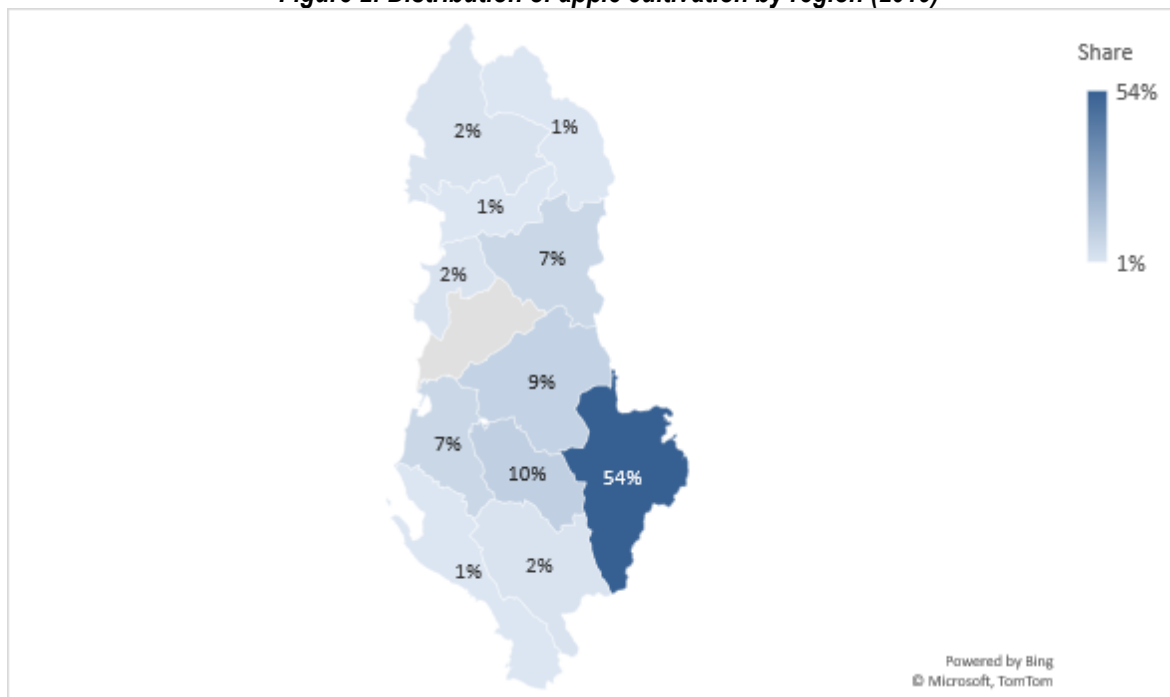
**Table 2.12: World production trends of apple (000 MT)**

Country	2010	2014	2015	2016	2017	2018	2019
Albania	55	82	92	102	96	108	106
Montenegro	2	3	3	2	1	2	1
Serbia	240	336	432	400	379	460	500
North Macedonia	121	96	137	101	43	140	89
EU	10,548	13,098	12,799	12,633	10,085	13,850	12,045
World	71,192	85,485	82,556	84,744	83,000	86,142	87,236
Europe	13,867	17,491	17,209	17,264	14,266	19,594	17,095
Eastern Europe	5,727	8,312	7,871	8,480	6,820	10,251	8,302
Southern Europe	4,034	4,378	4,631	4,376	3,799	4,534	4,492

Source: FAOSTAT (2020)

Production from Korça region represents more than half of the total apple production in Albania – the region has almost 1.5 million apple trees. The dominant fruit tree in this region is 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 too.

Within the region of Korca, the district (old local governance organization classification) of Korça has about 1 million apple trees, followed by Devoll; Pogradec and Kolonja 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.

**Figure 2: Distribution of apple cultivation by region (2019)**

Source: INSTAT (2020)

The main varieties produced are Golden Delicious, Granny Smith, Starking Delicious, Red Chief. Over the last years, there has been a growing interest in other (non-traditional) varieties such as Fuji, for which there is a demand in the local and export markets.

In Korça, market and post-harvest infrastructure has improved: there is a wholesale market and a growing number of cold storage facilities (for more details see Section 5).

#### **Box 1: Apple production trends and challenges in the production clusters**

Apple production is concentrated in two production clusters regions: Korca and Diber. In these regions there has been a tradition in production of apple (and other fruits), suitable climatic and soil conditions, as well as consumer preferences for apple coming from these regions. During the period 2007-2013 there was a boom in new plantation in fruits, particularly apple, in Korca and Diber. Subsidies support was one of the main drivers of the boom.

More than half of the apple production is concentrated in the region of Korca, thus the development of the sector in this region has been the main driver behind the sector development for Albania. There are about 10 thousand apple farmers with market orientation (over 0.2 Ha of apple orchards). However, most of them are small. About 500 farms are reported to have more than 1.00 Ha of apple orchard (Most of them located in the region of Korca) marking an improvement in structure when compared to previous assessments. In Korca there operate several leading seedling producers, many input suppliers and collection points, as well as a wholesale market. Strong ties with Greece have been important in terms of access to inputs, advisory services (embedded in inputs sales), technology and marketing for apple.

In Diber, in recent years there has been a reduction in orchard activity for several reasons, including problems with the sales market, problems arising from the decline in support, the departure of young people, etc. It is estimated that more than 10 percent of the orchards have been abandoned. In Diber, there are limited refrigeration storage capacities. Bad infrastructure (affecting access to the main markets such as Tirana) is contributing to this situation, which may improve when the new road connecting Diber to Tirana will be functional.

Source: Interviews and ISETN (2020)<sup>4</sup>

<sup>4</sup> ISETN (2020). Vlerësimi i peizazhit dhe burimeve natyrore dhe zhvillimi i kurrikulave për adresimin e nevojave të fermerëve për rritje kapacitetesh. Raport Teknik përgatitur për (Technical report prepared for) World Vision.



## B. CITRUS PRIMARY PRODUCTION

Albania has a strong tradition in the production of citrus products (namely oranges, lemon and mandarin). Increased cultivation and yields have caused also an increase in total quantities of citrus produced, reaching 47 thousand tonnes in 2019, which compared to 2010 is 3.5 times higher.

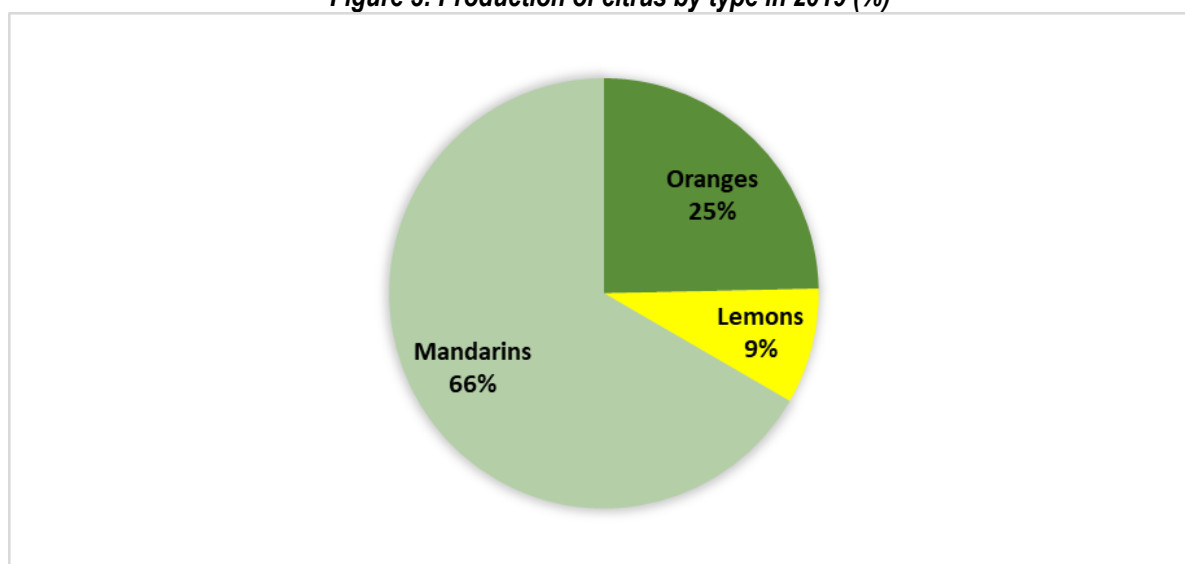
**Table 2.13. Evolution of citrus production in Albania**

Citrus trees	2010	2014	2015	2016	2017	2018	2019
<b>Total (000 trees)</b>	763	1,200	1,282	1,354	1,394	1,454	1,521
<b>In production (000 trees)</b>	530	859	951	1,044	1,109	1,154	1,265
<b>Yield (kg/tree)</b>	25.2	24.4	31.5	38.0	37.0	39.4	37.1
<b>Production (000 tons)</b>	13.4	21	30	40	41	45	47

Source: INSTAT (2020)

Mandarin is the fastest growing and the dominant type of citrus, making up about 2/3 of citrus production in Albania.

**Figure 3: Production of citrus by type in 2019 (%)**



Source: INSTAT (2020)

### Orange

Cultivated surface with oranges has had a fluctuating trend. However, orange production has increased over the last years, from less than 7,000 MT in 2010 to almost a dozen of MT in 2019. This increase indicates that productivity has increased strongly (Table 2.14).

**Table 2.14: Production trends of Orange in Albania**

Orange	2010	2014	2015	2016	2017	2018	2019
<b>MT</b>	6,631	4,120	8,347	10,063	9,130	10,779	11,556
<b>Ha</b>	370	222	223	209	220	227	233
<b>MT/Ha</b>	18	19	37	48	42	47	50

Source: FAOSTAT (2020)

## Lemons

Both production and cultivated surface of lemons has been significantly increasing in the last years since 2005. For instance, production in 2010 was 1,637 MTs and cultivation 194.00 hectares while in 2019 production and cultivation reached respectively over 4 thousand MT and 640 hectares.

**Table 2.15: Production trends of Lemon in Albania**

Lemon	2010	2014	2015	2016	2017	2018	2019
MT	1,637	2,933	2,613	3,607	3,216	3,768	4,075
Ha	194	350	430	530	610	580	640
MT/Ha	8	8	6	7	5	6	6

Source: FAOSTAT (2020)

## Mandarin

Mandarin production has increased sharply in recent years from less than 300.00 Ha or less than 6,000 MT in 2010 to almost 31,000 MT and 922 hectares in 2019 according to the statistics. This increase in production is a result of a combined steady growth in both cultivated surface as well as in yields. In some years, including 2019, there were observed decreased yields, due to climate conditions (such as dry weather). While other citrus has a local market orientation, mandarin have a more export orientation.

**Table 2.16: Production trends of Mandarin in Albania**

Mandarin	2010	2014	2015	2016	2017	2018	2019
MT	5,037	13,904	17,014	26,104	28,674	30,933	31,235
Ha	271	491	628	723	766	811	992
MT/Ha	19	28	27	36	37	38	31

Source: FAOSTAT (2020)

Despite the strong increasing trends of production in Albania, production of mandarin is still negligible when compared to EU. But within the Western Balkans, Albania is by far a leading producer. Since production in other Western Balkans is low or inexistent (due to climate conditions), Albanian mandarins have a strong presence in the regional market (for more details on exports and markets, see Section 5).

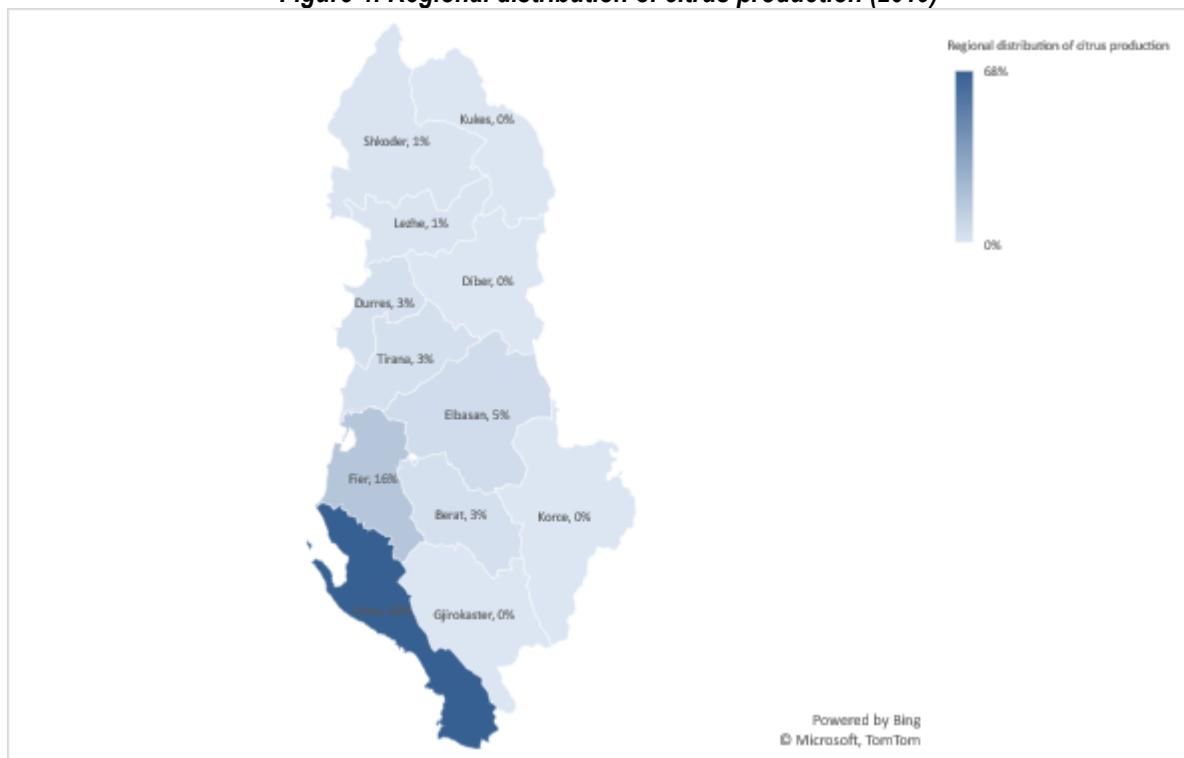
**Table 2.17: World production Trends of mandarin (000 MT)**

Country	2005	2010	2014	2015	2016	2017	2018	2019
Albania	1	5	14	17	26	29	31	31
Montenegro	:	2	3	4	4	3	3	3
EU	2,825	3,278	3,333	4,870	3,412	3,026	3,028	2,893
World	24,002	23,955	30,552	33,150	32,305	32,680	34,393	35,444

Source: FAOSTAT (2020)

## Regional distribution of citrus

Production of citrus is highly concentrated in the region of Vlora (68%), consisting mainly of mandarin cultivation, followed by Fier (16%) where there is a higher presence of oranges and lemons.

**Figure 4: Regional distribution of citrus production (2019)**

Source: INSTAT (2020)

Production of mandarins is highly concentrated in the region of Vlore. There are a few hundred commercial and semi-commercial growers in the regions of Vlore, mostly located in Xarrë, near the border with Greece.

**Table 2.18: Regional distribution of citrus production by type in 2019 (Mt)**

Region	Oranges	Lemons	Mandarin
Vlore	3,931	1,073	26,768
Fier	4,051	1,534	1,961
Elbasan	1,549	470	372
Durres	662	414	395
Tirane	560	348	526
Berat	470	158	741
Lezhe	232	49	189
Other (Shkoder, Gjirokaster)	102	28	283
<b>Total</b>	<b>11,557</b>	<b>4,074</b>	<b>31,235</b>

Source: INSTAT (2020)

**Box 2: The case study of citrus in Xarre**

The region of Saranda in south Albania offers particularly favourable conditions for citrus growing. These areas have particularly favourable conditions for citrus growing – also access to water for irrigation has been an important factor for the sector performance. Citrus fruit has been traditionally cultivated in this area. In 2006 there were around 100 hectares of citrus (mostly tangerines and clementines) planted in Xarre (part of Saranda), and this number has now increased many folds, mostly of mandarins. Xarre is now the leading producing clusters of mandarin. Not only it is a major source of supply for the domestic market, but it also has a strong export orientation. While over the years, the business of tangerines was very successful and profitable, during the past 3 years, problems have emerged due to over-production (driving prices down), and damage associated with climate changes (eg. hails) resulting in lower quality and yields (for more on climate changes impact see also Section 10). There are located 10 collection points – only two of them reportedly have selection lines.

The area benefits from close cooperation with input suppliers and experts from Greece, facilitated by the vicinity and links with Greek neighbouring areas. However, these relations have been affected negatively by COVID19 due to restrictions for travelling.

Source: Interviews

**OTHER FRUITS**

Plums production has increased significantly during the past decade, more than doubling when compared to 2005. Plums production locations and trends follow that of apple, although it is less important when compared to apple. Plums are used both for fresh consumption, raki and other forms of processing (such as dried plums).

**Table 2.19: Plums production trends (000 MT)**

Country	2005	2010	2014	2015	2016	2017	2018	2019
<b>Albania</b>	16	26	33	38	40	42	41	41
<b>EU</b>	1,594	1,643	1,466	1,408	1,489	1,299	1,772	1,629
<b>World</b>	9,830	10,700	11,342	11,618	11,850	11,495	12,528	12,601

Source: FAOSTAT (2020)

Production of cherries was marked by a strong growth in late 2000ies and early 2010ies, but then followed a decline in the coming years. While initially, the prices were attractive, increased production/supply resulted in lower prices and thereby discouraging new plantations.

**Table 2.20: Cherries production trends (000 MT)**

Country	2005	2010	2014	2015	2016	2017	2018	2019
<b>Albania</b>	7	13	18	20	19	19	19	20
<b>EU</b>	573	495	601	588	560	551	612	578
<b>World</b>	1,843	1,998	2,188	2,247	2,329	2,456	2,568	2,596

Source: FAOSTAT (2020)

Another product of growing interest is pomegranate. There are larger farmers who have invested in pomegranate - the production has increased and is expected to increase significantly in the coming years, which will increase pressure to export (as domestic market is saturated). Also kiwi production, from being practically inexistent in the past, over the last years has been characterized by growth. During the study no recent statistics could be found.

Another traditional fruit is **hurma** (kaki). Also, for kaki, there is no accurate statistics available – so far, the main destination has been the local market. Pomegranate and hurma can be stored in cold storage for several (2-3) months, selling them at higher prices. Despite their importance and potential, their contribution is not as high as apple.

**2.2.2 Vegetables****A. GREENHOUSE VEGETABLES PRODUCTION TRENDS**

There has been an improved performance of the vegetable sector, especially in the case of greenhouse vegetables. The surface of greenhouses has increased several folds since 2010. The increase of greenhouse area, coupled with improved production technologies, has resulted in significant increase of production enabling a surplus for the key vegetables produced under greenhouse (most notably tomatoes).

Some vegetables are grown mainly in the field, and others in greenhouse. For example, tomato and cucumber (which are leading vegetable in terms of production, consumption and exports) takes place mainly in greenhouses, and exports of such products are almost exclusively relying on greenhouse production (production trends of the main vegetable are shown later in this subsection).

**Table 2.21: Evolution of vegetables production**

Category	2010	2014	2015	2016	2017	2018	2019
<b>Cultivated surface with vegetable (000 ha)</b>	31	37	37	39	39	39	41
<b>- Protected/greenhouse crops surface (ha)</b>	828	2,013	2,172	2,769	2,920	3,187	3,323
<b>Production of vegetables (000 MT)</b>	860	950	1,030	1,129	1,152	1,166	1,258

Source: INSTAT (2020)

Usually, greenhouse vegetables are planted and harvested twice a year, often following a rotation pattern. Indeed, Albania is the only country in the Western Balkans, according to interviews, that produce vegetable in greenhouse twice per year. In the case of Divjaka, the situation is even more impressive – 3 production cycles per year have been reported.

The greenhouse sector is dominated by unheated (solar) greenhouses, most of which are simple plastic greenhouses – they make up more than 90% of greenhouse area. There are two reasons for the dominance of non-heated greenhouses: climate, which enables production for 9-10 months the year) without heating and high cost of fuel. Interestingly, there have been reported cases of farmers who produce tomatoes in unheated greenhouses also during the winter, utilizing 2-3 plastic covers and careful agronomic services – such a practice has become possible thanks to the climatic changes (global warming)<sup>5</sup>. As highlighted earlier, there are no fiscal incentives in terms of subsidies or reduced taxes for greenhouse heating. This makes running of heated greenhouse very costly and not competitive when compared to other countries in the region. Furthermore, most greenhouses are small (up to 0.20 Ha, as shown above), run by small farmers with limited financial resources, who prefer opting for low-cost investments (typically in this case, unheated plastic greenhouses).

All the main greenhouse vegetables show a significant growth in production since 2010. Tomatoes is the main greenhouse vegetable, followed by cucumbers.

Tomatoes, similar to the other protected (under greenhouse) crops (such as cucumber) are competitive, as climatic conditions in the best production areas allow production without heating throughout most of the year. On the whole, tomatoes (as well as cucumber and peppers) for fresh consumption produced in greenhouse, are competitive in the regional market, provided that the downstream value chain and services to farmers (market information, post-harvest, etc.) are improved.

Tomatoes production in Albania exceeds that of other countries in the region, except for Turkey, which is a strong regional player due to its market and production size.

**Table 2.22: World Production Trends of Tomatoes (000 MT)**

Country	2010	2014	2015	2016	2017	2018	2019
Albania	199	234	257	285	287	289	300
Montenegro	8	2	4	4	5	5	3
Serbia	189	128	147	160	171	132	112
North Macedonia	168	161	173	162	160	162	152
EU	16,889	16,797	18,096	18,477	18,044	17,058	16,582
World	153,314	172,788	176,823	178,159	180,946	182,256	180,776
Europe	21,768	22,630	24,189	24,089	24,030	23,291	22,804
Eastern Europe	5,861	7,055	7,271	6,745	7,226	7,617	7,290
Southern Europe	13,861	13,423	14,781	14,983	14,441	13,414	13,258
Western Europe	1,846	1,944	1,940	2,163	2,170	2,085	2,093

Source: FAOSTAT (2020)

Similar to the case of tomatoes, also cucumber production in Albania is higher compared to some other countries in the region.

**Table 2.23: World Production Trends of Cucumber (000 MT)**

Country	2010	2014	2015	2016	2017	2018	2019
Albania	69	80	83	94	110	120	126
Serbia	70	53	53	55	58	43	30
North Macedonia	47	48	67	53	52	54	51

<sup>5</sup> Imami, D. & Skreli, E. (2019). Agricultural Risk - A rapid assessment and recommended mitigation mechanisms. Technical report prepared for EBRD AASF project.

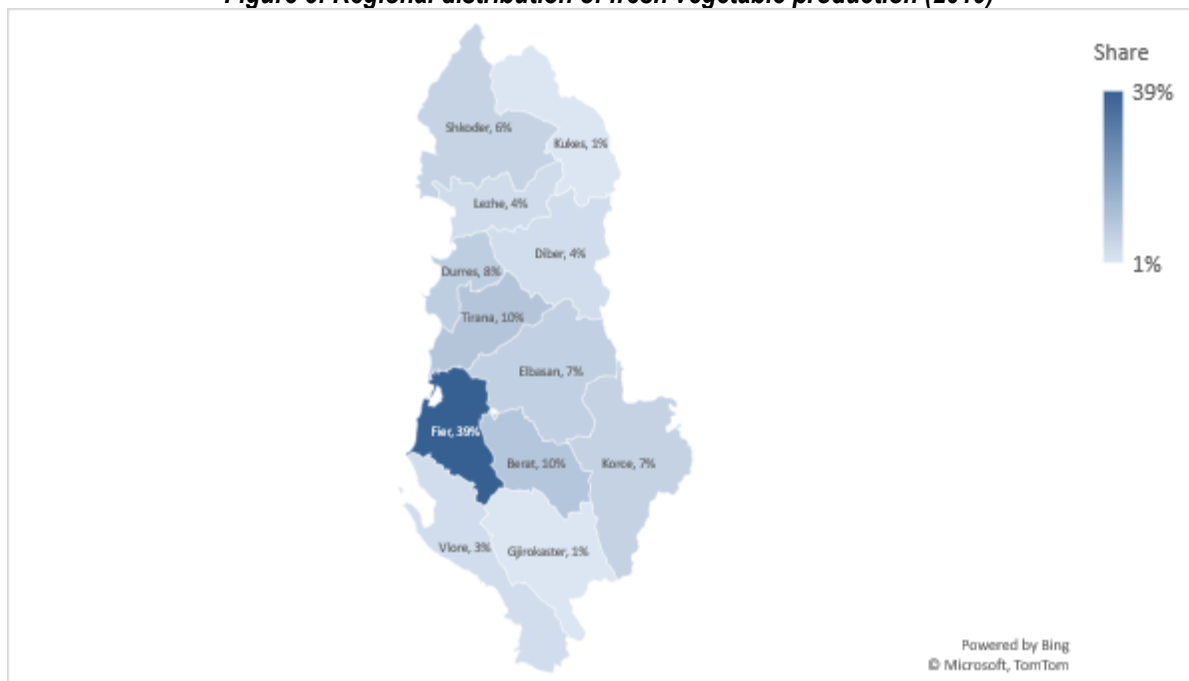
<b>EU</b>	2,776	2,939	2,775	2,807	2,793	2,830	2,810
<b>World</b>	62,516	76,111	78,038	79,845	77,897	75,219	87,805
<b>Europe</b>	5,373	6,150	6,145	5,782	5,735	5,947	6,013
<b>Eastern Europe</b>	3,124	3,809	3,901	3,560	3,518	3,707	3,694
<b>Southern Europe</b>	1,131	1,213	1,173	1,109	1,112	1,125	1,207
<b>Western Europe</b>	895	903	854	893	889	899	885

Source: FAOSTAT (2020)

## Regionalization

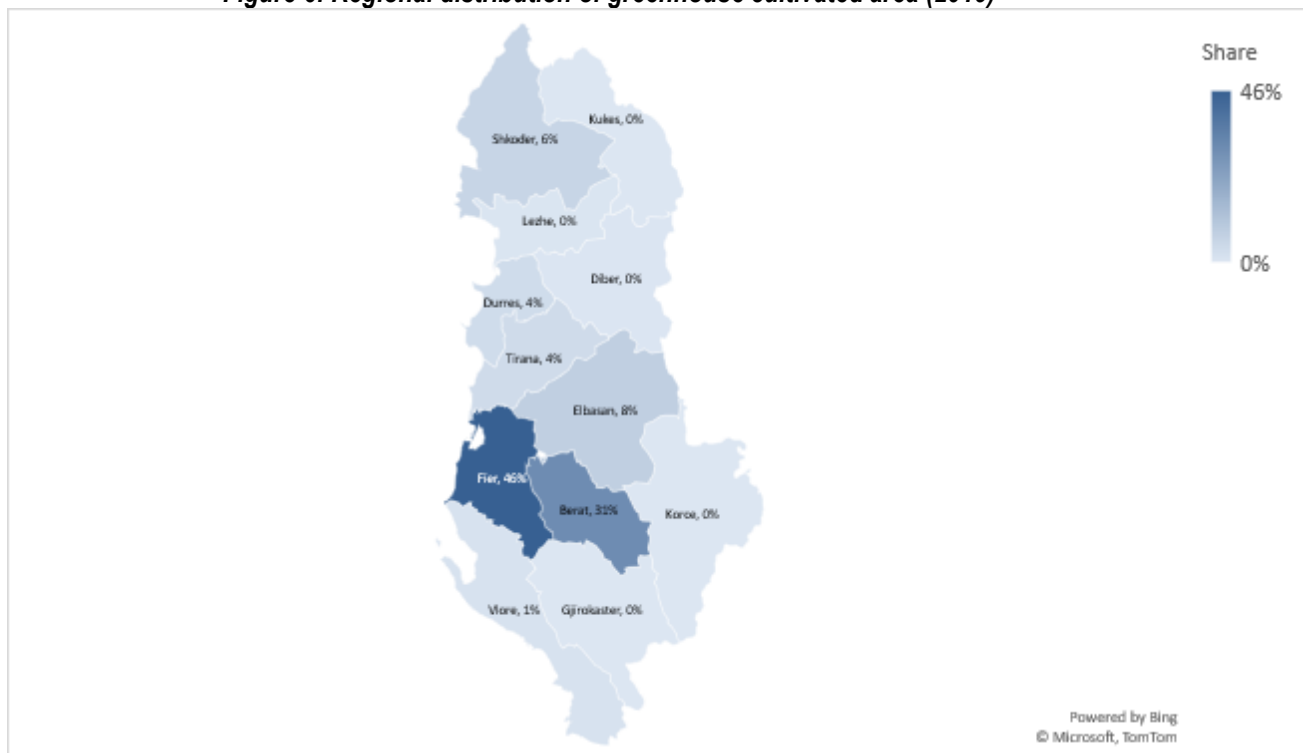
The core area for vegetable production in Albania is the coastal and hilly area of central Albania, including the region of Fier, Tirana and Berat. Most of the processing industry is also located in these areas (processing industry is analysed in the following section). Despite Durres and Elbasan, other important production areas are Shkodër (open field vegetables), Korça (potatoes and open field vegetables).

**Figure 5: Regional distribution of fresh vegetable production (2019)**



Source: INSTAT (2020)

The highest regional share of greenhouse vegetable production can be found in the region (qark) of Fier, followed by Berat. In addition, the highest concentration of wholesale facilities can be found in the region of Fier, with the wholesale market of Lushnje (one of the main horticulture markets in Albania), the private wholesale market in Fier and the wholesale market in Divjaka. Fier (including Lushnje) is also the region with the largest average farm size and the largest average parcel size.

**Figure 6: Regional distribution of greenhouse cultivated area (2019)**

Source: INSTAT (2020)

The concentration of production in certain areas is the result of favourable natural conditions for vegetable production, but also to tradition and diffused know-how as well as a function of consumer preferences and perceptions. Consumers prefer products coming from regions with higher reputation for quality. This diffused consumer awareness for quality related to origin is a very positive aspect of the Albanian market, representing a major point of strength and giving a clear advantage and to domestic production in the domestic market (market and consumer preferences are analysed in more details in Section 5).

### C. POTATO PRODUCTION TRENDS

Production of potatoes has increased in Albania, following world trends, while decline is observed for EU.

**Table 2.24: Potatoes (000 MT)**

Country	2005	2010	2014	2015	2016	2017	2018	2019
Albania	169	208	240	245	238	250	255	261
EU	62,788	56,972	60,719	53,873	56,496	62,464	51,837	56,404
World	317,665	328,665	370,015	366,138	354,189	370,105	365,317	370,437

Source: FAOSTAT (2020)

Potato is one of the most cultivated crops in the region of inner, northern areas (eg. Kukës) and southeast (eg. Korçë), making it an important source of incomes for households. Farmers have a long tradition in its cultivation, due to the favourable climatic and soil conditions. Finding the market has always been a challenge for farmers in Kukës - that is an issue for farmers in Shishtavec, Zapod, Topojan, Bushtricë and others, where potato is the main agricultural crop. Farmers in those areas have basic storage capacities<sup>6</sup>.

Although the mainstream production tradition is associated with highlands and hilly area, the production of new potatoes is concentrated in the area of Divjaka, which traditionally leads production of all types of early vegetables

<sup>6</sup> Zhllima, E. (2018). Local products in the region of Kukës. Scientific report prepared for ADAD-ESFIM.

and is a promising cluster, due to the favourable climate conditions and good infrastructure (good roads, nearby wholesale market, central location and know-how).

The production of potatoes in Albania has been increasing and has potential, but it is also facing a number of challenges:

1. Market infrastructure is still under-developed and existing infrastructure is barely used because value chains are not well enough developed. In general, the quality of potatoes on the market, especially out of the main season, is not very good.
2. The new potatoes produced in Divjaka, have a good international market potential – potatoes are planted twice per year (April – July and November March). So far, exports are channelled to countries in the region and other non-EU countries, as Albania is subject to an EU export ban, related to quarantine diseases. Overcoming this constraint would require an effort from institutions within the more general framework of the improvement of the phytosanitary service.
3. Limited storage capacities. Potatoes can be stored for 3-5 months in cold storage. There is a need to expand the storage capacity at collector level for potatoes. For example, one collection point stated that he is willing to expand the cold storage capacity for potatoes by 1,000 Mt (for more details see Section 5).
4. The prices of high quality seeds are high – they are imported. Many small farmers cannot afford to buy high quality seeds. Most farmers, corresponding to 2/3 of the cultivated area use locally or on-farm produced seeds<sup>7</sup>.

The production of beans has been stable - it has remained largely unchanged over the past years.

**Table 2.25: Beans (000 MT) Dry**

Country	2005	2010	2014	2015	2016	2017	2018	2019
Albania	23	24	30	28	25	21	25	25
EU	181	148	234	508	559	624		
World	19,059	24,775	27,008	27,986	28,943	31,484	29,970	28,903

Source: FAOSTAT (2020)

### C. WATERMELON AND MELON PRODUCTION TRENDS

Watermelon and melons are considered both as fruits and vegetable, depending on the classification used<sup>8</sup>. We have included them under vegetable, given similarities in terms of typology of farming with other field vegetable. Production of watermelon and melon is characterized by oscillations from year to year. As a general trend, the land area under watermelon has decreased, while yields per hectares have been increasing over years leading to increased production (Table 2.26). Increase of production under tunnels/greenhouse contributes positively to the yields.

**Table 2.26: Production trends of Watermelon and melons in Albania**

Watermelon	2010	2014	2015	2016	2017	2018	2019
000 MT	264	259	281	277	296	281	300
000 Ha	7.856	7.136	7.633	7.264	7.777	7.241	7.312
MT/Ha	33.6	36.3	36.8	38.1	38.1	38.8	41.0

Source: INSTAT (2020)

Watermelon production in Albania is relatively higher compared to other countries of the region. Table below indicate that over years the trend of watermelon production is positive. This trend of Albanian watermelon production has been in line with the world trend and other European countries.

**Table 2.27: World Cultivation Trends of Watermelon (exc. melons) (000 MT)**

Country	2005	2010	2014	2015	2016	2017	2018	2019
Albania	204	199	216	236	241	252	239	260
Montenegro	:	9	15	22	17	18	18	17
Serbia	:	197	228	242	208	247	199	163

<sup>7</sup> ADAD (2020). *Apple and potatoes sectors assessment. Technical report.*

<sup>8</sup> <https://www.watermelon.org/watermelon-101/facts-faqs/>



North Macedonia	132	135	137	131	140	121	132	126
EU	2,945	2,791	2,572	2,764	2,799	2,938	3,194	3,026
World	91,177	93,536	99,201	100,977	102,414	103,226	103,931	100,415
Europe	4,837	5,200	5,181	5,575	5,828	5,806	6,204	5,870
Eastern Europe	2,185	2,694	2,750	2,888	3,107	3,008	3,207	3,021
Southern Europe	2,644	2,490	2,414	2,670	2,703	2,780	2,979	2,835

Source: FAOSTAT (2020)

## Regionalization

Production of melon and watermelon is highly concentrated in the region of Fier (more than ½ of the production) - more specifically Lushnja and Divjaka area. Large farms in Divjaka, Kutalli (Berat) and Frakull-Levan (Fier) are oriented towards exports and modern technologies. In Divjaka most watermelon are under tunnel. About 4/5 of the watermelon production in Divjaka is destined for exports.

**Table 2.28: Regional distribution of production of watermelon & melon 2019 (MT)**

Region	MT	Share	Cumulative
Fier	161,193	53.7%	53.7%
Tirane	33,523	11.2%	64.8%
Durres	23,956	8.0%	72.8%
Shkoder	18,623	6.2%	79.0%
Elbasan	15,349	5.1%	84.1%
Lezhe	15,035	5.0%	89.1%
Berat	13,935	4.6%	93.7%
Vlore	10,609	3.5%	97.3%
Diber	3,934	1.3%	98.6%
Korce	2,352	0.8%	99.4%
Gjirokaster	1,302	0.4%	99.8%
Kukes	599	0.2%	100.0%
Total	300,410	100%	

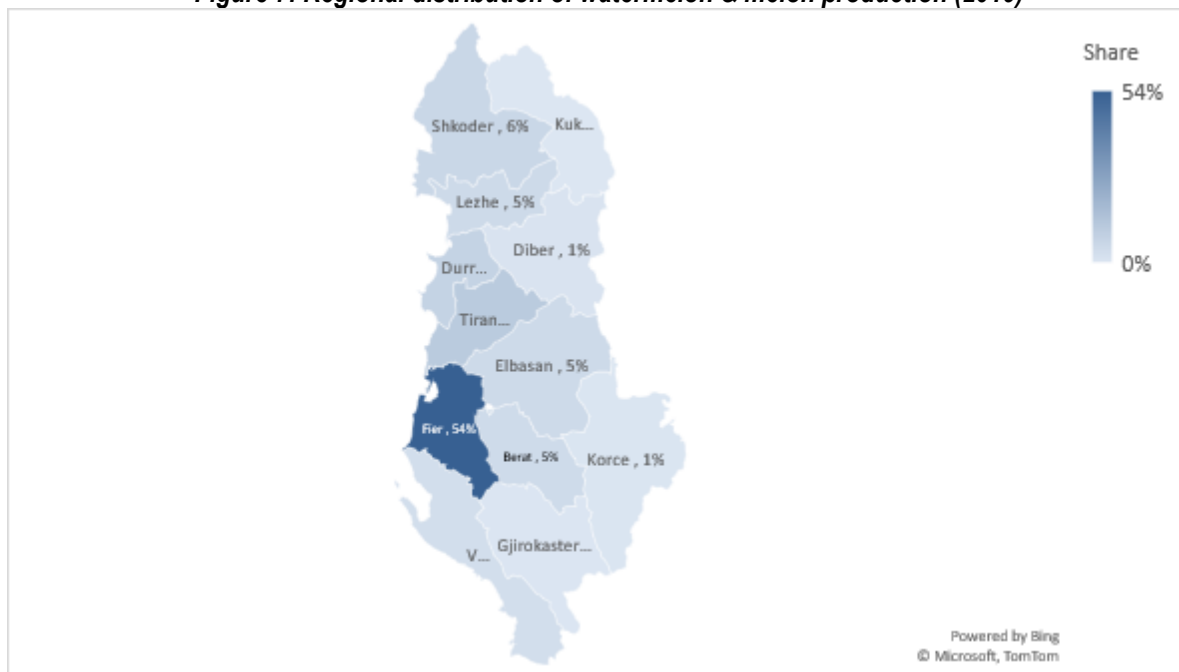
Source: INSTAT (2020)

### Box 3: Divjaka Cluster

Divjaka (situated in the qark/region of Fier) represents the most productive vegetables production area in Albania, and is a leading region for the production of export-oriented watermelon and melon and several field vegetables, including (early) potatoes, carrots etc. The area is characterized by very suitable microclimatic conditions, soil quality suitable for the production of open field crops and the diffused knowledge and tradition in production, as this area has been traditionally specialized in production of watermelon & melon as well as other field vegetables, even before 1990. In Divjaka, agriculture land is planted 2-3 times per year.

The success of Divjaka as a production cluster is also driven relative vicinity to main urban areas and early availability of good road connections (as compared with other distant cities such as Xarra – that is one of the reasons why also Xarra shifted away from watermelon production). In addition, a strong incentive for the further development of this cluster was the construction of the first high-tech greenhouse nursery (Dutch model implemented by Bruka Seedlings), which brought a quick change in the quality of the seedling and in the technology of cultivation.

Source: Field interviews

**Figure 7: Regional distribution of watermelon & melon production (2019)**

Source: INSTAT (2020)

As it can be noted, the production of strawberries has increased, from being very low or almost inexistent to few thousand tons – the sector has strong export focus.

**Table 2.29: Strawberries production trends (000 MT)**

Country	2005	2010	2014	2015	2016	2017	2018	2019
Albania						5	4	5
EU	1,113	1,086	1,237	1,383	1,327	1,289	1,322	1,327
World	5,849	6,284	7,636	8,221	8,045	8,242	8,561	8,885

Source: FAOSTAT (2020)

**Box 4: Strawberries cluster of Kafaraj**

In Kafaraj and nearby villages (region of Fier), there are more than 100 Ha of greenhouse deployed for the production of strawberries. Most farms are operated by returning migrants from Greece – they were working in the same sector in Greece, and came back with know-how, making Kafaraj a leading production cluster for strawberries. There are located 2 collection points, which are export oriented, however, other exporters/traders are supplied from Kafaraj too. There are operating also input suppliers. The product is exported to different markets, including Italy – use of high quality inputs (which are also very expensive) and farmers competence are the reasons why the products meet the requiring standards of the Italian market.

**Figure 8: Strawberries greenhouse - Kafaraj**

## 2.3 ACCESS TO MARKETS, INPUTS AND SERVICES

### 2.3.1 Access to market

Small farmers face market access challenges. Access to market varies by type of products, typology of farmers, and from the production season. The greatest challenge is observed during “good” production season, when overproduction makes it difficult to sell the excessive quantities. One of the major constraints which affect market access is lack of standards’ compliance. Farmers’ incompliance with these standards undermines market access<sup>9,10</sup>. Compliance with standards is important not only in the case of export markets, but also in the local market. According to interviewees, despite the fact that the lack of compliance with standards remains an issue especially among smaller farms, overall, the situation has improved (thanks to higher awareness and control from buyers and state authorities).

Quality of produce is affected by technology, know-how, quality of inputs, as well as climate changes. For example, 2020 was one of the worst years for tangerine farmers in Albania, because hail damaged not only the yields but also the quality of the fruit, resulting in difficulty to sell/export and low prices.

COVID19 has had negative effect in the whole agriculture sector, and in specific horticulture value chain. Export oriented value chains were hit in the early phase (first weeks) of the pandemics, especially greenhouse vegetable. Reportedly, one cause was the transport capacities – some drivers have been under quarantine and thereby it has been difficult to access travel transport. Another major concern was related to the outlets/channels that characterize Albanian horticulture exports. Reportedly, in some export markets, traditional outlets, such as green markets have been hit or closed, resulting in lower sales. Moreover, there were reported problems with border crossing especially between EU and Western Balkans. On the other hand, tourism/restaurants-oriented value chains were affected. Regarding horticulture, reportedly ingredients that are used in large scale by restaurants such as green salads and appetizers, have been affected farmer reporting the difficulty to sell cherries tomatoes.

Expansion of supermarket chains in Albania combined with pressure for formalization and safety standards compliance will make market access more difficult, especially for smaller farms. For more information about markets and value chain organization see respectively sections 5 and 8.

### 2.3.2 Access to services

The main source of advice is input suppliers. However, there have been concerns of the “conflict of interest” – many farmers suspect the intention of advice from input suppliers (e.g., if it is motivated to sell inputs with higher margins). The other source of advice is MARD extension services. There are also reported cases of larger farmers assisted from Greek professional agronomist from whom they bought other inputs.

The survey with extension survey shows that more than ½ of the farmers have been contacted and been informed indirectly by the extension services, and about ¼ have been trained.

**Table 2.30: Access to advisory services**

Indicator	Share of farmers that are contacted by extension services (%)	Share of farmers that have been informed indirectly by extension services (%)	Share of farmers that have been trained (%)
<b>Fruits</b>			
Mean	55%	53%	33%
Std. Deviation	26%	28%	24%
<b>Vegetables</b>			
Mean	54%	51%	33%
Std. Deviation	25%	26%	23%

Source: Survey with extension survey

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 15-20 (or even more, in some cases 25) spays against

<sup>9</sup> FAO (2020). Country report of Albania: Support to the implementation of the Regional Initiative on Empowering Smallholders and Family Farms.

<sup>10</sup> UNWOMEN (2017). National Study on Rural Women and Economic Diversification in Rural Areas. Technical report prepared for UNWOMEN Albania.

diseases and pests). Another major cost consists of fruit thinning which is a process of fruitlets removal to achieve better quality of apples- the process is done manually and therefore is of high cost.

There are similarities of services for apple and those for citrus (we focus here on mandarin which is the leading citrus produced and sold). The main mandarin production processes (which are related to main production expenditure/costs), include pruning, fertilization, chemical treatment, irrigation and harvesting.

There are similarities in terms of services between tomatoes and cucumbers in greenhouse, for both seasons. Soil preparation and planting is a high-cost process because of the cost of saplings and the labour to plant them in the greenhouse. After the first basic fertilizing, there is a continuous use of chemical fertilizers during the cultivation period. There are also similarities of services between watermelons and melon.

Quality of services is affected by access to machineries/equipment and know-how. Some services, such as plant protection ones a pruning require experience, and in some cases are carried out by service providers.

### 2.3.3 Inputs and access to inputs<sup>11</sup>

One of the greatest challenges faced in the sector is the quality of inputs, especially PPPs and seedlings. Apple planting material (seedlings) has been a serious problem. There have been reported cases of low-quality seedlings produced by unprofessional or informal seedlings producers in Albania. There have been cases of seedlings nurseries Greece too, that have been affected by diseases. On the other hand, there are reported cases of farmers smuggling infected apple seedling from Greece. In addition to infection, it has also happened that the cultivar reliability is not guaranteed – once it grows, turns out to be different variety from what was expected.

For greenhouse vegetable, which within the horticulture has the strongest export orientation, there is a growing emphasis on using high quality inputs. The same applies also for strawberries. Quality seedlings are a key input supply for commercial growers. However, smaller vegetable farmers, who face financial limitation, often tend to buy seeds, and produce seedlings on farm. Although it appears that, the farmer can save or lower some costs through this approach, on-farm produced seedling can result in significantly lower performance. But, even in the case of farmers who buy seedlings, there are cases of failures either due to the quality of seedlings, or to the fact that they do not fit to the specific conditions/environment, especially in the case of fruit trees. 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 fruit plantations, especially in the lowlands, where the production base is expanding more quickly.

In the case of vegetable, there is a presence of various suppliers, relying on imported seeds, including also from leading global seeds producers. According to the interviews, the market of vegetable seeds is over 60 million seeds (although that varies from year to year). Some seeds suppliers cooperate with collection points, to orient jointly farmers for those varieties which are mostly demanded in the market.

Vegetable seedling production has evolved over the years. The total area of vegetable nurseries is 117,500 m<sup>2</sup>. Seedling production varies between 55.1 and 96.1 million seedlings. Vegetable seedlings are produced by at least 17 nurseries, including Agroblend (Vora), Lizar Seedling (Divjake), Agrokonj (Durrës), groAlba (Divjakë), Saimir Bitri (Divjakë), Ali Lico (Divjakë), Agro-Sina (Lushnje), Themj Stambolliu (Lushnje), Aleks Ranxha (Elbasan), ECO-GREEN (Elbasan), Eqerem Ismailaj (Berat), Toana DKL (Berat), Genc Agaci (Fier), Mikel Hoxha (Fier), Astrit Zeka (Agrofid) (Berat), Ardian Rama (Fier), and Endri (Roskovec).

In the case of fruits seedlings, there can be distinguished three types of nurseries:

**a) Nursery family production**, with low cost and quality, but competing in specific segments of the seedling market. This work practice is owned and applied by qualified employees, who have worked for a long time in the production nurseries of centralized economies, but also others who have benefited this profession from work in emigration.

**b) Semi organized and organized nurseries** to produce seedlings, which work with partial optimal and optimal parameters and they exercise their activity within the known formal certification scheme. Such nurseries can be specialized only to produce seedlings of fruit trees, olives, citrus, but can also be mixed nurseries. These production

<sup>11</sup> This subsection is largely based on the Context Analysis, including a chapter on inputs drafted by Prof. Dr. Shpend Shahini.

units are registered in the National Business Registration Centre and licensed by the structures of Regional Agency of Veterinary and Plant Protection Service (RAVPPS) and State Entity of Seeds and Seedlings (SESS). In their annual practice, the State Entity of Seeds & Seedlings, and the inspectors in charge of implementing the legislation for seedling production, do some annual tests, fill in a series of 'type' forms and at the end of each agricultural year, provide the units with a certificate for seedling production. This presupposes that the plant propagating material, seeds, seedlings, etc., are ready to be traded and planted in new orchards, or to be used as plant material reproduction (propagation).

**c) Nurseries of industrial production** are considered in-vivo production greenhouses with foggy green pieces, as well as in-vitro breeding laboratories. There are 6 such units. These units specialized in performing delicate production operations and use contemporary high-quality techniques. As production units they can compete in the domestic and foreign market. Here are included the greenhouses to produce in-vivo seedlings (with foggy pieces) and the in-vitro production laboratories (buds and meristems) of certified rootstocks in stone fruit trees and vines. In special species with commercial values and high economic importance, seedling production techniques have advanced a lot, creating a separate industry sector.

The number of input suppliers is relatively high, but a few of them also produce and sell quality seeds and seedlings. Among the large seedling producers for greenhouse vegetable and watermelons are Bruka Seedling, and Agro-Koni. Seeds are typically imported from/through major distributors.

Fruits and greenhouse vegetable (especially greenhouse vegetable) face a growing concern related to plant protection. Pest and diseases (particularly quarantine pests such as *tuta absoluta*<sup>12</sup> in the case of greenhouses) represent a major risk for greenhouse vegetables. In the case of fruits, namely apple, Kroma (*Venturia Inequalis*) is the main concern. The disease affects not only yield but also fruit quality and storing. Climate changes can be contributing to plant diseases (for more details on climate changes, see the section on EU green deal). The main source of inputs and advice to tackle diseases are input suppliers. Timely use of combined fertilizers is also important for disease control because nutrition improve plant strength and resistance toward disease.

The quality of inputs (such as fertilizers and especially PPPs) and the way that they are used exposes risks to human health. There have been claims about the use of illegal inputs too (for more details see also Section 6). On the other hand, it has been reported that farmers harvest after fertilizing or using pesticides, disrespecting the required period between these processes and harvesting necessary to ensure low residuals, although recent interviews show that there is an increased awareness among market-oriented farms. The situation calls both for more awareness, advice but also law enforcement (see also Section 6 of this report, for more details regarding the implications of compliance with standards in conjunctions to inputs).

These views are also confirmed by a recent farm survey<sup>13</sup>. About 62 percent disagree or strongly disagree that agricultural inputs are being provided by private traders at a fair price.

**Table 2.31: Farmers perceptions about inputs**

Category	Farmers assessment	Count	% of total
<b>Agricultural inputs are being provided by private traders at low price</b>	Strongly disagree	127	31.6%
	Disagree	119	29.6%
	Neither agree nor disagree	86	21.4%
	Agree	63	15.7%
	Strongly agree	6	1.5%
<b>Private input traders make price discounts for their stable clients</b>	Strongly disagree	115	28.6%
	Disagree	102	25.4%
	Neither agree nor disagree	60	14.9%
	Agree	98	24.4%

<sup>12</sup> *Tuta absoluta* is a species of moth in family Gelechiidae known by the common names tomato leafminer, tomato pinworm and South American tomato moth. It is well known as a serious pest of tomato crops in Europe, Africa, western Asia and South and Central America. *Tuta absoluta* has been reported in Albania since 2009. The infestation seems to have started in the Fieri region in open field Tomato it has moved since to greenhouse in the area as well. *Tuta absoluta* was also reported in other parts of the country. Source: <http://www.tutaabsoluta.com/news/55/tuta-absoluta-in-albania> last accessed in July 2019.

<sup>13</sup> ISETN (2017). National Economic Potentials of Contract Farming and Agriculture Cooperation in Albania. Technical Report prepared by Imami, D., Skreli, E., Xhoxhi, O., Keco, R., Maci, M. for GIZ

	Strongly agree	27	6.7%
	Strongly disagree	93	23.1%
<b>Private input traders provide inputs at decent quality</b>	Disagree	106	26.4%
	Neither agree nor disagree	97	24.1%
	Agree	95	23.6%
	Strongly agree	11	2.7%

Source: ISETN (2017)<sup>14</sup>

Access to inputs is affected also by farmers financial capacity. Many farmers who were affected by COVID19 (also financially due to medical costs) were not able to buy or pay for inputs. For example, one leading trader stated that, due to gaps in services and inputs use (as mentioned above), the quality suffered, and that is an issue especially for export-oriented products. And when the price of inputs drops, in turn farmer has less money to spend for inputs, which in turn results again in low quality, establishing a vicious circle.

It is known that inputs suppliers have uncollected debt from farmers – during 2020, that increased substantially. One large input supplier stated that the debt doubled during 2020, when compared to previous years.

There is a growing interest for organic inputs, among those few operators who are certified organic, but also who are not certified organic but have export orientation and aim to improve quality. For example, Doni Fruits, one of the leading exporters, have invested also in the production of organic inputs (through a separate company, named Doni Organica), which they provide mainly to GlobalGAP certified farmers (for more see also Section 8).

## 2.4 KEY FEATURES AND CHALLENGES OF HORTICULTURE PRODUCTION IN ALBANIA

**Production.** Within the range of inputs, one major challenge is the *quality of seeds and seedlings*. As highlighted earlier, smaller vegetable farmers, who face financial limitation, often tend to buy seeds and produce seedlings on farm. Although the farmer can save or lower some costs through this approach, on-farm produced seedling can result in significantly lower performance. But, even in the case of farmers who buy seedlings, there are cases of failures either due to the quality of seedlings, or to the fact that they do not fit to the specific conditions/environment (as shown in the previous subsection). In addition, improper agronomic practices may increase fruit production costs and may eventually result in lack of compliance with food safety standards, posing risk to consumers. On the other hand, know-how gaps related to harvesting and post-harvest practices affected also by the scarcity of qualified advisors and availability of logistics highly affect performance.

*Soil salinity*<sup>15</sup> represents a critical risk for greenhouse vegetable producers in Lushnja region using well irrigation water. Soil salinity leads to yield decrease starting from 3<sup>rd</sup> production year and complete crop failure. Although salinization is a major concern, only few farmers carry out soil or water analysis. Because of this, it is difficult to conclude to what extent some of the problems/failures originate from the soil/water or from inputs quality.

*Pest and diseases* represent another risk for fruits and vegetables. Timely use of combined fertilizers is important for disease control because nutrition improve plant strength and resistance toward disease.

**Marketing / markets.** The main *market access risk* is related to low produce quality and timing of harvesting. Improper use and quality of inputs (alongside soil salinization, mentioned above) can affect product quality, however. Some farmers have stable relation with exporters, who also provide the farmers high quality seedling in line with export market demand. Thus, improper inputs, know-how and water/soil salinization can affect farmers' access to market and threaten stable relations with buyers, especially in the case of exports, which are more sensitive towards standards.

<sup>14</sup> ISETN (2017). National Economic Potentials of Contract Farming and Agriculture Cooperation in Albania

<sup>15</sup> Soil salinity in Albania affects mostly the western coastal plains, which are under the influence of the Mediterranean climate and characterized by dry summers and wet winters, where also large part of the greenhouses is located. A high rate of evaporation during the summer causes increased salt concentration in the soil surface. In winter, if the soil is draining optimally, high levels of rainfall cause the removal of salts in the deeper layers, however, this is not applicable for greenhouses which are covered, therefore poor drainage conditions, increase groundwater levels and represent the main source of soil salinization (for greenhouses) (FAO, 2020)



The timing of harvesting or sell may lead to *price risk*. Prices of fresh agriculture products, especially for vegetable are very volatile. One reason is because lack of contract farming – most production is subject to spot market. Even in the case of exports, prices are usually set-in short notice with buyers (e.g., 1 day – 1 week in advance), thereby they also tend to apply the same practice with farmers, by agreeing on volumes and prices 1 day in advance or so. Prices can drop as much as 30% or even 50% within 1-2 weeks, depending on the season and on international trade situation. It is questionable to what extent such a drop are caused simply by market forces (e.g., excessive supply) and to what extent also by speculation of wholesalers. Time of production is definitely a cause of price risk. Also, the timely use of inputs (e.g., timely planting) is very important. In the case of fruits that can be stored, such as apple, storage reduces this type of pressure – however, there are also cases that after occurring significant cost of storage, apple is sold at low prices.

Prices are affected both by quality and the variety. One clear example is apple. During the latest production season (2020), prices of Fuji were reported to be as high as 90 ALL/kg at farm level, as opposed to other varieties that scored on average below 50 ALL/kg<sup>16</sup>. Thereby there is a growing interest to plant Fuji, which involves both cases of new plantations but also replacement of existing plantations with other (less demanded) varieties.

*Scarce cooperation* between value chain operators (most produce is still sold on spot markets) is also a cause of low economic performance of growers in the main production areas, i.e., generating the paradox of non-specialized producers being in areas not favourable to apple growing, but near to the main cities who enjoy higher returns than specialized producers in the main production areas.

Legal. The lack of proper land titles represents a risk and a limitation (often making farmers ineligible for grants such as IPARD and for loans). Regarding inputs, while a legal framework exists, the low implementation and lack of adequate controls are a serious concern for the progress of the sector.

Human resource and management. Insufficient financial management, or simply put, lack of cost analysis is also a problem for many farmers leading to 'blur' financial situation and low financial predictability. It also happens that farmers lack technology knowledge and skills (thought less often than in other sectors); this may lead to production or/and post-harvest loss. Furthermore, there is scarcity of professionals in some areas such as plant protection – this scarcity will increase during the coming years, as the older generation of professionals will phase out, while there are relatively few young professionals. Finding available (seasonal) labour force is becoming challenging due to emigration. Scarcity of labour supply will result in limitation of the production capacity or increased costs.

Access to finance and insurance. Access to finance is a major barrier for farmers, especially among smaller farmers, conditioned by lack of collateral. Loans are provided mainly from micro-financial institutions with very high interest rate. Another major is the lack of agricultural insurance for farmers. Although farmers have limited understanding about insurance, the challenge is on the supply side since insurance for agriculture activities is almost non-existent. Lack of insurance has made the business riskier. One large operator, who is both a large farmer and collection point, despite making high profits, stated that he was willing to sell his business if he could, as he felt the whole time under threat – once single event could result in complete loss. One relatively large farm, that had up to 25 Ha of field vegetable, producing on contract for one processor, went out of business after being from floods and then later from drought – despite being very profitable, he lost his savings and went out of the business. Other weaknesses and threats

Policy aspects. *Frequently changing/unstable support schemes cause disorientation and uncertainty*. The aim of the support policy schemes and fiscal incentive is not only to support farmers (beneficiaries), but first and foremost, to orient their decisions. Frequently changing/unstable support schemes cause disorientation and uncertainty.

*Irrigation*. Significant parts of agriculture land remain without access to irrigation. That is related both to infrastructure gaps as well as management, which has proven problematic also when irrigation systems were rehabilitated. The role of public institutions to maintain and improve irrigation system is indispensable.

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<sup>16</sup> Interview with Vaip Salkurti, who is a farmers, trader and processor of apple (and other fruits).

### 3. PROCESSING INDUSTRY

#### 3.1 STRUCTURE OF THE INDUSTRY

According to available statistics<sup>17</sup>, in 2019 there were registered 29 operators in the field of fruits and vegetable processing.

The largest processors such as Sejega, Sidnej and Zdravo have the widest range of products, while small and medium-sized processors have a more limited range. Largest processors are present both in supermarket chains and in local shops.

Some processors have carried out serious investments, but have been facing financial difficulties, since the increased expenditure from investments converged with a timing of declined sales. Technology has improved in selected factories, namely in the largest processing plants, which have made significant investments to modernise their facilities according to international standards. However, smaller processing plants in general remain obsolescent and not yet aligned with higher technological and environmental requirements. This is a controversial process, as investments might not be backed by adequate returns due to the high competition that exists in this market. One processor stated: “I have done well, because I avoided large investments”. In other words, a secure market and sound organisation of the supply chain are essential for the processing sector to grow further, as the following example show.

One processor produces tomatoes and pepper sauce exclusively for the Italian market, in cooperation with an Italian company. He usually contracts 15 farmers by 4.00 Ha average (ca 60.00 Ha in total). He provides them with inputs, which are paid back when they deliver the product – typical example of contract farming. The processed sauce is packed in big plastic containers and shipped to Italy. The processor claimed that his supplying farmers would make a profit of up to almost 10,000 EUR per Ha, which appears to be excellent result. However, due to the COVID19 situation, he stopped the operation during 2020, and it is not certain if he will continue during 2021. This example shows clearly that there is a potential to export more processed horticulture products, provided that certain systems, practices, and standards are in place. The main advantage is the low labour cost in Albania.

Also, other processors have made efforts to procure products based on contracts with farmers, but such efforts were not always successful.

“I used to contract farmers, but I had bad experience as most farmers did not comply with the contract”, stated one interviewed processor. “therefore, now I do not contract production, except for cucumbers, the rest I buy on the market when price go very low”. Also, another processor highlighted the bad experience with contracted farmers one year, when the price of tomato for fresh consumption went high, and thereby most of his contracted farmers sold most of their produce in the market, despite being bound in a contract and despite having received inputs in advance from the buyer.

To reduce uncertainty, one processor invested on his own farming (renting land), but even such an undertaking proved challenging.

In addition, there are many small artisanal fruits and vegetable processors such as the cluster of Permet, where there are operating 5 processors. A typical traditional processors processes typically up to 10 ton of jam from plums, cherries, figs, etc. They produce traditional products (such as gliko). They are usually supplied by orchard farmers with whom they have long term relations. Some of them have become part of Slow Food and have a strong orientation to tourism. Tourism growing trends has enabled them to improve performance, except for 2020 due to COVID19. They sell via traders/middlemen or supply directly shops. One of them also supplies one supermarket chain. In addition to decline in the sales to tourists (eg. direct sales), decline is observed also in the other channels, which according to interviewees can reflect the decreasing purchasing power (related to COVID19).

There are only two juice (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 invested more than 1 Million EUR (for the factory including processing line). Both companies have benefited from government or donor projects grants. They have faced significant market challenges, however, one of the processors is planning to expand processing capacities with new investments.

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<sup>17</sup> Data provided by MARD in the context of EU-Albania Sub-Committee on Agriculture and Fisheries.



The category of collection points who do not carry out major processing operations (apart from packaging), is analysed under Section 5.

### 3.2 MAIN PRODUCTS AND PRODUCT TYPES /CHARACTERISTICS

Considering on-farm processing and industrial processing, the main processed products of the vegetable processing industry are pickled and roasted vegetables in brine or vinegar in jars. The most popular products are pickled peppers, cucumbers and mixed vegetables. Domestic processors offer an increasing range of processed tomato products (sauce, ketchup, etc), trying to compete with imported products. Other popular products include traditional sauces and ready to eat dishes, such as fergese (based on tomato and curd cheese). Also regarding processed fruits, there is a wide range of mainly traditional products. Below are provided the list of most produced and consumer products:

- Vegetables in brine or vinegar: Pickled pepper, roasted pepper, mixed vegetables, pickled mixed vegetables (gherkins, peppers, cabbage), pickled pepper filled with cheese.
- Salads & dressings: Curd Cheese (fergesa) xaxiq, Russian salad, ketch-up
- Concentrates and pastes: Tomato (sauce, pures, compote).
- Fruit jams and marmalade: Fig, cherry, plum and peach jams, apple and fig marmalade/jams.
- Canned fruit: Peach, plum and cherry compotes.
- Fruit juices: The main one is apple juices, but also juice from pomegranate, plums or mixed fruits is produced.

On-farm processing covers a significant part of the domestic supplies to both self-consumption and local sales.

Below are provided figures related to processed fruits and vegetable, processed by agroindustry (thus not including on-farm processing), which differ significantly from the general description provided above. It is likely that the official statistics underreport the production levels. Also, previous studies on the sector have found underreporting of production of the agroindustry (for fruits and vegetable).

**Table 3.1: Agroindustry production**

Description	2018		2019	
	Quantity	Value/ Mln €	Quantity	Value/ Mln €
Fruit juice	175	13.27	176.2	13.89
Canned vegetable	970	1.13	1.1	1.32
Jam	189	0.18	289	0.29
Marmalade	32	0.02	26	0.02
Vinegar	356	0.12	509	0.18
Tomato sauce	68	0.06	74	0.07

Source: MARD Agrifish (2020)

### 3.3 ACCESS TO MARKETS, INPUTS AND SERVICES

Albanian producers dominate the domestic market for pickled vegetables, although limited quantities of pickled vegetables are imported when domestic producers are not able to supply the market because of shortages in raw materials. Domestic producers also dominate the market of jams and compotes. Imports are still dominant in all the other segments, such as canned vegetables, food ready to eat, dressing, and concentrates such as tomato paste, fruit juices etc. There is a major difference between the prices of imported jams and compotes and domestic ones, with imported products being much more expensive. However, in the case of tomato sauce, imports appear competitive also in terms of prices.

The growth of supermarket chains and the leadership assumed by two foreign-owned chains is likely to lead to an increase in imports and to a change in the prevailing source of imports, as the two largest chains, Spar and CONAD, import from Italy. According to interviews, access to market has become more challenging. The competition from imports has become fiercer. For example, prices of imported Italian tomato sauce have gone down, and when prices are similar between Albanian and well-known Italian brands, many Albanian consumers prefer to buy Italian ones. Thereby, sales are reported to have declined significantly for the whole category of processed fruits and

vegetable. Another factor which has affected decrease of processed fruits and vegetable products, is the fact that fresh fruits and vegetable are available at accessible prices thanks to increased local production and logistics.

Competition in export markets is even fiercer. In the case of processed horticulture products, brands and distribution channels play a major role. However, the case of Albanian processors exporting tomato sauce (shown above) shows clearly that there is a potential to export more processed horticulture products, provided that certain systems, practices, and standards are in place. The main advantage is the low labour cost in Albania.

Markets trends and access to markets are analysed also in Section 5.

Regarding access to inputs, mainly raw fresh fruits and vegetable, agro-processors have faced difficulty in establishing long-term contracting relations with supplying farmers. There have been reported cases of farmers who did not comply with contracts, thereby disincentivizing processors to engage in farm contracting – for some products they buy only on spot market, when prices are lowest.

Services that are easy to access include:

- Legal advice from individual lawyers or legal entities and accounting services from chartered accountants.
- Advertising and provision of marketing and promotion materials – one of the services that has improved substantially over the last years.
- IT services.
- Certification (e.g., HACCP).

Food engineering and maintenance of machinery and equipment remain an important issue that limits the technological improvement of the sector.

Regarding analysis from accredited laboratories, the complaint from the interviewees (both for processing but also for collection points) is the high prices applied (higher when compared to labs in Greece).

### **3.4 KEY FEATURES AND CHALLENGES OF HORTICULTURAL PROCESSING IN ALBANIA**

On the market side, local agri-processing industry has faced several challenges. Increase of availability of production of fresh fruits and vegetable throughout the year, thanks to increased local production and improved logistics (including storage capacities) is reducing the domestic demand for processed fruits and vegetable. Also, the increased awareness about health has implications in that context too. On the other hand, expansion of supermarket chains make competition from imports more direct. International producers benefit from well-established brands and from access to distribution channels.

Agro-processors have faced difficulty in establishing long-term contracting relations with supplying farmers. There have been reported cases of farmers who did not comply with contracts, thereby disincentivizing processors to engage in farm contracting. On the other hand, fragmentation, and lack of specialization at production level and inefficiency in the value chain structure (the lack of POs or farmers' associated initiatives makes the role of collectors/wholesalers, indispensable for small industries) is generating a structural weakness in the system of supplies of raw material. Insufficient respect of agreements (in most cases verbal) by both parties is also frequently mentioned as a problem.

Regarding access to inputs (other than fresh raw fruits and vegetable as input for processing), the greatest concern is that glass packaging is imported, and the associated cost remain high.

## 4. GOVERNMENT POLICY FOR THE SECTOR

### 4.1 STRATEGIC DOCUMENTS

The main policy document for agriculture and rural development has been the Inter-sectoral Strategy for Agriculture and Rural Development, (ISARD) 2014-2020. The strategy was elaborated in line with the EU strategic planning approach for the Common Agricultural Policy (CAP) 2014–2020 while maintaining focus on specific needs for the development of agriculture, agro-processing and rural areas in Albania. ISARD 2014-2020 highlights interventions in three policy areas: i) rural development policy; ii) national support schemes for farmers, development of rural infrastructure, and ensuring equal opportunities; and iii) institutional development, implementation, and enforcement of EU regulatory requirements. Fruit and vegetables have been considered a priority sector under Measure 1: Investments in physical assets of agricultural holdings as well as Measure 3: Investments in physical assets concerning processing and marketing of agricultural and fishery products. For the period 2021 – 2027 a new Strategy is being drafted.

The main legal framework regulating the programming of the agriculture policy is defined in the Law on Agriculture and Rural Development adopted in 2007. ISARD 2014–2020 has been transposed in the National Plan for European Integration (NPEI) 2016–2020, which highlights the medium-term objectives for the development of agriculture and rural areas in Albania. The implementation of the medium-term priorities of ISARD 2014–2020 are detailed in the annual action plans, which are reported by MARD to the Council of Ministers. The annual action plan, in line with ISARD 2014–2020, provides the legal basis for setting up national support schemes by highlighting specific measures available to the agricultural sector for each year. The typology and budget levels for each type of national support schemes for the latest years are provided in Section 4.3 below.

### 4.2 RELEVANT FISCAL AND TRADE POLICIES

#### *Exemption of agricultural inputs from value added tax (VAT)*

Agricultural inputs are exempted from VAT based on fiscal package of 2019; the Law 92/2014, dated 24.07.2014 “On Value added Tax in the Republic of Albania”, as amended). Agricultural inputs falling under this category are: fertilizers, pesticides, seed and seedlings. Agricultural inputs VAT exemption makes possible that subjects dealing with the import and trade of agricultural inputs lower input price with the same proportion of VAT to input price ratio. Failure to reduce the input price by subjects of import and trade of agricultural input will be at the expense of farmers. Such a fiscal policy is intended to incentivize farmers to use more inputs, have lower cost per production unit, as well as increase investment in agriculture as one of priority sectors of Albanian economy.

#### *Exemption from VAT of imported machineries & equipment used for investment in agro-processing*

Import of machineries and equipment used for investment in agribusiness (both farming and agro-processing) are exempted from VAT payment<sup>18</sup>. Implementing regulations specify the list of machineries and equipment that are directly linked to investment in agribusiness, exemption documents and procedures, category of benefiting subjects and eligibility criteria.

#### *Exemption fuel for agricultural machinery operations from all taxes*

Starting from, the 2021<sup>19</sup>, benefiting subjects from the scheme of support to agricultural fuel will receive fuel free of charge as an equivalent of fiscal exemption. The fuel price will be exempted from excise tax, tax on road, carbon tax and VAT – counting for 44% of fuel price. This price equivalent is converted into fuel free of charge: the fuel needed for conducting operations with agricultural machineries multiplied with the ratio of tax exemption to average fuel price of the previous year.

#### *Partial reduction of VAT for agriculture product purchased to farmers*

<sup>18</sup> Law 92/2014 “On Value added tax in the Republic of Albania”

<sup>19</sup> Government of Albania Decision 1142/2020 “On determining criteria, quantity benefited and the way of using the fund allocated to scheme of support to fuel for agriculture for the year 2021”

With the new Fiscal Package in 2019<sup>20</sup>, changed the level of the VAT refund for small farmers for sales became 6% from 20%, which was set in 2014. Therefore, processors are oriented to increase the price of final products or to engage into informal purchases. One additional tactical decision could be to import major share of raw material in order to perform a unified level of VAT. However, this depends on the level of prices in the international markets.

#### *Trade policies*

Local production has limited protection from international competition. Custom duty tariff for the main fruits and vegetable is 10% for trading partners except for Central European Free Trade Agreement (CEFTA) countries which enjoy duty free access (General Directorate of Customs: <http://www.dogana.gov.al/preferencat/>). In the case of processed fruits and vegetable, tariffs range up to 15% depending on the type of product. For example, tariffs for Ketchup, pickled vegetable and several types of fruit juices is 15% (but 0% for CEFTA countries).

Large part of fresh fruits and vegetable are sold informally. As such, the few local operators who channel their sales through the formal outlets (e.g., supermarket chains) face “unfair” competition.

### 4.3 MARD SUPPORT PROGRAMMES

#### Investments support under national schemes

In the last two decades important investments have been made to support the fruit and vegetable sector. These investments, together with a rapidly changing market environment at national and international level have influenced the sector developments.

**Table 4.1: National support schemes for fruits and vegetable by measure and year (million ALL)**

Measure	2014	2015	2016	2017	2018	2019
Plastic films for greenhouses					46.05	
Plastic films for tunnels					5.48	
Pollination of vegetables in greenhouses with pollinating bee, not honeying.					0.05	
Support for Nets used for Protection of production from hail					7.71	
Drip irrigation systems	35.59	13.11	12.17	9.55	66.69	17.00
Opening wells for on-farm irrigation						
Planting nuts		2.19	2.18	4.67	28.50	
Planting other fruit trees		4.51	5.33	7.96	10.10	
Planting subtropical trees					6.69	
Construction of solar greenhouses					171.3	
New heating technology on greenhouse		16.41				
Support for installing biomass heating system, in greenhouses with central heating system.					5.32	
Support of production in greenhouses	38.11					
Fruits and vegetables delivery to collection and processing	12.75	43.58	37.05	26.43	11.59	

Source: ARDA and APM (2020)

<sup>20</sup> Order Nr. 3, dated 21.2.2019 For some additions and amendments to instruction no. 19, dated 3.11.2014, On the implementation of the special regime of the compensation scheme Agricultural producers for value added taxation purposes (changed)

Support for fruits and vegetable sector since 2014 has been subject to frequent changes from year to year. Two measures that have received more regular support through the years is support for drip irrigation and support for collection point. The rationale behind was/is that, while the focus in the previous years was the increase of area under plantation, with the increased production levels, there was a shift towards improving productivity and quality (to which irrigation contributes) as well as distribution (through increased capacities at collection points).

#### Investments under IPARD II

In addition to national schemes, another important funding source for investments has been IPARD-like and IPARD II, which has been co-funded by EC and Albanian Government. Fruits and vegetable were eligible for support under IPARD II, for two measures, namely Measure 1 (farm level), and Measure 2 (processing/collection/marketing etc) level. IPARD II support has enabled major investments in the sector. There has been a balanced distribution between both measures. At farm level, IPARD II has largely funded investments in greenhouses (almost half of the Measure 1 financing) with further significant initiatives in fruit orchards, on-farm investments (machinery and post-harvest facilities, such as storage capacities) and nut plantations. At processing/collection/marketing level, the major investments refer to sorting grading and packing lines, fruit processing, fruit and vegetable handling. For more details related to past IPARD schemes, see Section 7.

#### 4.4 OTHER AGRICULTURE DIRECT AND INDIRECT SUPPORT MEASURES AND FACILITIES

An important project that has contributed to the sector has been SARED (2014-2018), co-funded by GIZ and DANIDA and implemented jointly with MARDWA. Fruit trees and nuts was one of the 4 priority sectors.

SARED project combined the chain approach with the territorial approach of local and regional economic development. Four regions were selected for initial implementation, namely Dibër, Kukës, Korçë and Shkoder with a possible expansion to Berat, Elbasan.

**Table 4.2: Distribution of supported farmers by cluster initiative/subsector under SARED**

Cluster initiative	Region	Members total	% to total	women	Men
<b>Apple</b>	Dibra	60	5%	12	48
	Korçë	40	4%	10	30
	Total apple	100	9%	22	78
<b>Mixed fruits</b>	Berat	160	14%	55	105
	Dibra	40	4%	6	34
	Elbasan	20	2%	4	16
	Korçë	120	11%	25	95
	Kukes	20	2%	5	15
	Kukes/Has	40	4%	7	33
	Total mixed fruits	400	35%	102	298
<b>Women groups</b>	Berat	30	3%	25	5
<b>Total fruit sector</b>		<b>1,030</b>	<b>90%</b>	<b>273</b>	<b>757</b>

Source: SARED project and our own elaboration

Regarding the investment grant scheme under component 1, four target groups are envisioned, namely:

1. Individual farmers/ SMEs
2. Groups of farmers/ SMEs
3. Larger investments of VC drives
4. Innovative and best practice investment projects (incl. demonstration projects – action learning) and institutional grants.

**Table 4.3: Number of investment grants by type and region under SARED**

	Agricultural machinery		Orchard		Processing line		Hail net		Drip irrigation		Cold storage		Other		Total	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
<b>Korce</b>	130	52	36	75	1	7	11	92	4	50	2	40	5	33	189	53
<b>Shkoder</b>	32	13	0	0	10	71	0	0	2	25	0	0	4	27	48	14
<b>Diber</b>	35	14	1	2	0	0	0	0	2	25	0	0	3	20	41	12
<b>Elbasan</b>	22	9	5	10	2	14	0	0	0	0	0	0	1	7	30	8
<b>Kukes</b>	19	8	1	2	0	0	0	0	0	0	1	20	3	20	24	7
<b>Berat</b>	14	6	5	10	1	7	1	8	0	0	2	40	0	0	23	6
<b>Total</b>	252	100	48	100	14	100	12	100	8	100	5	100	15	100	355	100

Source: SARED project and our own elaboration

USAID has supported the sector through different projects. USAID projects (particularly the USAID Albanian Agriculture Competitiveness project) have been working with greenhouse vegetable and fruit growers, focused on improving know-how and technologies, affecting positively yield, quality and safety standards through training and assistance to producers. Assistance also has been provided to extend the harvesting period in the case of fruits. Introduction of other/alternative fruit varieties with both earlier and later harvesting time compared to the existing ones, enabling the farmers to enlarge the market supply time and reduce the import of this crop, which has clearly demonstrated to be successful not only around Saranda but in the other regions of the country as well. For this purpose, a demonstration plot, where different varieties of tangerines (early and late varieties) but other citrus trees other than tangerines was financed and established by AAC/USAD's project in 2011-2012. The USAID projects also have supported investments and have contributed to the establishment of a collection point.

SDC (Swiss Development Cooperation) has provided support to the horticulture sector through RISI Project which is implemented by Helvetia's Swiss Intercooperation and Partners Albania, which focuses on social inclusion and sustainability. Albanian exporters were not informed about Global GAP group certification option, which is far cheaper when compared to certification of individual farmers, and mechanisms for implementing it. RisiAlbania, through hiring specialized experts and service providers, provided training and information and covered the initial certification cost. Global GAP group certification, which reflects and strengthens both vertical and horizontal cooperation (for more details related to value chain coordination see Section 8), has proven to be successful to improve market access.

Another line of support from donors has been provision of loan guarantee. To specific actions have had a strong presence in the agriculture sector: KFW supported Rural Credit Guarantee Foundation (RCGF) and AASF EBRD. These programs provide loan guarantee to financial institutions, aiming at lowering risk and cost of serving the agri-food sector.

## 5. MARKET AND TRADE

### 5.1 INTERNATIONAL TRADE FLOWS AND EVOLUTION OVER TIME

#### 5.1.1 Fresh Fruits

##### A. International trade flows of apples

The export of apple has increased significantly during the last decade; however, it remains lower than 2 million EUR. 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.

Export price of apple has been at the level of 0.1 to 0.4 euros / kg, while import prices have fluctuated from 0.4 to 0.6 euros / kg. 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).

**Table 5.1: Import and exports of apples, Albania by year**

Year	Exports			Imports			Export / Import	
	000€	Tonnes	€/kg	000€	Tonnes	€/kg	Value	Weight
2010	76	1,108	0.07	8,816	20,933	0.42	1%	5%
2014	1,495	3,978	0.38	6,998	12,415	0.56	21%	32%
2015	1,644	9,569	0.17	7,813	13,987	0.56	21%	68%
2016	1,522	8,146	0.19	6,952	12,219	0.57	22%	67%
2017	1,951	8,612	0.23	8,759	15,567	0.56	22%	55%
2018	1,311	6,293	0.21	6,845	11,428	0.60	19%	55%
2019	1,999	13,441	0.15	7,173	11,674	0.61	28%	115%

Source: EUROSTAT (2020)

During the last years apples have been exported mainly in the neighbouring countries of Albania. Greece is the main exporting partner for apples, with 52% of total apple exports in 2019– part of the exports to Greece is low quality apple destined for processing. Interestingly 18% of apple production was exported to Iraq in 2019 (replacing Kosovo which during 2018 was the second most important partner).

Regarding imports map, same as exports is mainly composed by neighbouring countries. In 2019, Italy was the main foreign supplier providing slightly above 51% of the total imports. The most expensive apple come from Italy.

**Table 5.2: Import and exports of apple, Albania by partner country, in 2019**

Country	Exports				Country	Imports			
	000 €	MT	Share (MT)	€/kg		000 €	MT	Share (MT)	€/kg
Greece	768	6,946	52%	0.11	Italy	3,886	5,976	51%	0.65
Iraq	760	2,483	18%	0.31	Greece	2,828	4,939	42%	0.57
Other	471	4,012	30%	0.12	Other	459	759	7%	0.60
Total	1,999	13,441	100%	0.15	Total	7,173	11,674	100%	0.61

Source: EUROSTAT (2020)

### 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 enters 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 below shows the export dynamics for 2019, 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 5.3: Exports of apples in 2019**

Category	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Quantity (MT)	469	989	1,503	1,311	232	3	5		116	4,969	2,138	1,706
Value(000Euro)	139	150	283	369	61	1	2		11	419	206	358
Price (Euro/kg)	0.3	0.2	0.2	0.3	0.3	0.3	0.4		0.1	0.1	0.1	0.2

Source: EUROSTAT (2020)

Table below shows the import dynamics for 2019, including average prices at which apple are imported.

**Table 5.4: Imports of apples in 2019**

Category	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Quantity (MT)	562	969	1,760	2,009	1,865	988	692	733	515	492	284	805
Value(000Euro)	337	562	1,035	1,303	1,231	644	421	409	291	262	163	515
Price (Euro/kg)	0.60	0.58	0.59	0.65	0.66	0.65	0.61	0.56	.56	0.53	0.57	0.64

Source: EUROSTAT (2020)



## B. International trade of citrus

Balance of trade for the whole category of citrus is improving (Table 5.5). Exports of citrus have been increasing sharply compared to 2010, however imports remain very high.

**Table 5.5: Albanian import and export of citrus total**

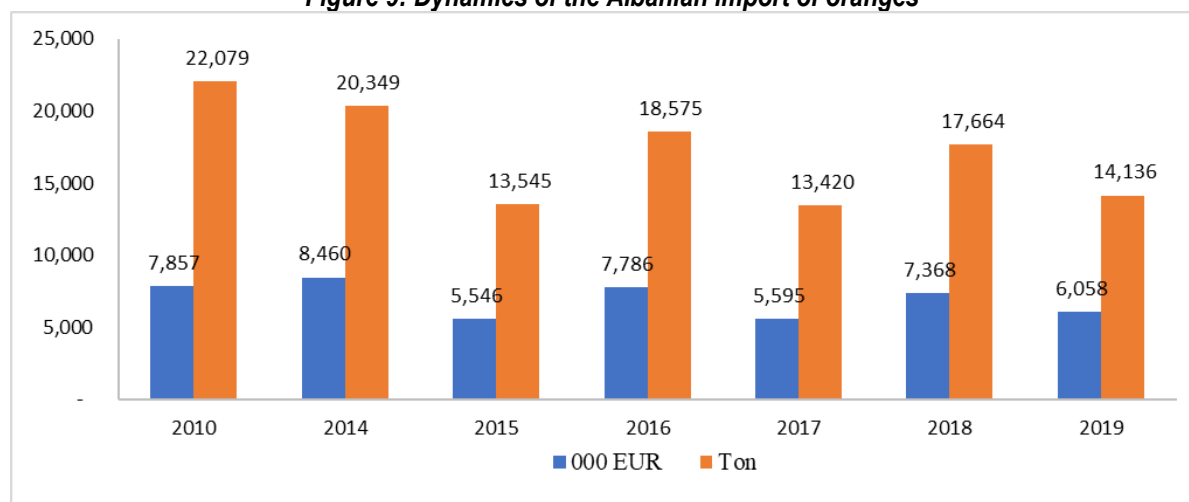
Year	Exports			Imports			Export to Import ratio	
	000€	MT	Price	000€	MT	Price	Value	Quantity
2010	21	86	0.24	13,798	34,885	0.40	0%	0%
2014	933	3,526	0.26	13,045	29,846	0.44	7%	12%
2015	1,786	5,942	0.30	9,469	21,195	0.45	19%	28%
2016	2,527	8,440	0.30	11,070	24,808	0.45	23%	34%
2017	2,877	9,563	0.30	9,225	19,780	0.47	31%	48%
2018	2,704	9,370	0.29	11,801	25,660	0.46	23%	37%
2019	4,362	13,728	0.32	10,118	21,197	0.48	43%	65%

Source: EUROSTAT (2020)

### Citrus by category

Import of oranges remains high (amounting to ca 6 million euros in 2019) – the domestic production has not increased at same pace as other major fruits, thereby leaving an open window for imports. Whereas exports are very low despite the slight increases in quantities in the last years. The trade deficit of oranges is also high – implying a potential for import substitution.

**Figure 9: Dynamics of the Albanian import of oranges**



Source: EUROSTAT (2020)

Despite the positive trends, trade balance remains deeply negative for oranges.

**Table 5.6: Albanian import and export of oranges**

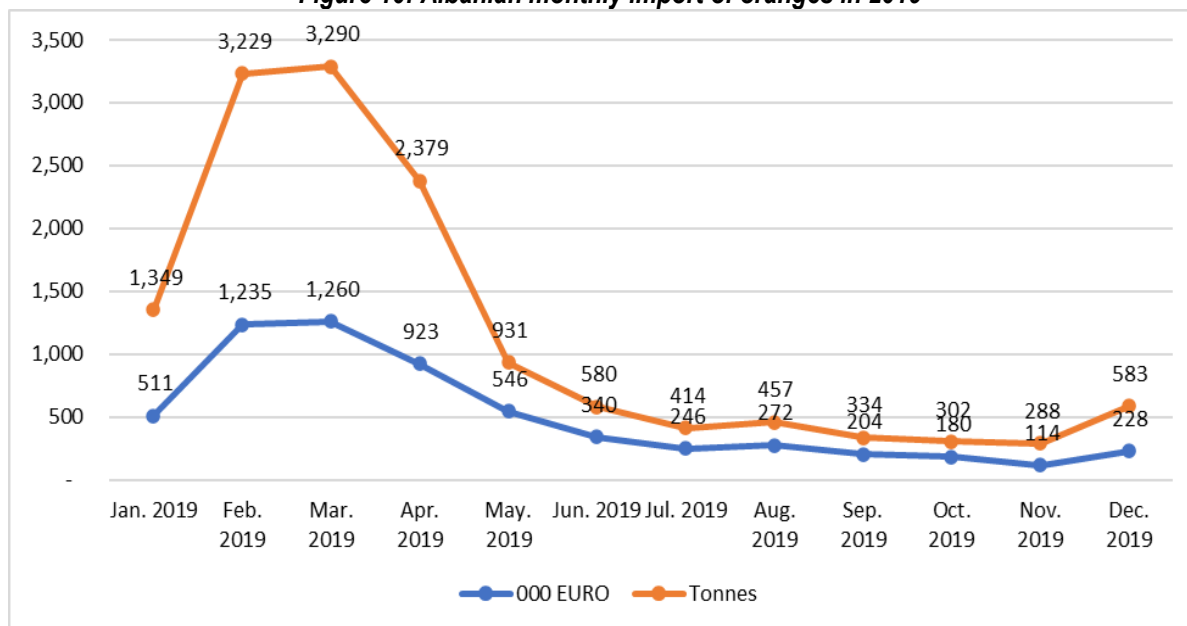
Year	Exports			Imports			Export/ Import	
	000€	Tonnes	Price	000€	Tonnes	Price	Value	Quantity
2010	0	2	0.00	7,857	22,079	0.36	0.0%	0.0%
2014	5	24	0.21	8,460	20,349	0.42	0.1%	0.1%
2015	18	65	0.28	5,546	13,545	0.41	0.3%	0.5%
2016	27	57	0.47	7,786	18,575	0.42	0.3%	0.3%
2017	19	47	0.40	5,595	13,420	0.42	0.3%	0.4%
2018	5	14	0.36	7,368	17,664	0.42	0.1%	0.1%
2019	60	197	0.30	6,058	14,136	0.43	1.0%	1.4%

Source: EUROSTAT (2020)



Imports of oranges take place mostly during the first 2-3 months of the year, Figure 4 below shows the monthly dynamics of import of oranges in 2019.

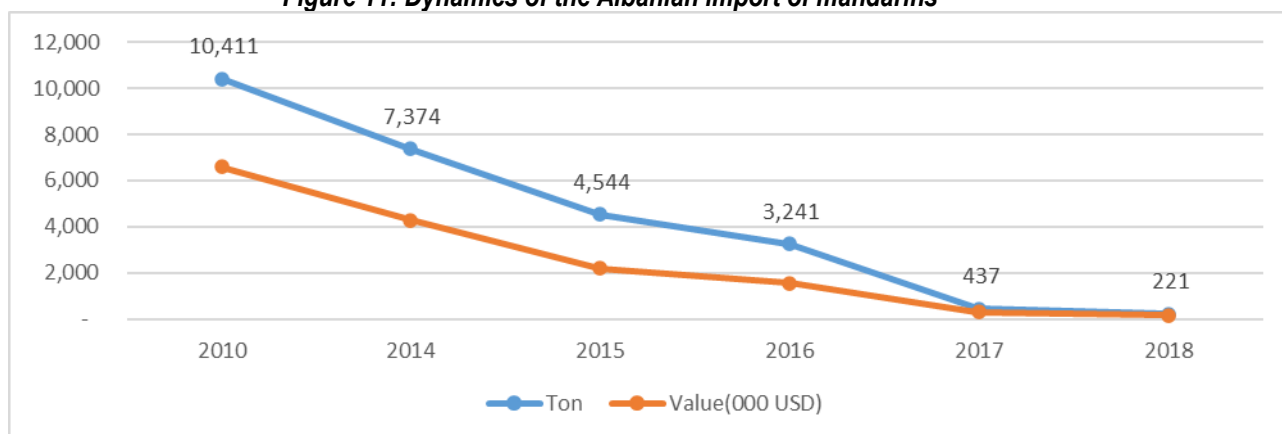
**Figure 10: Albanian monthly import of oranges in 2019**



Source: EUROSTAT (2020)

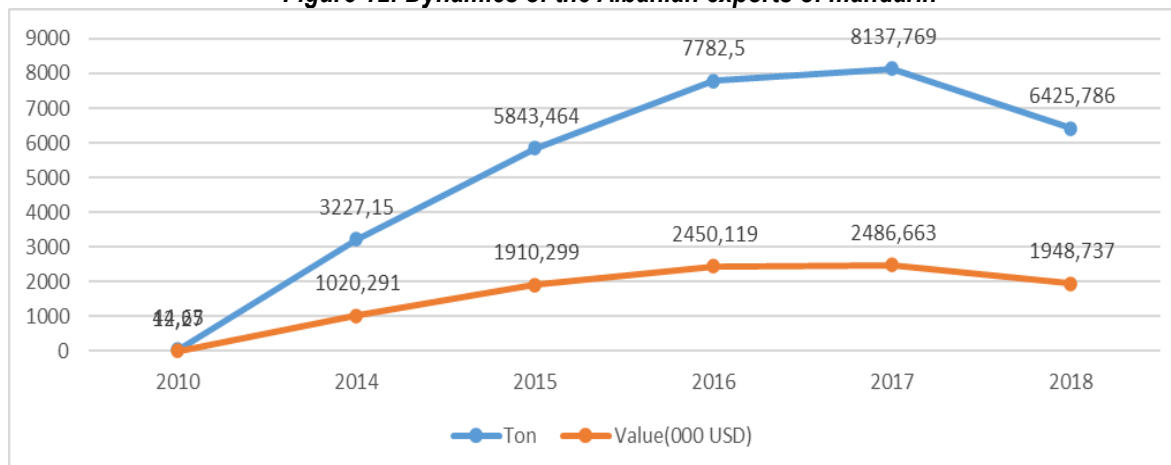
Different from oranges, the import of mandarins has been characterized by a strong contraction resulting from increased domestic production, which in part has contributed to import substitution and in part has been destined for exports.

**Figure 11: Dynamics of the Albanian import of mandarins**



Source: UNSTAT (2020)

As mentioned before, export of mandarins has increased exponentially. Mandarins are mainly harvested and exported during November – December.

**Figure 12: Dynamics of the Albanian exports of mandarin**

Source: UNSTAT (2020)

Thus, Albania has achieved a trade surplus since 2015, which has been improving in the following year, and is expected to further increase as newly planted mandarins will enter into production in the coming years.

**Table 5.7: Albanian trade balance of Mandarin**

Year	Exports			Imports			Export/ Import	Export/ Import
	000\$	MT	Price	000\$	MT	Price	Value	Quantity
2010	12	45	0.27	6,596	10,411	0.63	0.2%	0.4%
2014	1,020	3,227	0.32	4,277	7,374	0.58	23.9%	43.8%
2015	1,910	5,843	0.33	2,197	4,544	0.48	86.9%	128.6%
2016	2,450	7,783	0.31	1,564	3,241	0.48	156.7%	240.1%
2017	2,487	8,138	0.31	293	437	0.67	848.8%	1862.2%
2018	1,949	6,426	0.30	153	221	0.69	1273.9%	2907.7%

Source: UNSTAT (2020)

In addition, import of lemons (similar to oranges) remains high (amounting to ca 2.9 million USD) and the trade deficit is also high – implying a potential for import substitution.

**Table 5.8: Albanian import and export of lemons**

Year	Exports			Imports			Export/ Import	Export/ Import
	000\$	MT	Price	000\$	MT	Price	Value	Quantity
2005	:	:	:	1,412	2,268	0.6	:	:
2010	5.9	12.1	0.5	1,898	2,180	0.9	0.31%	0.55%
2014	1.4	3.2	0.4	1,163	1,351	0.9	0.12%	0.24%
2015	:	:	:	1,784	2,553	0.7	:	:
2016	59.8	42.9	1.4	1,961	2,759	0.7	3.05%	1.55%
2017	:	:	:	2,678	3,866	0.7	:	:
2018	:	:	:	2,905	3,968	0.7	:	:

Source: EUROSTAT (2020)

### Partner countries for citrus

Kosovo is the main exporting partner making up around 80% of total exports of citrus (mainly tangerine), in general, and mandarins specifically. A part of products that are exported to Kosovo are further re-exported to other countries in the region. Other important partners in 2019 for citrus exported are Montenegro and Romania.

**Table 5.9: Exports of citrus fruit, 2019**

Citrus Fruit	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
<b>Kosovo</b>	76%	94%	-	-	-	100%	-	-	-	-	84%	73%
<b>Montenegro</b>	4%	3%	100%	100%	-	-	-	-	-	-	3%	4%
<b>Romania</b>	1%	-	-	-	-	-	-	-	-	100%	1%	5%
<b>Total (MT)</b>	2,758	337	19	10	-	11	-	-	-	2	2,723	7,867

Source: EUROSTAT (2020)

Citrus are primarily imported from Greece, followed by Italy and Turkey.

**Table 5.10: Imports of citrus fruit by partner country, 2019**

Citrus Fruit	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
<b>Greece</b>	80%	72%	80%	91%	89%	58%	40%	48%	38%	27%	43%	70%
<b>Italy</b>	17%	26%	16%	3%	0%	1%	0%	0%	8%	29%	21%	0%
<b>Turkey</b>	3%	3%	4%	3%	2%	3%	-	2%	26%	35%	32%	26%
<b>Total (MT)</b>	1,670	4,534	4,261	2,894	1,426	1,188	1,069	914	778	955	620	887

Source: EUROSTAT (2020)

## OTHER FRUITS

### Strawberries

Export of strawberries has been characterized by a distinctive increase, recently mainly because of increase of domestic production while imports have reduced significantly.

**Table 5.11. Albanian import and export strawberries**

Year	Exports			Imports			Export/ Import	Export/ Import
	000€	MT	Price	000€	MT	Price	Value	Quantity
<b>2010</b>	-	-		101	52	1.9	-	-
<b>2014</b>	2	6	0.3	136	48	2.8	1%	12%
<b>2015</b>	125	127	1.0	43	20	2.2	295%	643%
<b>2016</b>	998	1,050	1.0	41	19	2.1	2449%	5440%
<b>2017</b>	1,253	1,099	1.1	21	12	1.7	5908%	8889%
<b>2018</b>	2,047	1,678	1.2	32	16	2.0	6351%	10565%
<b>2019</b>	2,261	1,935	1.2	55	26	2.1	4093%	7506%

Source: EUROSTAT (2020)

### Apricots, cherries, peaches, plums

Analyzed trade balance of other fruits such as apricots, cherries, peaches and plums data reveal that a trade deficit exists. Strong oscillations are observed.

**Table 5.12: Albanian imports and exports of apricots, cherries, peaches, plums**

Year	Exports			Imports			Export/ Import	Export/ Import
	000€	MT	Price	000€	MT	Price	Value	Quantity
<b>2010</b>	40	190	0.21	1,717	4,318	0.40	2%	4%
<b>2014</b>	965	1,602	0.60	3,391	7,664	0.44	28%	21%
<b>2015</b>	720	2,069	0.35	2,085	4,694	0.44	35%	44%
<b>2016</b>	317	639	0.50	2,948	6,521	0.45	11%	10%
<b>2017</b>	1,230	3,220	0.38	2,187	4,890	0.45	56%	66%
<b>2018</b>	509	721	0.71	2,884	6,313	0.46	18%	11%
<b>2019</b>	417	748	0.56	3,084	6,527	0.47	14%	11%

Source: EUROSTAT (2020)

## 5.1.2 Fresh vegetables

### A. INTERNATIONAL TRADE OF VEGETABLES

Within the agri-food sectors, vegetable sector has the best performance in terms of trade. Vegetable makes up 22.1% of total agri-food exports in 2019, which marks a significant increase (success) when compared to just less than 4.9% in 2010 (INSTAT, 2020).

Vegetables exports have increased exponentially from a very low base in 2010 to the last years. Following the increased levels of production and the extending of production calendar (e.g., through increased greenhouse production), in 2019, exports of vegetable mounted to 63 Million EUR (in 2010 exported value was registered 3 million euro).

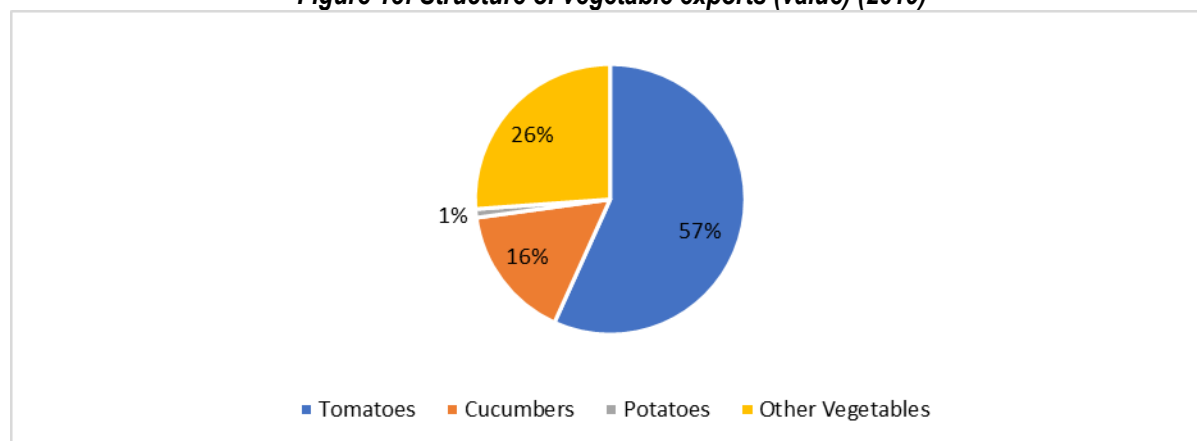
**Table 5.13: Albanian international trade of vegetable (000 Euro)**

Year	Exports			Imports			Export/ Import	Export/ Import
	000€	MT	€/ kg	000€	MT	€/kg	Value	Weight
2010	3,266	13,506	0.2	14,827	46,212	0.3	22%	29%
2014	16,205	53,911	0.3	17,352	40,373	0.4	93%	134%
2015	29,410	84,463	0.3	13,932	34,155	0.4	211%	247%
2016	38,834	101,917	0.4	14,204	35,528	0.4	273%	287%
2017	51,980	121,619	0.4	15,857	34,541	0.5	328%	352%
2018	58,681	122,922	0.5	18,281	37,837	0.5	321%	325%
2019	63,310	137,093	0.5	20,196	39,365	0.5	313%	348%

Source: EUROSTAT (2020)

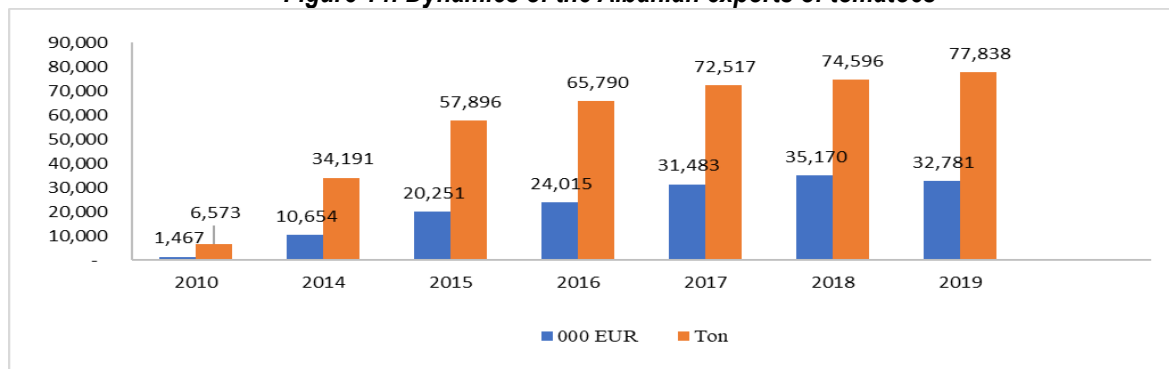
Tomato is one of the main exported vegetables, followed by cucumber (see figure 13).

**Figure 13: Structure of vegetable exports (value) (2019)**



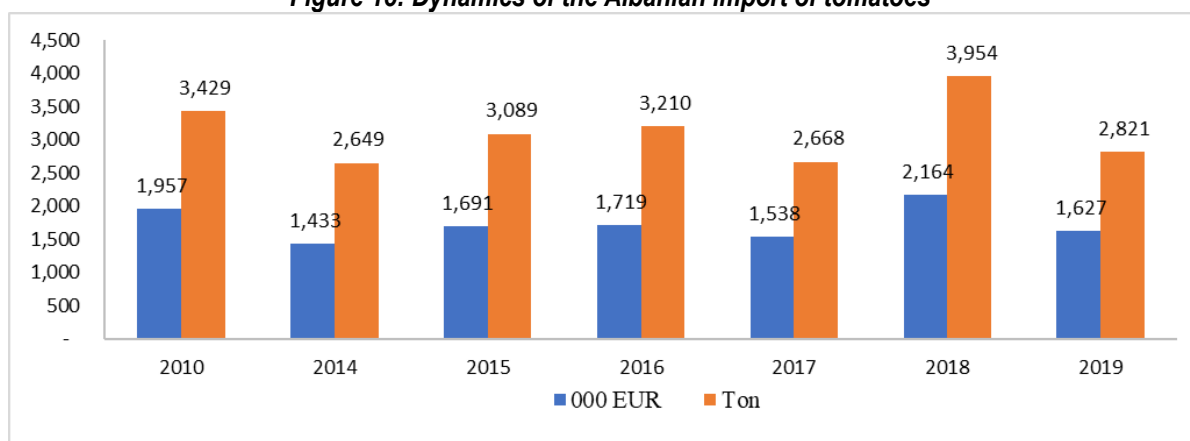
Source: EUROSTAT (2020)

Export of tomatoes has increased significantly – almost 12 times since 2010. The backbone is greenhouse tomatoes (export of field tomatoes is very low if at all).

**Figure 14: Dynamics of the Albanian exports of tomatoes**

Source: EUROSTAT (2020)

Import of tomatoes has experienced a decrease since late 2010s, because of increased domestic production (increased greenhouse area/production). However, there are observed fluctuations of imports in conjunction to production and market oscillations.

**Figure 15: Dynamics of the Albanian import of tomatoes**

Source: EUROSTAT (2020)

Import prices are substantially higher than export prices. Import prices are higher because Albania typically imports off-season vegetables from countries producing in heated greenhouses, which results in higher production costs compared to the Albanian unheated greenhouses. Export prices of tomato have been at the level of 0.2 to 0.5 euro/kg, while import prices are in the range 0.5 - 0.6 euro/kg. There are several reasons behind the low declared prices. On the one hand, Albanian production is not standardized, and it is rarely certified (e.g., Global GAP). Also, the supply chain is not very well-organized, relying still largely on spot market. Therefore, most greenhouse vegetable are sold in the region (e.g., Western Balkan countries or new EU countries such as Romania and Bulgaria, with low purchasing power). On the other hand, there may be under-reporting (in the customs) considering the informality that characterizes Albania and several destination countries (mentioned above).

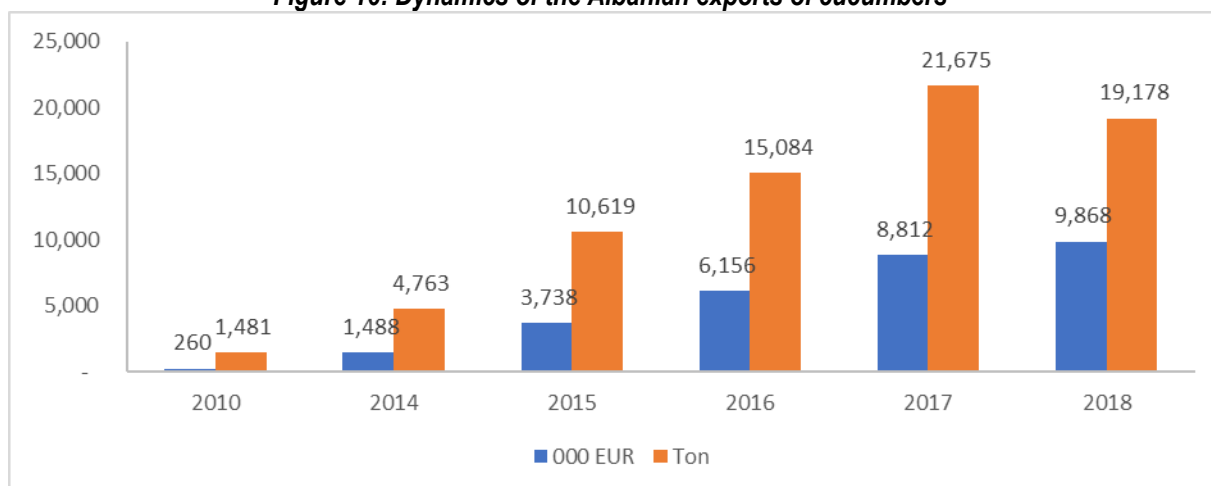
**Table 5.14: Trade balance of tomatoes by year**

Year	Exports			Imports			Export/ Import	
	000€	MT	€/ kg	000€	MT	€/kg	Value	Weight
2010	1,467	6,573	0.22	1,957	3,429	0.57	75%	192%
2014	10,654	34,191	0.31	1,433	2,649	0.54	743%	1291%
2015	20,251	57,896	0.35	1,691	3,089	0.55	1198%	1874%
2016	24,015	65,790	0.37	1,719	3,210	0.54	1397%	2050%
2017	31,483	72,517	0.43	1,538	2,668	0.58	2047%	2718%
2018	35,170	74,596	0.47	2,164	3,954	0.55	1625%	1887%
2019	32,781	77,838	0.42	1,627	2,821	0.58	2015%	2759%

Source: EUROSTAT Trade (2020)

Similar to tomatoes, also the export of cucumber has increased significantly – almost 13 times since 2010.

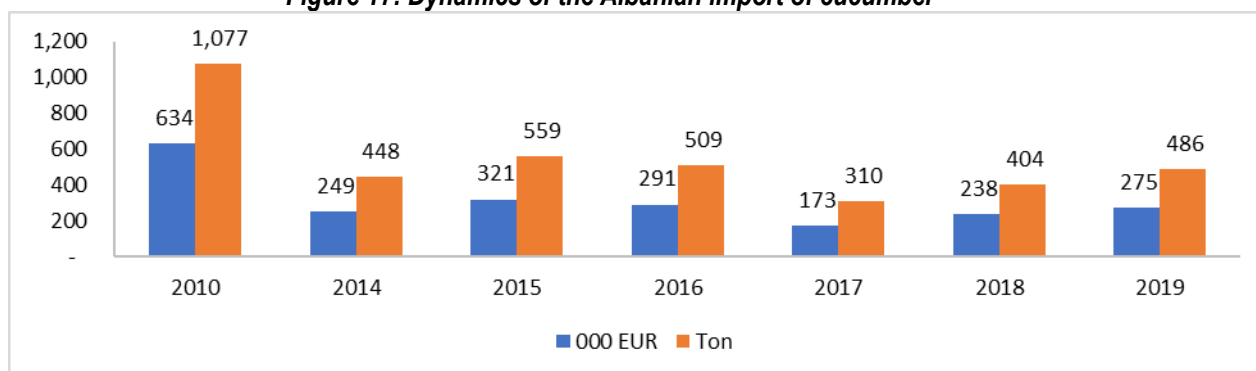
**Figure 16: Dynamics of the Albanian exports of cucumbers**



Source: EUROSTAT (2020)

The import of cucumber has been decreasing since 2010 as a result of increased domestic production (increased greenhouse area/production) similar to other greenhouse vegetable.

**Figure 17: Dynamics of the Albanian import of cucumber**



Source: EUROSTAT (2020)

Similar to tomatoes and for the same reasons like in the case of tomatoes, also cucumber import prices are higher than export prices.

**Table 5.15: Trade balance of cucumbers by year**

Year	Exports		Imports			Export/ Import	Export/ Import	
	000€	MT	€/ kg	000€	MT	€/kg	Value	Weight
2010	260	1,481	0.18	634	1,077	0.59	41%	137%
2014	1,488	4,763	0.31	249	448	0.56	597%	1063%
2015	3,738	10,619	0.35	321	559	0.57	1165%	1901%
2016	6,156	15,084	0.41	291	509	0.57	2117%	2966%
2017	8,812	21,675	0.41	173	310	0.56	5108%	6983%
2018	9,868	19,178	0.51	238	404	0.59	4139%	4751%
2019	10,240	22,014	0.47	275	486	0.57	3721%	4528%

Source: EUROSTAT (2020)

Albania's main exporting partners for tomatoes in 2019 was Turkey, followed by Serbia, Bulgaria and Syrian Arab Republic. Most export of tomatoes takes place during April – June (corresponding to first greenhouse production season) and October – December (second first greenhouse production season). Highest prices are during March, April and October.

**Table 5.16: Exports of tomatoes by partner country monthly (2019)**

Exports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Quantity(M)	17	1	54	8,134	22,653	8,184	409	208	7,194	16,435	10,248	4,302
Value (000€)	16	:	53	5,248	9,515	3,034	261	127	2,979	5,545	4,102	1,900
Price (€/kg)	0.94	:	0.98	0.65	0.42	0.37	0.64	0.61	0.41	0.34	0.40	0.44
Exports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Turkey	26%	-	64%	25%	35%	35%	5%	-	6%	8%	15%	16%
Syria	-	-	-	24%	26%	31%	9%	5%	7%	10%	14%	23%
Serbia	20%	-	7%	15%	16%	17%	23%	1%	9%	7%	6%	6%
Bulgaria	-	-	-	11%	5%	3%	9%	8%	17%	17%	14%	11%
Total (MT)	17	1	54	8,134	22,653	8,184	409	208	7,194	16,435	10,248	4,302

Source: EUROSTAT (2020)

Regarding imports, Italy, Turkey and Greece are the main supplying countries. Most imports of tomatoes take place during February to March. Highest prices are during July.

**Table 5.17: Import of tomatoes by partner country monthly (2019)**

Imports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Aug.	Sep.	Oct.	Nov.	Dec.
Quantity (MT)	284	634	1,314	351	47	16	36	29	30	9	67
Value (000€)	168	370	741	190	30	12	23	20	13	8	46
Price (€/kg)	0.59	0.58	0.56	0.54	0.64	0.76	0.62	0.68	0.43	0.91	0.69
Imports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Aug.	Sep.	Oct.	Nov.	Dec.
Italy	4.7%	29.3%	64%	64%	74%	14%	28%	8%	5%	13%	15%
Turkey	70%	54%	23%	12%			56%		1%	3%	2%
Greece	25%	17%	13%	24%	26%	22%	15%	15%	20%	84%	44%
Total (MT)	284	634	1,314	351	47	16	36	29	30	9	67

Source: EUROSTAT (2020)

Note: Import of tomatoes during July was negligible, namely 3 Mt or 5 thousand EUR.

Serbia, Kosovo, and North Macedonia are the main export markets for cucumbers. Most exports of cucumbers take place during March - May and October-November. Highest prices are during February and December (but export volumes are low during those months).

**Table 5.18: Exports of cucumbers by partner country monthly (2019)**

Exports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Quantity (MT)	89	329	4,341	6,584	3,853	356	203	73	206	1,802	2,904	1,275
Value (000€)	42	230	2,198	3,477	1,143	140	112	37	114	666	1,301	781
Price (€/kg)	0.47	0.70	0.51	0.53	0.30	0.39	0.55	0.51	0.56	0.37	0.45	0.61
Exports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Serbia	20%	35%	31%	32%	36%	18%	-	-	0%	7%	16%	25%
Kosovo	54%	36%	16%	18%	6%	11%	-	-	-	1%	1%	17%
N. Macedonia	-	5%	18%	16%	3%	-	-	-	-	2%	9%	11%
Total (MT)	89	329	4,341	6,584	3,853	356	203	73	206	1,802	2,904	1,275

Source: EUROSTAT (2020)

Regarding imports Greece is the main supplier of cucumbers, followed by Turkey. Imported quantities of cucumber are very low, however most of it is sourced from Greece during January - February and December (due to limited heated greenhouse production in Albania).

**Table 5.19: Import of cucumbers by partner country monthly (2019)**

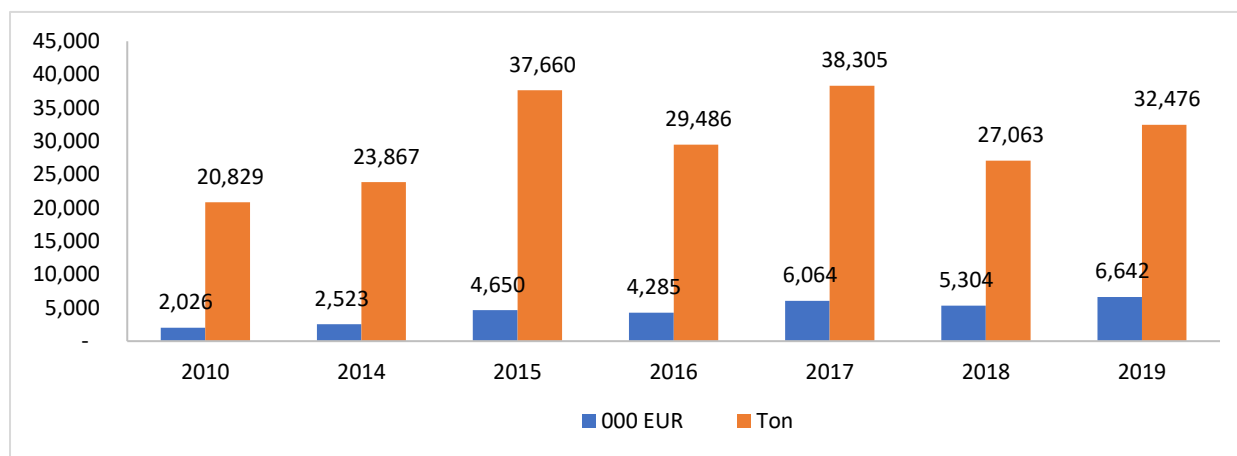
Imports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
Quantity(M)	204	141	16	8.8	20.8	0.2	0.1	0.1	9.4	2.9	0.1	83.0	
Value (000€)	115	81	11	4	7	0	0	0	6	2	0	48	
Price (€/kg)	0.56	0.58	0.70	0.48	0.31	1.37	1.60	1.82	0.67	0.75	1.68	0.58	
Imports	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	
Greece		91%	84%	59%	1%	1%	83%	83%	43%	1%	3%	100%	78%
Turkey		9%	10%	-	-	-	-	-	-	-	-	-	-
Total (MT)		203.7	141.0	16.0	8.8	20.8	0.2	0.1	9.4	2.9	0.1	83.0	

Source: EUROSTAT (2020)

## B. INTERNATIONAL TRADE OF WATERMELON AND MELON

Exports of watermelon exhibit a growing trend in value terms though oscillations are observed in quantities from year to year; contraction is marked in 2016 after a strong increase in 2015. More specifically, watermelon exports have increased significantly in the last years, from ca 2 million Euros in 2010 to exceeding 6 million euros in 2019

**Figure 18: Dynamics of the Albanian exports of watermelon**



Source: EUROSTAT (2020)

While exports have marked increase, the opposite could be observed for imported quantities. Import prices are higher than export prices – naturally, part of the watermelon is imported off-season, reaching the Albanian market at significantly higher cost and prices when compared to the price at which Albanian watermelons are exported during the production season.

**Table 5.20: Import and exports of watermelon & melon, Albania by year**

Year	Exports			Imports			Export/ Import	
	000€	MT	€/ kg	000€	MT	€/kg	Value	Weight
2010	2,026	20,829	0.10	95	117	0.8	2133%	17803%
2014	2,523	23,867	0.11	93	86	1.1	2713%	27752%
2015	4,650	37,660	0.12	62	112	0.6	7500%	33625%
2016	4,285	29,486	0.15	65	59	1.1	6592%	49976%
2017	6,064	38,305	0.16	94	194	0.5	6451%	19745%
2018	5,304	27,063	0.20	111	120	0.9	4778%	22553%
2019	6,642	32,476	0.20	123	143	0.9	5400%	22710%

Source: EUROSTAT (2020)

Most exports of watermelon take place during June – July. The best window is that of June, especially the earlier parts. Indeed, as it may be shown, the month with highest level of export is June, followed by July, with slightly lower levels. There is a potential to increase production and exports also by the end of May, depending on the cultivar variety but also climatic conditions. In late June, Northern Macedonia and other countries in the region start harvesting, thus resulting in stronger competition with affects prices and margins in the export markets.

The prices are higher in May and June, because of lower competition (as mentioned above, Northern Macedonia enters production later). Also, main exporting partner countries are Kosovo (44% of total watermelon exported), followed by Czech Republic (11%) and Bosnia and Hercegovina (10%).



**Table 5.21: Monthly exports of watermelon & melons by partner countries and total (2019)**

Exports	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Quantity (MT)	126	11,924	15,066	2,846	2,260	225	28	1
Value (000€)	88	3,219	2,602	276	316	120	20	0
Price (€/kg)	0.7	0.27	0.17	0.10	0.14	0.53	0.74	0.5
Exports	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Kosovo	11%	23%	55%	81%	45%	5%		
Czechia	2%	18%	10%		1%			
BiH	11%	9%	13%	1%	0%	6%	7%	
Total (MT)	126	11,924	15,066	2,846	2,260	225	28	1

Source: EUROSTAT (2020)

### 5.1.3 Imports and exports of processed fruit and vegetables

International trade data show a heavy structural deficit. At present, for every EUR 100 of imports, Albania exports EUR 10.

The evolution of the international trades of processed fruit and vegetables between 2010 and 2019 is shown in the table below.

**Table 5.22: Imports and exports of processed fruit and vegetables (HS 20)**

Year	Ton		000 Euro		000 Euro			
	Imports	Exports	Imports	Exports	Trade volume	Deficit	Deficit/Trade volume	Export / Import
2010	16,247	478	13,772	368	14,140	-13403.80	-95%	3%
2013	12,905	449	14,393	442	14,835	-13951.49	-94%	3%
2014	13,997	1,005	16,247	1,295	17,542	-14952.60	-85%	8%
2015	13,922	347	16,777	354	17,131	-16422.52	-96%	2%
2016	15,798	619	19,542	811	20,353	-18731.38	-92%	4%
2017	17,342	858	21,249	1,202	22,451	-20046.73	-89%	6%
2018	17,180	865	21,904	1,464	23,368	-20440.92	-87%	7%
2019	19,034	1,039	24,995	2,429	27,424	-22565.61	-82%	10%

Source: EUROSTAT (2021)

Two types of processed vegetables for which imports increased are processed potatoes (including frozen potatoes), as shown in table below.

**Table 5.23: Imports of selected processed vegetables from EU in 2000, 2012 and 2018 (USD)**

Products	2000	2012	2018
Processed potatoes (HS2005)	1,630,805	3,946,263	4,649,684
Processed tomatoes (HS2002)	209,028	2,324,086	3,995,093

Source: UNSTAT 2018

The growth of supermarket chains will generate additional demand for frozen vegetables, which so far are dominated by imports, different types of vegetables in tins and vegetables in oil.

Fruit juices and jams are the main processed fruit items imported from the EU. The imports of juices have decreased substantially since 2000, as shown in the table below.

**Table 5.24: Imports and exports of juice (000 Euro) (HS code 2009)**

Period	Import	Export	Trade volume	Deficit	Deficit/trade volume
2010	3,267	104	3,371	-3,163	-94%
2011	3,116	139	3,255	-2,977	-91%
2012	2,862	167	3,029	-2,695	-89%
2013	2,512	61	2,573	-2,451	-95%
2014	2,628	86	2,714	-2,542	-93%
2015	2,108	78	2,186	-2,030	-93%
2016	2,084	82	2,166	-2,002	-92%
2017	2,719	15	2,734	-2,704	-99%

2018	2,545	10	2,555	-2,445	-96%
2019	2,497	62	2,559	-2,435	-95%

Source: EUROSTAT (2020)

The import of jams has marked increase during 2000ies and then a decline in the following decade. Exports are negligible, thereby the trade deficit remains high. For more details see the table below.

**Table 5.25: Imports and exports of jams (000 Euro) (HS code 2007)**

Period	Import	Export	Trade volume	Deficit	Deficit/trade volume
2010	1,283	42	1,325	-1,241	-94%
2011	1,198	47	1,245	-1,151	-92%
2012	1,171	58	1,229	-1,113	-91%
2013	1,261	40	1,301	-1,221	-94%
2014	1,401	27	1,428	-1,374	-96%
2015	1,338	40	1,378	-1,298	-94%
2016	1,532	36	1,568	-1,496	-95%
2017	1,434	69	1,503	-1,365	-91%
2018	1,215	77	1,292	-1,138	-88%
2019	1,339	94	1,433	-1,245	-87%

Source: EUROSTAT (2021)

Figures show a growing exporting trends of dried fruits until 2017, followed by a contraction in the following years. Overall, the trade balance is positive – there is trade surplus.

**Table 5.26: Imports and exports of dried fruits (HS 0813)**

	Export			Import			Export/import	
	(000 EUR)	Ton	Price	(000 EUR)	Ton	Price	(000 EUR)	Ton
2010	1	1	0.8	86	31	2.8	1%	4%
2014	33	21	1.6	211	51	4.1	15%	41%
2015	2	0.2	6.7	367	90	4.1	0.5%	0.3%
2016	154	30	5.1	281	63	4.5	55%	48%
2017	1,025	516	2.0	362	117	3.1	283%	439%
2018	644	194	3.3	375	127	3.0	172%	153%
2019	790	330	2.4	518	195	2.7	153%	169%

Source: EUROSTAT (2020)

There is a growing trend of imports of preserved fruits, while exports are negligible, thereby there is a strong trade deficits.

**Table 5.27: Imports and exports of preserved fruits (HS 2008)**

	Export			Import			Export/import	
	(000 EUR)	Ton	Price	(000 EUR)	Ton	Price	(000 EUR)	Ton
2010	3	3	1.1	2,260	1,703	1.3	0.1%	0.2%
2014	8	4	1.9	2,748	1,344	2.0	0.3%	0.3%
2015	5	4	1.6	2,830	1,138	2.5	0.2%	0.3%
2016	6	6	1.1	3,174	1,161	2.7	0.2%	0.5%
2017	13	13	1.0	3,503	1,224	2.9	0.4%	1.0%
2018	20	6	3.6	4,349	1,479	2.9	0.5%	0.4%
2019	34	8	4.1	5,039	1,631	3.1	0.7%	0.5%

Source: EUROSTAT (2020)

Table below shows the geographical structure of imports and exports for dried fruits (HS 0813) and preserved fruits (HS 2008)

**Table 5.28: Exports and Imports of processed fruits and nuts by partner countries in 2019**

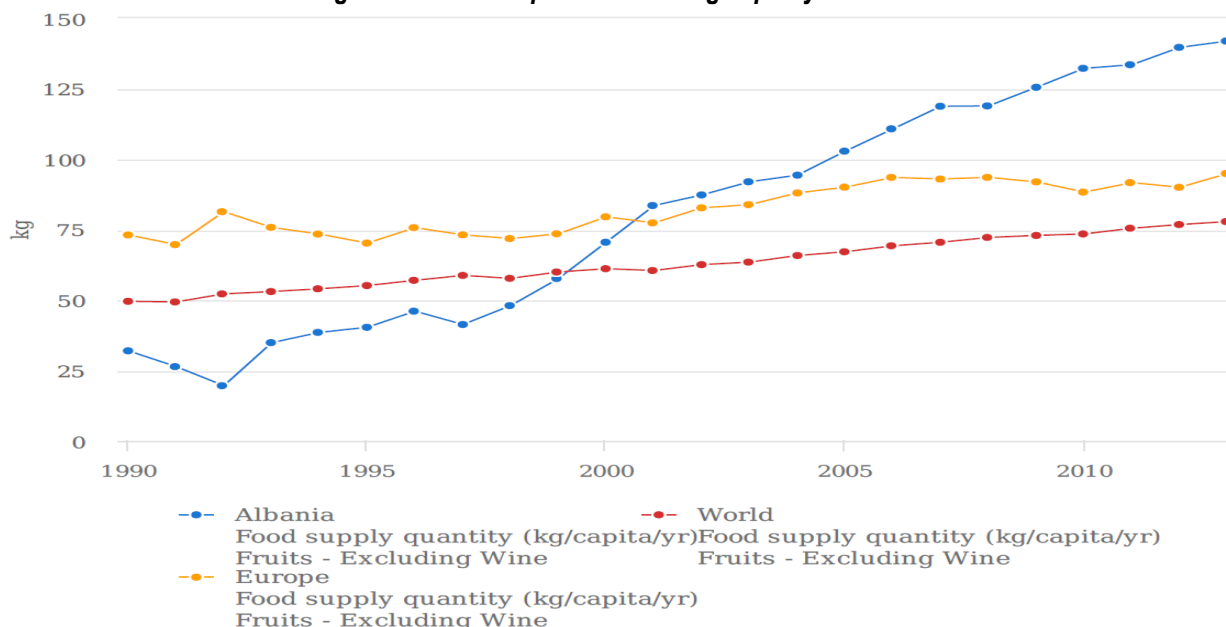
Country	Export amount (tons)	% Share in export amount	Country	Import amount (tons)	% Share in import amount
<b>HS 0813 (dried fruits)</b>					
Germany	285	86%	Germany	93	48%
Czechia	22	7%	Bulgaria	24	12%
Croatia	19	6%	Turkey	16	8%
<b>Total</b>	<b>330</b>	<b>100%</b>	<b>Total</b>	<b>195</b>	<b>100%</b>
<b>HS 2008 (preserved fruits)</b>					
Kosovo	6	75%	Greece	704	43%
US	1	14%	Turkey	401	25%
			Italy	92	6%
<b>Total</b>	<b>8</b>	<b>100%</b>	<b>Total</b>	<b>1,631</b>	<b>100%</b>

Source: EUROSTAT (2020)

## 5.2 DOMESTIC MARKET

### 5.2.1 FRUITS

Consumption of fruits has increased globally and in Europe since early 1990ies. The increase of Albanian consumption is substantially higher for the same period. After the transition into market economy that began in early 1990s, the demand from Albanian consumers for fruits increased significantly. As part of trade liberalization 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 tripled when compared to the pre-transition and early transition period. The increase of the local production capacities and storage was instrumental to enabling increase of consumption, making fresh products available for consumer for longer periods of time, at lower costs<sup>21</sup>.

**Figure 19: Consumption of fruits kg/capita/year**

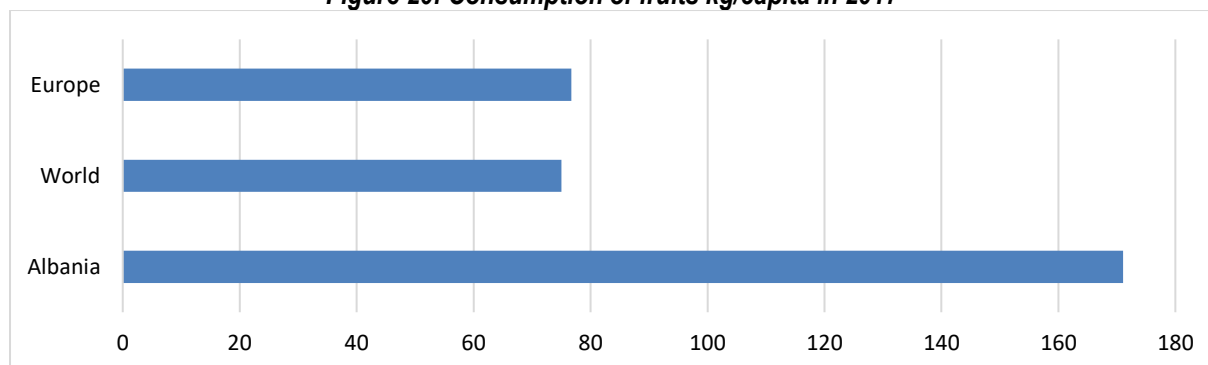
Source: FAOSTAT (Nov 17, 2020)

Source: FAOSTAT (2020)

<sup>21</sup>Zhllima, E., Imami, D., & Merkaj, E. (2012). Food consumer trends in post socialist countries: the case of Albania. *Economia Agro-alimentaire*.

As it can be noted from the Figure 2 below, consumption of fruits (expressed in kg per capita) in Albania is far higher when compared to the world and European average. While the figures about Albanian consumption of fruits may be inflated also due to the quality of data and the methodology applied by FAOSTAT, the main conclusion that may be drawn is that overall, the local market is largely saturated and cannot absorb much higher quantities of local production (at least for the main types of fruits produced locally).

**Figure 20: Consumption of fruits kg/capita in 2017**



Source: FAOSTAT (2020)

The origin of production tends to be quite an important factor for most Albanian consumers. According to various studies, most consumers choose their products based on their origin (domestic versus imports). Previous studies have shown that there is a clear preference for domestic fruits, including citrus, for which there is also a preference related to specific territory within Albania, which represents a potential for marketing-related investments<sup>22</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>23</sup>.

## A. APPLE

### 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 been decreasing remarkably reaching 10% in the last years (it was 28% in 2010) while the share of exports to total production has been slightly increasing from 1% in 2010 to more than 6%.

**Table 5.29: Supply balance of apple in Albania (000 MT)**

Category	2010	2014	2015	2016	2017	2018	2019
<b>Production</b>	55	82	92	102	96	108	106
<b>Import</b>	21	12	14	12	16	11	12
<b>Export</b>	1.1	3.9	9.6	8.1	8.6	6.3	13
<b>Supply</b>	74.9	90.1	96.4	105.9	103.4	112.7	105.0
<b>Import/supply</b>	28%	13%	15%	11%	15%	10%	11%
<b>Export/production</b>	1%	5%	10%	8%	8%	6%	12%

Source: Author calculations based on data from INSTAT, EUROSTAT and FAOSTAT (2020)

### Consumer demand and preferences

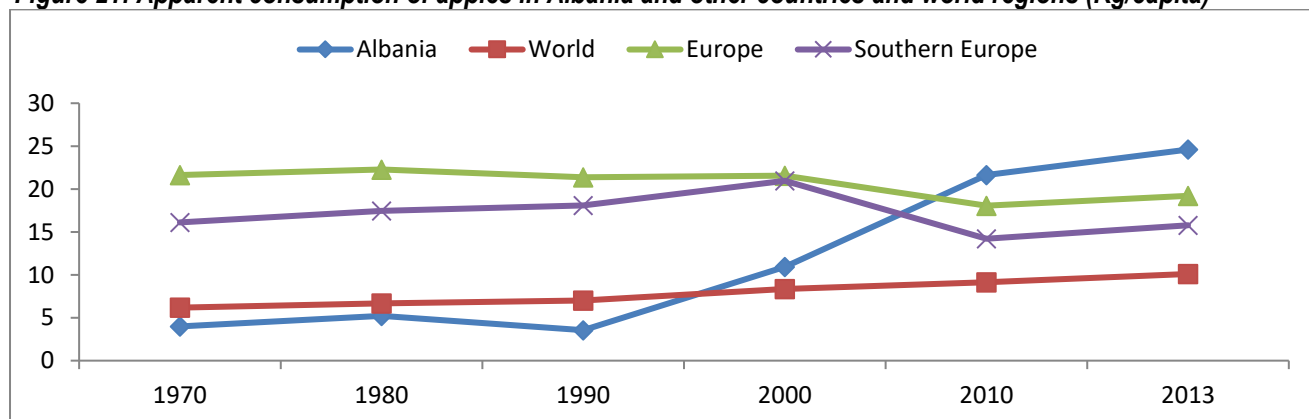
<sup>22</sup>Imami, D., & Skreli, E. (2013). Consumer preferences for regional/local products in Albania. Technical report prepared for FAO.

<sup>23</sup>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*.

Apple apparent consumption per capita per year has increased significantly in Albania and is higher than the global average consumption. It appears that the increase of the consumptions level has been largely related or caused by increased levels of local production.

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.

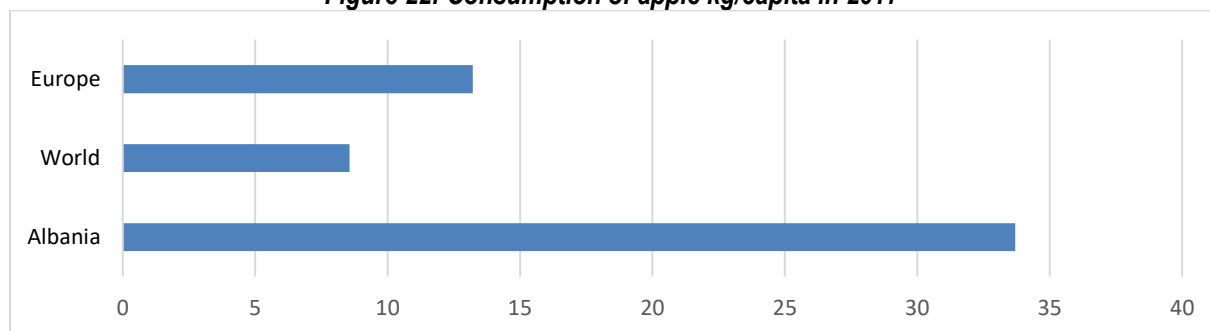
**Figure 21: Apparent consumption of apples in Albania and other countries and world regions (Kg/capita)**



Source: FAOSTAT (2018)

As it can be noted from the Figure below, consumption of apple (expressed in kg per capita) in Albania is far higher when compared to the world and European average (similar to the overall fruits consumption pattern shown above). Thus, the local market is largely saturated and cannot absorb much higher quantities of local apple production.

**Figure 22: Consumption of apple kg/capita in 2017**



Source: FAOSTAT (2020)

The origin of production tends to be important factor for most Albanian consumers for apple, similar to other horticulture products. 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>24</sup>. Also variety is important. Fuji is among the most preferred varieties.

“Despite the local production capacity and preference for local apple, 80% of apple available (in March 2021) in the market of Peshkopi (Diber) are Italian. That is caused both by the fact that local production is dominated by inferior products and by limited cold storage capacity. Consumers prefer Fuji apple”, stated on interviewed farmer and trader.

<sup>24</sup>Skreli, E., & Imami, D. (2012). Analysing consumers' preferences for apple attributes in Tirana, Albania. *International Food and Agribusiness Management Review*, 15(4).

## B. CITRUS

Import shares of citrus in relation to domestic consumption remain high, despite a positive development in trade balance during the last years. In the case of share of exports, data reveal a sharply increase from almost inexistent to 25% of the production in 2019 (see Table 5.23).

**Table 5.30: Supply balance of citrus in Albania (000 MT)**

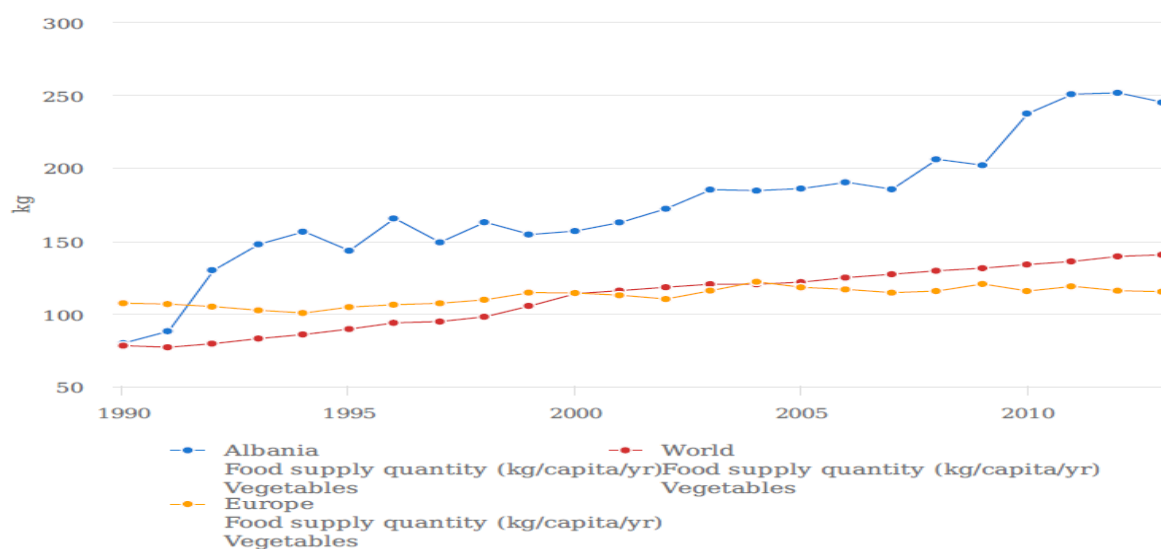
Category	2010	2014	2015	2016	2017	2018	2019
Production	13	21	30	40	41	45	47
Import	35	30	21	25	20	26	21
Export	0.1	3.5	5.9	8.4	9.6	9.4	13.7
Supply	47.9	47.5	45.1	56.6	51.4	61.6	54.3
Import/supply	73%	63%	47%	44%	39%	42%	39%
Export/production	0%	7%	13%	15%	19%	15%	25%

Source: Author calculations based on data from INSTAT and EUROSTAT (2020)

## 5.2.2 VEGETABLES

As highlighted in section 2, production of vegetable, especially greenhouse vegetable, has marked substantial growth. Growth in local production of (greenhouse) vegetable has made more affordable purchase and consumption of a wide range of vegetable the whole year, parallel to the increase of income and changing lifestyle.

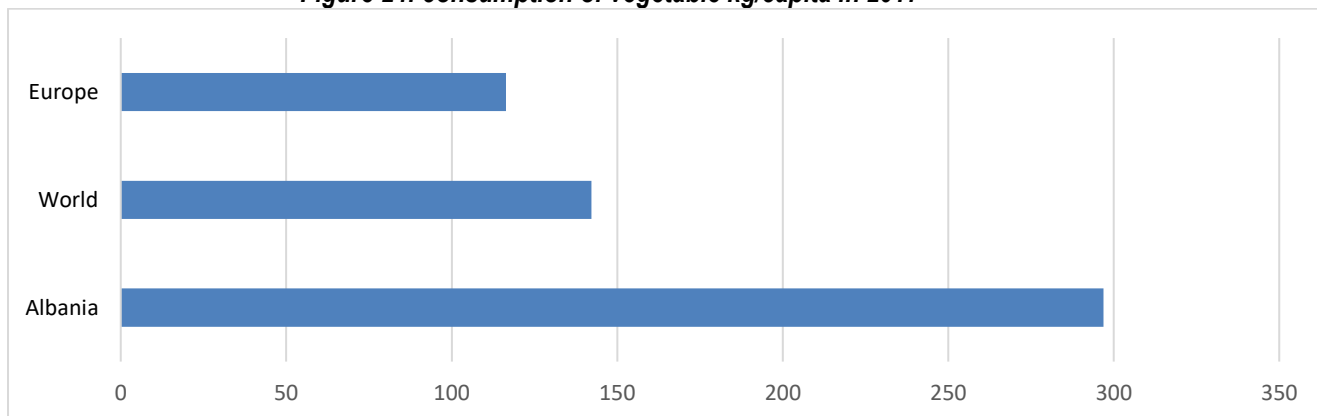
**Figure 23: Consumption of vegetable kg/capita/year**



Source: FAOSTAT (Nov 17, 2020)

Source: FAOSTAT (2020)

Consumption of vegetable in Albania is substantially higher when compared to the world and European average, similar to fruits. Thus, the local market is largely saturated and cannot absorb much higher quantities of local production at least for the main types of vegetables produced and consumed in Albania. As highlighted in the case of fruits/apple, the high consumption per capita may be also a result of the quality of data and methodology (see also the Introduction section).

**Figure 24: consumption of vegetable kg/capita in 2017**

Source: FAOSTAT (2020)

**A. Market supply structure of tomatoes and cucumbers**

The domestic market is dominated by local production – the share of import to the domestic supply (which is a proxy to the consumption and is calculated by adding import and subtracting exports to domestic production) is very modest, namely ca 1-2 %. While the domestic market remains the main market for the local production, the share of production of tomatoes directed for export, has increased significantly. Almost 35% of tomato produced in 2019 was exported.

**Table 5.31: Supply balance of tomatoes in Albania (000 MT)**

Category	2010	2015	2016	2017	2018	2019
Production	199.3	256.5	284.6	287	288.6	299.6
Import	3.4	3.1	3.2	2.7	4.0	2.8
Export	6.6	57.9	65.8	72.5	74.6	77.8
Supply	196.1	201.7	222	217.2	218	224.6
Import/supply	1.7%	1.5%	1.4%	1.2%	1.8%	1.2%
Export/production	3.4%	28.7%	29.6%	33.4%	34.2%	34.6%

Source: Author calculations based on data from INSTAT, EUROSTAT and FAOSTAT (2020)

Also, in the case of cucumbers, the ratio of import and domestic consumption has been low and was even further decreasing, while the share of export to total production has increased significantly.

**Table 5.32: Supply balance of cucumber in Albania (000 MT)**

Category	2010	2015	2016	2017	2018	2019
Production	69.0	83.0	94.3	110.2	120.3	126.6
Import	1.1	0.4	0.6	0.5	0.3	0.4
Export	1.5	4.8	10.6	15.1	21.7	19.2
Supply	68.6	78.6	84.3	95.6	98.9	107.8
Import/supply	1.6%	0.5%	0.7%	0.5%	0.3%	0.4%
Export/production	2.2%	6.1%	12.6%	15.8%	21.9%	17.8%

Source: Author calculations based on data from INSTAT, EUROSTAT and FAOSTAT (2020)

## B. WATERMELON AND MELON

Overall, there is a preference for local horticulture products among Albanian consumers. When local watermelons are available, imports are negligible, thus it is critical for the growth of the sector, to exploit export opportunities, as there is a potential to increase sales in various European markets.

For the case of watermelon and melon, the ratio of import and domestic consumption has been inconsiderable since 2010, while the share of export to total production has increased (11% of watermelon and melon produced was exported in 2019).

**Table 5.33: Supply balance of watermelon and melon in Albania (000 MT)**

Category	2010	2014	2015	2016	2017	2018	2019
Production	264	259	281	277	296	281	300
Import	0.12	0.09	0.11	0.06	0.19	0.12	0.14
Export	21	24	38	29	38	27	32
Supply	243	235	243	248	258	254	268
Import/supply	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
Export/production	8%	9%	13%	11%	13%	10%	11%

Source: Author calculations based on data from INSTAT, EUROSTAT (2020)

### 5.3 PROFILE OF MAIN ACTORS IN THE DISTRIBUTION CHAIN

#### 5.3.1 Distribution channels and wholesale markets

##### Distribution channels

There are several distribution channels and patterns, depending on the product, region and type of the farmer:

- Road-side sales: in bigger villages and in towns and along the main regional roads,
- retail markets in regional towns,
- wholesale markets near production areas like field vegetables in Divjaka and greenhouse vegetables in Lushnja.
- Wholesale consumer markets in a few main towns (eg. Tirana, Fier, Elbasan etc.)

During the recent decade the role of wholesale markets in the fresh fruit and vegetable business has been substantially complemented with a more expanded and diversified network of collection centres in the main production regions. Larger farmers are increasingly orienting themselves in trade/sales to collection points or consolidators. According to Imami et al. (2017) greenhouse tomatoes farmer sells their production through wholesaler or local collector. Around 20% of them sell to exporters. On the other hand, it appears that the main marketing channel for watermelon producers is wholesalers. The category of various buyers cannot be strictly defined – for example, local collectors (consolidators) often do direct exports (thus they can act also as exporters).

**Table 5.34: Type/profile of main buyers from farmers: Greenhouse tomatoes**

Category of buyers	Greenhouse tomatoes		Watermelon	
	Observe	Frequency	Observe	Frequency
Local Collector	136	59%	18	10.5%
Wholesaler	125	54%	134	77.9%
Exporter	46	20%	23	13.4%
Processor	2	1%	-	-
Retailer	11	5%	21	12.2%
Direct Selling	3	1%	-	-
Total Sample	231		172	

Note: Farmers could choose more than one sales option.

Source: Imami et al. (2017)



## Wholesale markets

Limited but growing inter-regional trading does exist between regions. There is a clear specialization pattern where region of Korca and Diber are specialized on fruits collection (mainly apples) and region of Fier/Lushnje and Berat on vegetable production (mainly from greenhouses). Furthermore, within an area of specialization the collection centres tend to deal mainly with farmers within the region where they are situated. The rationale behind are transport costs as well as transaction costs resulting from the current sales arrangement practices (mainly based on mutual trust and informal agreements). Here distance and transaction frequency do determine not only the physical costs of production losses from the load, transport and reload of trucks but also the financial losses from opportunistic behaviours related to product quality and related characteristics.

Some wholesale markets serve for the whole country for the specific products category, such as the Lushnja market. During the past decade, the emergence of collection points and more stable relations (in the case of export-oriented value chains) has reduced the importance of the wholesale markets. While for export-oriented products, the supply flows typically by-passes the wholesale markets, they still serve as important platforms for obtaining market information for farmers. At the same time, wholesale markets continue to play an important role for meeting the demand of the local market, given that the retail market is still fragmented (the role of supermarket chains in the business of fresh fruits and vegetable is not yet dominant despite their expansion), thereby wholesale markets are of importance both for relations farmer-wholesaler, and wholesaler-retailer, which are mostly spot. The further expansion of the supermarket chains in the future may affect the importance of wholesale markets, similar to more developed countries. In fact, in those countries the growth of the shares of supermarkets in fresh produce retailing usually happens through shorter channels in which the supermarket chain distribution platforms are supplied directly by organised producers by-passing traditional wholesalers and wholesale markets. Two parallel trends should be described to complete this description: (i) the stimulus that the concentrated demand of supermarkets has made over primary producers to improve organisation and develop stronger groups, like co-operatives and, in the EU, adopting the model of the Producer Organisations; (ii) the evolution of wholesale markets from traditional trading platforms, with the main function of *price formation*, to *logistics hubs* providing logistics, storage and product-preparation services.

### *The Lushnja agriculture wholesale market*

The Lushnja Wholesale Agriculture Market (WAM) is the first modern wholesale market established after 1990. It was established in 2003, with WB financial and technical support. It plays a major role at national level and it is widely considered the main wholesale centre for domestic/local products, given its location in the field of Myzeqeja, a leading production area of fruit and vegetables.

### *The Korca agriculture wholesale market*

The Korca Wholesale Agriculture Market (WAM) is a leading wholesale market for fruits, particularly apple.

### *Divjaka agriculture wholesale market*

That is one of the main wholesale platforms for the production of the Divjaka farmers, including field vegetable, watermelon etc.

### *Tirana agriculture Wholesale Markets*

Currently there is one large private wholesaler market operated in the entry to Tirana (Durrës/west direction), which has a suitable logistic location. It is a major source of supply for the traders located in Tirana but also from other cities. There operate / sell both producers (farmers) and traders. Another wholesale market is being established in Tirana, by the Municipality of Tirana. It is expected to be established in the east of Tirana (not far from TEG).

### *Elbasan and Fier agriculture Wholesale Market (Private enterprise)*

These are private wholesale markets supplying mainly the needs of the specific regions, both with local products as well as imported ones.

### 5.3.2 Wholesalers and consolidators

#### *Consolidators*

In the apple sector, 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.

In the case of mandarin consolidators operating in Konispol municipality play a key role in the mandarin value chain. They supply the wholesaler and retailers but also export to other countries. Their storage capacities are, however, insufficient considering the fast-growing production.

There are about two dozen local consolidators that operate in the greenhouse production cluster area. They are mainly based on the production area, collect produce from farmers and export them (for all of them, greenhouse vegetables are the only or at least the main exported/sold products).

Large shares of the watermelon trade are done by small to medium-scale traders, who buy directly in the field from producers or in wholesale markets in production areas and sell back in other wholesale markets, to larger traders, directly to retailers, or export regionally. These small traders usually are not specialized for a specific product. They do not have established durable relationships with producers and conduct most of their business through spot buying and selling.

For more details on consolidators for each of the main value chains, see also section 8.

#### *Large wholesalers*

Large wholesalers have invested in storages capacities, including cold storages. This group of operators/traders have invested in larger and modern assets (larger stores, cooling rooms, sorting, cleaning and packaging lines, mechanized loading and unloading equipment), tend to have more durable relations with both suppliers and international buyers and also have plans for new investment. In the case of watermelon & melon sector, few operators (Agrokoni, Bruka Seedling, Biti) are also input and seedling suppliers. They have established relationships with producers and provide them with a relatively wide range of services. These types of wholesalers have a strong export orientation. In addition, there are wholesalers specialized in imports of horticulture products and in the supply of the local markets.

#### *Small/medium wholesalers*

They usually operate on spot market (no stable relations with buyers and suppliers) and typically have orientation towards the local market. Often they have limited transport capacities, such as small vans (eg. few MTs capacity).

For more details on wholesalers for each of the main value chains, see also section 8.

### 5.3.4 Retailers

**Supermarket chains.** There are 3 major supermarket chains in Albania, namely Spar, CONAD and Big Market. All of them have hypermarkets and supermarkets and are expanding at a fast pace. At present, supermarket chains play a minor role in the sales of fresh fruit and vegetable, but their role in the sales of processed food, including processed fruits and vegetable, is importance. The trend observed in neighbouring western countries and leading former-Yugoslav countries shows the increase of share of supermarkets in retailing of fresh produce, a tendency that shall happen in Albania as well, although it is not yet possible to estimate the precise trend and speed.

**Green markets and convenience shops.** Most fruit and vegetables are sold on (specialised) green markets and convenience shops. Retail green markets are situated in different parts of the city (in big cities) or in a certain part of town (in the case of smaller urban areas). Sometimes these markets are owned or licensed by local government authorities and have been established either spontaneously or been existing for a long time – continuing the activity of local village markets which always have existed. Convenience shops are located in every neighbourhood, selling a wide range of food items, including fresh fruits and vegetable.

#### **E-commerce**

E-commerce or online sales have not been common for purchasing fresh fruits and vegetable or processed ones. However, during COVID19 pandemics, this business has been expanding fast – there are reported cases of successful emerging entrepreneurs. Some of them are also engaged in production of some of the products that

they supply, to ensure quality. Promotion of high quality and/or organic is characterizing some of the operators, thus opening a new markets segment that needs to be explored further to see the sustainability in the horticultural sector after the emergency.

## 5.4 INFRASTRUCTURES AND LOGISTICS

The growth of the fruit sector has incentivized many farmers/wholesalers to invest in storage and marketing of fresh fruits. Consistently, the rise in domestic production has certainly not gone unnoticed among wholesalers, importers and the larger farmers, leading all these actors to make investments in cold storage facilities for the express purpose of storing fruit.

Financial support through donor or government funding has been in place to support many new fruit units, increasing considerably the storage capacities. With few integrated companies and no real consolidators in the sector of agriculture in Albania yet, collectors make up the most important segment in the chain between production and consumer markets. Majority of them store their own production and collect also the production of other farmers within the area of 10-20 km from their location.

Apple is the sector where storage practice is bigger. There are about 100 reported cold apple consolidators (cold storage operators) with a total capacity of 17 thousand Mt, which implies a substantial growth when compared to 2017. About 75% of cold storage facilities is concentrated in Korca region.

Some are large farmers, who invested in cold storage to meet their own demand for cold storage, and over time, they started to act as collection points and traders. Some of them simply serve as service providers, to cover operational costs and reduce risk – they offer rented space for fellow farmers, charging a certain amount (e.g., 12 ALL/kg). The main processes and costs related to cold storage include labour for loading and reloading, labour for selection, water and electricity, maintenance which is estimated to be about 6-7 ALL/kg<sup>25</sup>.

**Table 5.35: Storage and cold storage capacities (2020)**

Category	Indicator
Total number of F&V storage units	504
Total number of F&V cold storage units	107
Total F&V storage capacity (Mt)	32,722
F&V Cold storage capacity (Mt)	17,005

Source: Extension survey

About 23% 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%) facilities have a capacity between 201 MT and 500MT, and only 10% of cold storages have capacities larger than 501 MT. larger cold storage are typically operated by wholesalers, while smaller ones by farmers (for their own needs as well as for trade or service to other farmers).

**Table 5.36: Cold storage capacities by size (2017)**

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: Skreli and Imami (2019)

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

<sup>25</sup> Imami, D. (2018). Appraisal of the Albanian horticulture sector with focus on international trade and cold-storage capacities. Technical Report.

the investors to establish sorting/grading/polishing lines and complement the cold storage with weight measurement equipment and transport equipment. 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.

## **5.5 MARKET AND LOGISTICS KEY FEATURES AND CHALLENGES**

Despite the increase in storage capacities, current cold storage capacities do not meet the demand and postharvest technology is not yet optimized leading to shorter storage and increased losses. The inappropriate utilization of the cold storage is related with two factors: i) the time devoted for managing the cold store is partial due to the multitask attitude of the farmer/cold storage manager ii) the export orientation experienced intensively in the late years is leaving not much space for long term and strategic management of the cold storage. Major activity of the cold storage managers is related to the collection and intermediation with exporters. Some of them are strategically oriented to vertical-integration entrepreneurship by preparing the loads for exports and managing contracts with other farmers.

There are no regular records or quantitative analyses on post-harvest losses of fruit and vegetable in Albania. Existing information is based on expert estimates but there is a general agreement that total losses are quite high. For example, in the case of some fruits such as apple losses can exceed 25 percent of total production in the whole value chain. Losses are affected both by postharvest/storage capacities and know-how gaps, quality of produce (affected negatively also by climate changes – see for example the case of mandarins during 2020), and access to market. The situation is slightly improving, however, due to some recent small investments in cold storage facilities in production areas.

Technological and knowledge-based limitations are directly related with the weak performance of the cold storages and high losses. For instance, operators in general have low access to expertise and advisory services for post-harvest technology and storing techniques. They base their knowledge on cumulated experience and technology cards given by the cold storage assemblers. A complete pre-cooling system and curing facilities ((potatoes, onions etc) is missing in all companies. Moreover, practices for cleaning/washing and calibration are improper. The operators lack equipment's for monitoring the temperature and relative humidity (both in terms of equipment and management).

Collection points do also suffer from improper practices and lack of equipment. 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.

Marketing operations at consolidator level are limited. Development of export alternative – a rather realistic one - are calling for much improved marketing standards. Market structures and collection points do also suffer from improper practices and lack of equipment's.

One of the challenges is high transport cost. Many prefer to use foreign operators, because they are more efficient for 2 reasons: 1) fuel is cheaper in other countries (e.g., Macedonia), and b) foreign operators tend to optimize transport by using both ways by combining different requests.

## 6. LEVEL OF ATTAINMENT OF RELEVANT NATIONAL & EU STANDARDS

### 6.1 FOOD SAFETY

The food hygiene package of the European Union introduces the full direct responsibilities of the Food Business Operators for the safety of their food outputs, such as wine. These responsibilities are based on the adoption of Hazard Analysis and Critical Control Points (HACCP) principles, the implementation of food traceability and Good Manufacturing Practices (GMP), and the hygiene of the food facilities. HACCP is now mandatory in Albania and must be adopted by all horticultural processing plants.

Private food safety standards are available for certification in Albania, at different levels. Whilst British Retail Consortium (BRC), International Featured Standard (IFS) and other processing-level Global Food Safety Initiative (GFSI) standards focus exclusively on food safety (HACCP, PRP, GMP), Global GAP covers occupational health and environmental issues at the farmer level<sup>26</sup>.

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, and institutional capacity. There is growing pressure from “export markets” and EU approximation to improve standards and assimilate the EU food safety regulations’ principles. There have been reported cases of returned shipments of exports due to high residuals. For example, one major exporter stated that in 2020 they had 4 trucks load were entombed (destroyed) because of standards incompliance (residuals) – in such case, in addition to the cost of wasted vegetable, the exporter also covers the cost of destruction. Another interviewee (major input supplier) told that few companies are banned to sell to export markets, due to the problems with standards.

Despite these gaps, positive developments are observed. For example, while back one decade ago, there was no control at farm level from any public authority regarding standards, interviewed farmers stated that recently there have been cases of (greenhouse) farmers controlled by AKU (NFA) on farm for standards.

*“In the past, AKU did not control farmers, they controlled wholesalers. Over the last 2 years, AKU has started to control farmers too”,* stated one exporter.

On the other hand, also collection points, especially exporters, are doing more to raise awareness of supplying farmers, and in some cases, working with them to establish traceability and eventually GlobalGAP certification.

*“It is important to implement traceability system, but it is difficult considering the small farm size. I fill in one truck with supplies from more than 10 different farmers, thus implementing traceability system is challenging”* stated one exporter.

There is a growing number of horticulture producers who have been certified Global GAP – Global GAP represents an advantage to export more attractive EU markets. Indeed, thanks to GlobalGAP certification, Albanian horticulture products now are present also in Scandinavian markets, which on one hand are very demanding in terms of standards, while on the other hand they offer attractive prices. One Albanian exporter, back 4 years ago, never intended or even planned to export to northern European markets, being aware of the concerns about standards, but now, GlobalGAP has made that possible. Certification is associated to financial needs for the cost of certification itself, but also for basic investments which might occur to comply with certification/standard requirement.

While some leading exports are making efforts to keep improving standards, there are traders who do not. As highlighted by one interviewed leading exporter:

*“There are many collection points that do not apply standards, including national min standards – they are a weak point of the value chain. They should be monitored by the proper institutions”.*

<sup>26</sup>Elaborating on the EU set of rules, the EU private sector has developed voluntary food safety standards at both primary (farmers) and processing (wineries) levels. These standards mainly include GlobalGAP at the primary production level and BRC, IFS at processing level, all standards recognised by the GFSI, a private-sector initiative developed by the food industry players to homogenise standardisation in food safety. The ISO22000:2018 is an international food safety standard that can be adopted by each organisation in the food chain at all levels and stages and requested worldwide. Additionally, supermarket chains are setting additional own rules to limit the number of active ingredients with residues on a certain crop, reduce the official MRL, limit the use of hormones.

## 6.2 USE OF INPUTS - PPP

In the area of sustainable production, Directive 2009/128/EC was a milestone to achieve a sustainable use of pesticides in the EU by reducing the risks and impacts of pesticide use on human health and the environment and promoting the use of Integrated Pest Management (IPM) and of alternative approaches or techniques, such as non-chemical alternatives to pesticides. The directive implementation, delegated at each member state, is based on National Action Plans to implement the actions set out in the Directive<sup>27</sup>. At an EU member state level, the Harmonised Risk Indicators established under Directive 2009/128/EC show the evolution in the risks to human health and the environment from pesticide use.

According to Law no. 10416, dated 07.04.2011, Article 14 point 1, "SESS" is the body responsible for carrying out the official certification of planting and plant propagating material".

"Certification" as an important official procedure which consists in obtaining of an official certificate on quantitative and qualitative indicators of planting and plant propagating material, delivered by State Entity of Seeds and Seedlings. This procedure should respect a given "Protocol", which means special technical standards determined for each species, which apply related to viruses list, as well as to some other organisms, similar to them and their diagnostic way in the certification of propagating material.

In certification procedure could be included "Protected Cultivars" and "Unprotected Cultivars" of public and private breeders of primary sources in Albania and abroad, after they have been previously registered in the Official Catalogue of seeds and seedlings.

The certification is based on some general concepts and rules, defined by the "OECD" (Organization for Economic Development and Cooperation), as well as in accordance with the directives of the Council of Europe. Pursuant to Law no. 10416, are the legal regulations Decision of Council of Ministers (DCM, Instructions, etc.) "On the organization and procedures for certification of planting and propagating material" and necessary legal procedure and documentation for certification, are certificate for activity developing National Licensing Centre (NLC), request for application, report on determination of the block, certificate of origin, control act for the control of seed or seedling plots, approval act for the production plots of planting and plant propagating material, confirmation statement, report on the verification of technical specifications, laboratory analysis document, phytosanitary certificate, equipping with official label and issuance of official certificate.

Regarding the above, all the relevant procedure and documentation, required for official certification, is reflected in the relevant DCMs approved for each species or group of specific species.

*Legislation on which the Official Certification Sector carries out its activity,*

1. Law no. 10416, dated 07.04.2011, "On planting and plant propagating material", as amended.
  2. Law no. 8880, dated 15.04.2002, "On the rights of plant breeders".
  3. Law 10.5/2015, "On some additions and amendments to Law no. 10416, dated 07.04.2011 "On planting and plant propagation material".
- DCM Nr. 447, dated 03.09.1993, "On the establishment of the State Entity of Seeds and Seedlings".
- DCM Nr. 240, dated 27.03.2013, "On determining the criteria for marketing and certification of propagating materials and seedlings of fruit tree plants".
- DCM Nr. 204, dated 04.03.2015, "On the organization and functioning of the State Entity of Seeds and Seedlings".
- To carry out the activity, the entire official certification procedure is followed in the field, in cooperation with the relevant specialists of RAVPPS for the planting and propagating material that is required to be produced.

According to the bylaws (DCMs), two official controls are performed for each producer (supplier), regarding the implementation of requirements and legal criteria, technology and methodologies approved for each species and variety required to be produced and certified.

For each species, variety, lot according to the categories required to be certified, during the vegetation, field approval (approval) is made, which is one of the legal criteria, by official certification specialists, as well as the issuance of internal certificate by the phytosanitary service, for each species, variety, lot and quantity required to be certified.

<sup>27</sup> Training of users, advisors and distributors of pesticides; Inspection of pesticide application equipment; Prohibition of aerial spraying and limitation of pesticide use in sensitive areas; Information and awareness raising about pesticide risks.

For locally produced seeds, for each supplier, the seed sample is taken from the official certification specialists and sent to the Laboratory of the State Entity of Seed and Seedlings for laboratory analysis.

At the end of completing the certification practice, according to the models defined in the relevant DCMs, an "Official Certificate" is issued for each producer, which records all the necessary data for the certified seedling or seed.

Also, attached to this certificate, are given the official labels, and completed with all the necessary indicators. This label has the dimensions and colour in accordance with the **OECD** seed schemes, as well as in accordance with the Council of Europe (**EC**) Directives, for fruit tree seedlings. We emphasize that the labels which are placed on the planting and plant propagating material, serve as a passport of the plant. We periodically publish the "Certification Bulletin", which contains all the data on certified seedlings and seeds and distributes it to all appropriate institutions.

Based on the Bulletin of certification of seeds and seedlings, received from the State Entity of Seeds and Seedlings (Official Certification Sector) for 2019 - 2020, it results that in our country, perform the activity of production of certified seedlings.

**Regarding the plant protection products, the legal basis governing plant protection products and the applicable EU legislation is - Law No. 105 / 2016, "On Plant Protection" and bylaws in its implementation.**

1. All PPPs that are traded or used in the territory of the Republic of Albania, are subject to the registration procedure.
2. In the Republic of Albania are registered only PPPs, which are registered in one of the countries of the European Union.
3. All procedures related to the registration of PPPs, active ingredients, as well as additives and interactive ingredients, are performed in the ministry, at the RPPS, as the responsible authority.
4. The approval of the active ingredient, of other components in the content of PPPs, as well as their updating in accordance with the EU legislation, are done by order of the Minister.

**Regarding fertilization products, the structures responsible for the implementation of FP are as follows:**

1. Structure responsible for fertilizer products (SRFP) in the ministry; The SRPP has the following tasks:
  - a) develops the procedures related to the registration of fertilizer products, in accordance with the requirements of the legislation in force.
  - b) attends and monitors the activity of fertilizer products at central and regional level, in implementation of the legislation in force.
2. Institution responsible for the supervision and control of the production, import, export, storage, trade and use of fertilizer products.

The institution responsible for the supervision and control of the production, import, export, storage, trade and use of fertilizer products is determined by a decision of the Council of Ministers.

**3. Fertilizer Products Registration Commission (FPRC) in the ministry.**

The Commission is a collegial, technical, permanent and decision-making body. The Commission, in its meetings, reviews:

- i) the final label of the fertilizer product, based on the label submitted by the applicant;
- ii) registration of fertilizer products in the registration procedure;
- iii) re-registration of fertilizer products;
- iv) deregistration of fertilizer products;
- v) modification of the registration document of the fertilizer product.

Also, regarding the use of inputs, National Food Authority (NFA) is the inspection body, which has the task of controlling the implementation the relevant legislation (highlighted above) and the bylaws deriving from it, as well as other legal acts in the field of inspections. NFA covers the import, trade and storage of inputs and PPPs in the Republic of Albania.

The plant protection service at the RAVPPS has the task of monitoring the phytosanitary condition of plants, plant products and other objects within the territory in their administration.

Laboratory of qualitative analysis of PPPs, as well as that of their residues in plants and products of plant origin, at IFSV, which has the task:

- a) evaluation of the documentation of PPPs during the procedure of their registration.
- b) quality control of PPPs registered and placed on the market.
- c) analysis of PPP residues in plants and products of plant origin, locally produced and / or imported, in compliance with food safety legislation.

Some interviewees highlight their concerns for the quality of PPPs. Not only some are not effective, but there are also concerns about the use of illegal PPPs which are reportedly smuggled and sold informally – such PPPs may be effective (in terms of Plant protection) but may result in residuals which are dangerous for the health for consumers. One major exporter who reported that several loaded trucks were found with residuals in the export markets, claimed that the reason behind was the use of illegal PPPs.

*“Farmers are more likely to buy inputs from input suppliers who credit them, and therefore in some cases, the inputs suppliers who offer credit, and who are not professional, do not provide the right advice or inputs”* stated one exporter.

One of the major concerns related to PPP, is not only quality (often farmers complaint about quality) but also the timing and way they are administered (which can result also from lack of proper advice, as highlighted above). To reduce pest and disease risk, farmers (e.g., apple or tangerine farmers) tend to use excessive sprays (e.g., 20 times per year), resulting both in high costs but also potentially high residuals, exposing consumer health to potential risks. In order to address this concern, there is a need to have functional prognosis centres and systems, with an efficient network of weather monitoring stations, coupled with advice and service/competence to calibrate spraying machines (the box below describes a good practice in the field of plant disease and pest prevention and protection).

#### **Box 5: The Prognosis Centre for Pest Disease Protection**

The SNV ProMali project has supported the establishment of a prognosis centre for controlling diseases and pests for orchards farmers in the Korçë region. The centre, located at Agricultural Technology Transfer Centre (ATTC) Korçë, was a useful tool for farmers because it enabled higher plant protection effectiveness against pests, resulting in increased production, improved fruit quality and safety, and reduced plant protection expenditures.

The system was very user-friendly. Apple producers could call a specific phone number to receive automatic information and counselling on the spraying strategy at a specific time.

The technical system of the prognosis centre consists of:

- a weather station, which collects data on weather conditions (temperatures, rainfall, air humidity, solar lighting, etc.);
- a spore detector, which detects whether spores have been released in nature;
- a computer server where the weather data is retrieved and stored; and
- a computer program that simulates the possibility of the occurrence of diseases based on weather data. The system uses the latest technology for modelling diseases and pests in apple orchards and has turned out to be very useful for disease control.

The forecasting system of the prognosis centre was transferred to ATTC Korçë, which was responsible for maintaining it in cooperation with other institutions, such as AUT. However, due to gaps in management, including human resources, ATTC Korçë did not continue to maintain and run this innovative system. This is a clear example of how useful innovation can be in the agriculture sector, especially in plant protection, but also how important and challenging it is to achieve sustainability.

*Source: SNV ProMali annual report 2012, FAO (2020) and interviews*

### **6.3 OCCUPATIONAL SAFETY**

#### *Legal framework*

The legal framework for occupational safety and relevant control system is based on the following laws:

- Law 10237/10 “On Security and Health at Work”, as amended
- Law 9634/06 “On Work Inspection”, as amended
- Law 7703/93 “On Social Insurance in the Republic of Albania”, as amended



### *The control system*

The State Labour Inspectorate (SLI) was established in 1995 as a public institution under the Ministry of Labour and Social Affairs. SLI operates as an autonomous institution since 2006.

Concerning the responsibilities of the SLI for occupational safety and health, there is a certain duplication of responsibilities between SLI and State Sanitary Inspection (SSI) which depends from Ministry of Health.

All companies liable to be monitored by the SSI need to make a self-declaration on the fulfillment of health and hygiene regulations on their premises. The SSI is also responsible for the monitoring and control of exposure to toxic substances, extreme temperatures, and of occupational accidents and diseases.

As to social security legislation, both SLI and the National Fiscal Administration monitor the payment of contributions for social and health insurances: the SLI is responsible for the collection of these contributions from urban workers, whereas the Social Insurance Institute manages and supervises the collection of social contributions from rural workers.

Inspections are carried out in accordance to a monitoring programme and also at the request of individuals. Labour inspections are carried out in a planned.

### *Level of compliance*

There are several issues related to occupational safety in primary production; the main one is linked to the application of PPP. Most farmers apply pesticides with manual pumps, often without adequate protection. The situation is more critical in the case of greenhouses (considering the intensive use of PPPs and the fact that it is protected/closed area). In cases of wider scale treatments, such as tractor spraying, it is more frequent to see operators adequately protected.

Most processing industries do not take much care of labour safety and public health measures for safety of workers. In general, factories have a basic first aid kit, but usually there are no first aid trained staff.

Larger enterprises are more controlled and generally keep better standards. As compared to a decade ago, the conditions of workers have improved considerably in large processing facilities.

## **6.4 ENVIRONMENTAL ASPECTS**

In respect to environment protection, the EU has developed a set of rules related to cultivation areas that comprise:

- nitrates directive (Council Directive 91/676/EEC)
- directive on the conservation of wild birds (Directive 2009/147/EC)
- directive on the conservation of natural habitats and of wild fauna and flora (Council Directive 92/43/EEC).

In the Albanian fruit and vegetable sector, the main environmental issues relevant to the above subjects are:

- (i) Inappropriate nitrogen fertilization, for which a complete management plan is necessary, from soil analysis to selection, dosage and use of fertilisers. As shown in the previous section, few farmers carry out soil analysis, thereby fertilisation not only may be inefficient (economically) but also may result in increased residuals in the soil and underground water.
- (ii) Inappropriate types and use of pesticides, which may have negative impact on biodiversity, natural areas, flora, fauna and habitats and determine degradation of natural resources and water contamination, if not properly controlled. - Integrated Pest Management (IPM) and of alternative approaches or techniques, such as non-chemical alternatives to pesticides, including dosage, spraying and application of pesticides should be promoted as well as the constitutions of natural habitats for wild fauna, birds and flora and protection of water creeks around the intensive cultivation fields.
- (iii) Uncontrolled digging of irrigation wells. In various parts of the country, due to failures in irrigation systems, many farmers resorted to digging their own wells. In addition to environmental impact, it is also resulting problematic in areas with high water salinity, thereby affecting soil and production (more common in greenhouse production clusters near coastal areas).

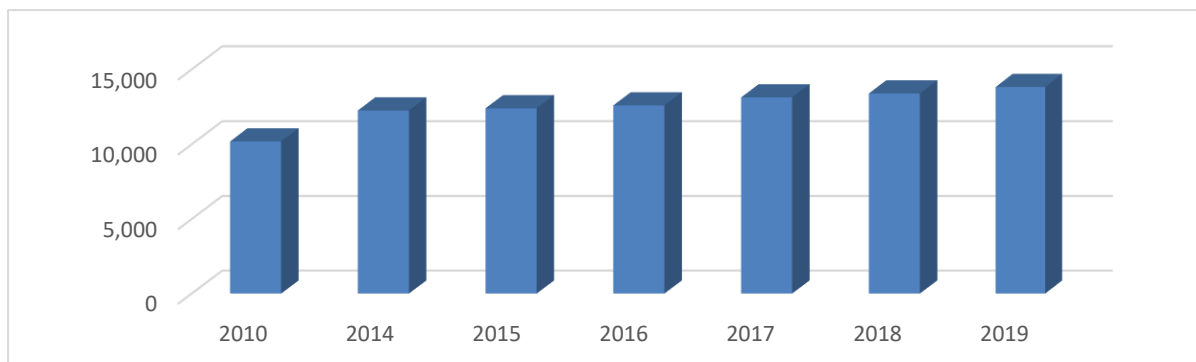
## 7. PAST TRENDS AND FUTURE DEVELOPMENTS IN TERMS OF INVESTMENTS

### 7.1 PAST TRENDS

#### 7.1.1 Primary production

The main investment in the fruit sector has been new plantations. As it can be shown below, the number of planted trees has increased substantially during the last decade, by more than 1/3 (namely 36%).

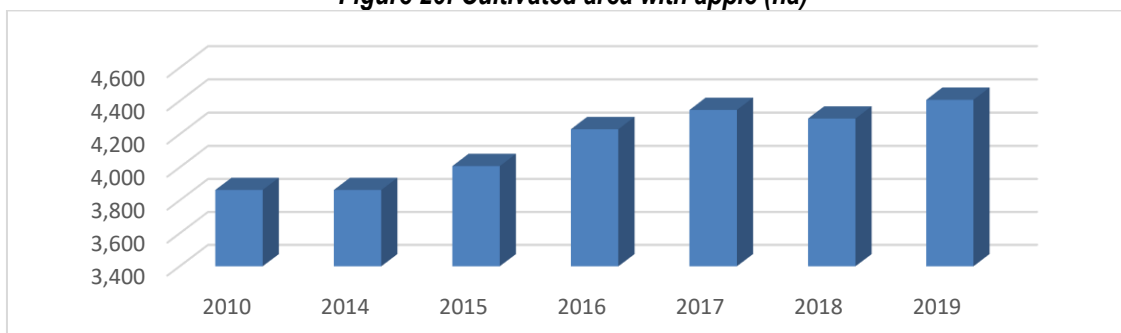
**Figure 25: Number of fruit trees over the years (000)**



Source: MARD and INSTAT statistics (2020)

Despite the growth in apple cultivation area during 2000ies, there was increase in cultivation also during the last decade – the cultivate area increased by almost 15%.

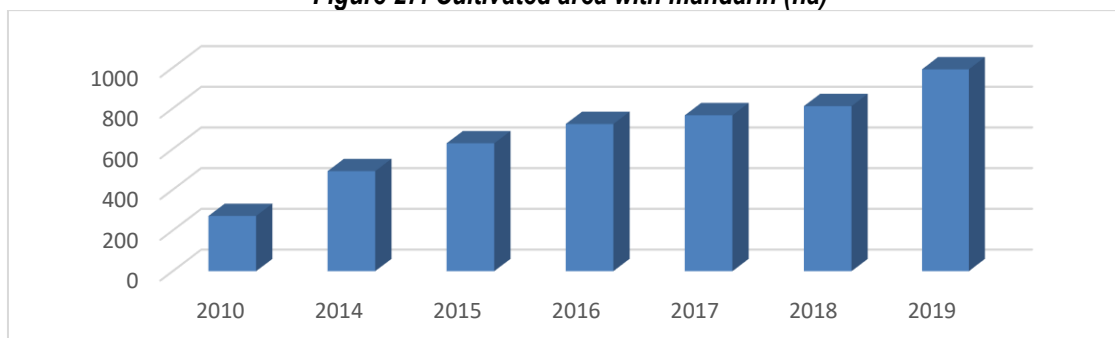
**Figure 26: Cultivated area with apple (ha)**



Source: MARD and INSTAT statistics (2020)

Mandarin cultivation was characterized by remarkable growth during 2010ies. More specifically, area under cultivation increased by more than 3.5 times. That has resulted in substantial production increase (as shown in section 2).

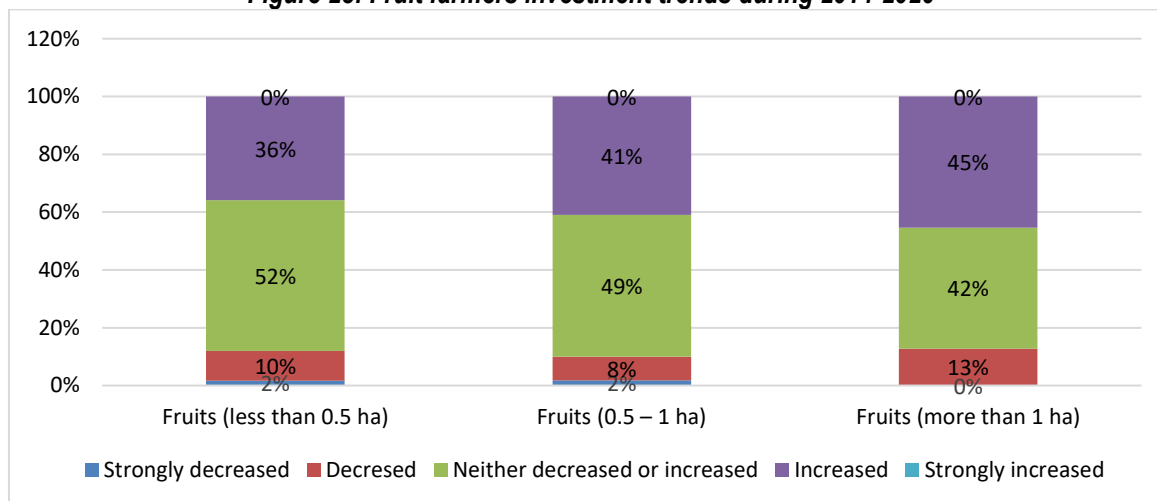
**Figure 27: Cultivated area with mandarin (ha)**



Source: MARD and INSTAT statistics (2020)

The findings from the survey with extension surveys shows there has been increase in investments among fruit farmers of different farm size, with more intensity among farmers with more than 1.00 Ha orchards. Differences in respondents' views may reflect differences in regional patterns, since MARD extension experts are located in different areas and responded in regards to their specific area of coverage.

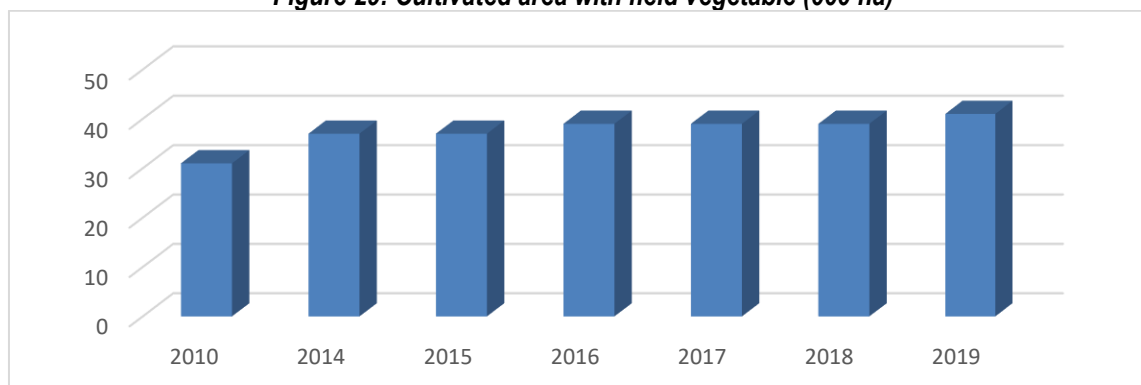
**Figure 28: Fruit farmers investment trends during 2014-2020**



Source: MARD extension survey

Similar to fruits, also vegetable production and cultivated area has increased by almost 1/3 (namely 32%) during 2010ies.

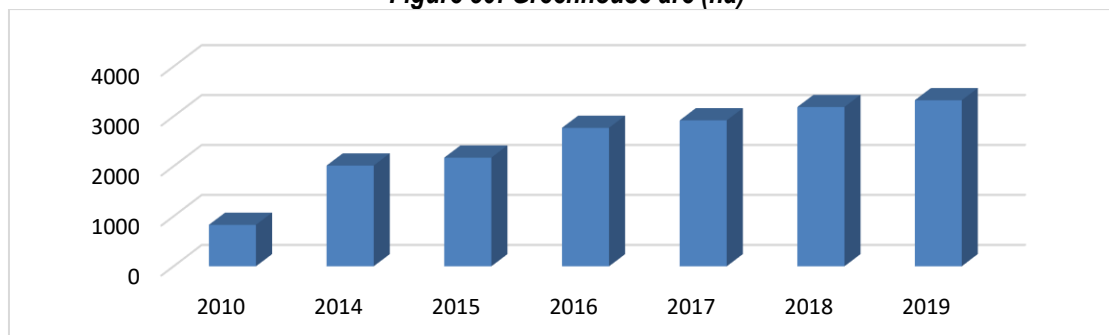
**Figure 29: Cultivated area with field vegetable (000 ha)**



Source: MARD and INSTAT statistics (2020)

Within the vegetable sector, greenhouse vegetable was market by drastic increase. Area under greenhouses increased by 4 times during 2000ies.

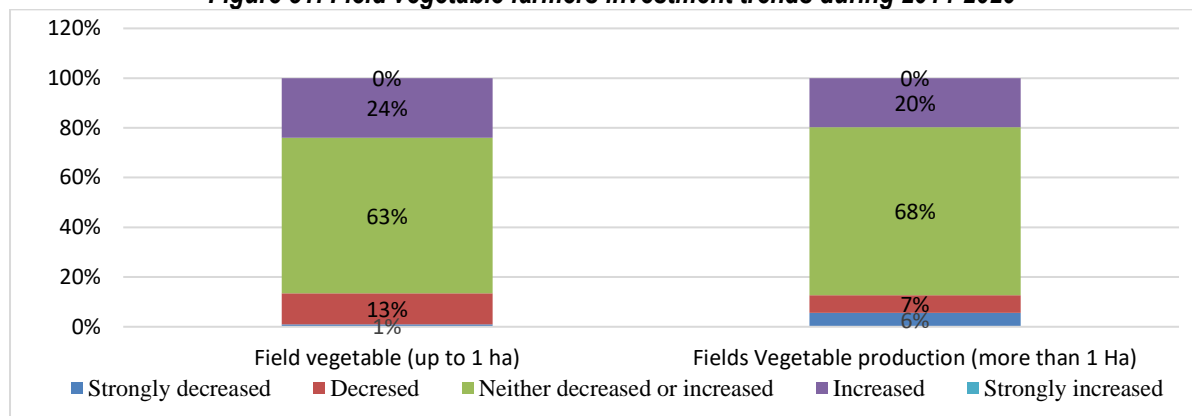
**Figure 30: Greenhouse are (ha)**



Source: MARD and INSTAT statistics (2020)

Also, the findings from the survey with extension staff confirm an increase in investments in both smaller and larger vegetable farmers, although that differs also from region to region, and with less intensity in comparison to fruit. Similar to the case of fruits, differences in respondents' views may reflect differences in regional patterns, since MARD extension experts are located in different areas and responded in regards to their specific area of coverage.

**Figure 31: Field vegetable farmers investment trends during 2014-2020**

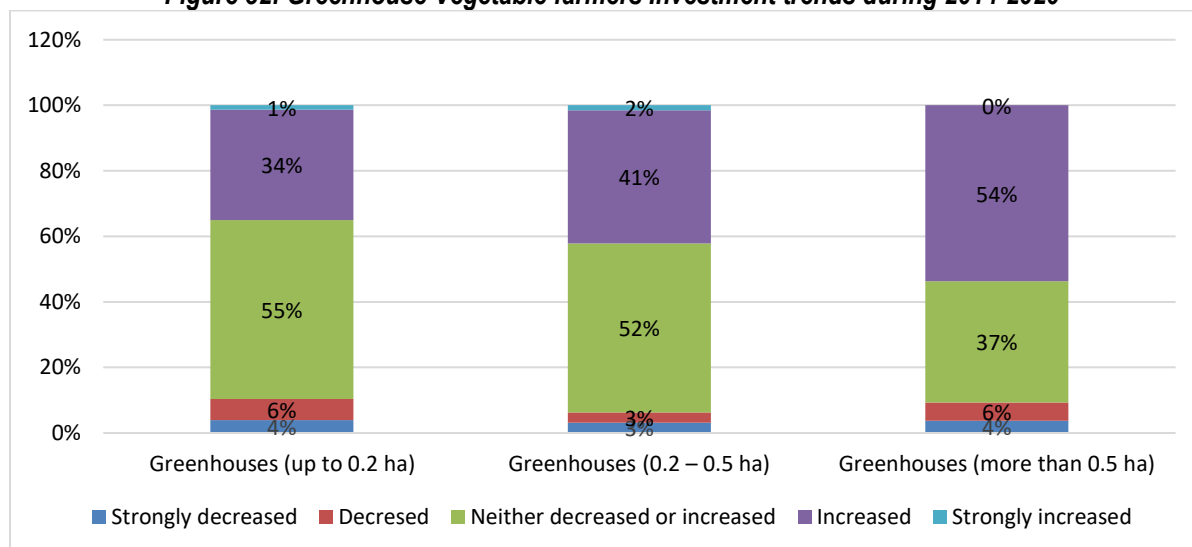


Source: MARD extension survey

The positive trends of investments among greenhouse farmers during the last years was confirmed also from the survey with extension survey. Following a global trend of concentration in the greenhouse sector, the growth in investments was larger among the larger greenhouse farmers.

Interestingly, there are also reported cases of collection points (eg. exporters) who have invested or plan to invest in primary production. That is not only done because it is seen as profitable, but also to ensure certain volumes of supplies with quality and standards.

**Figure 32: Greenhouse Vegetable farmers Investment trends during 2014-2020**

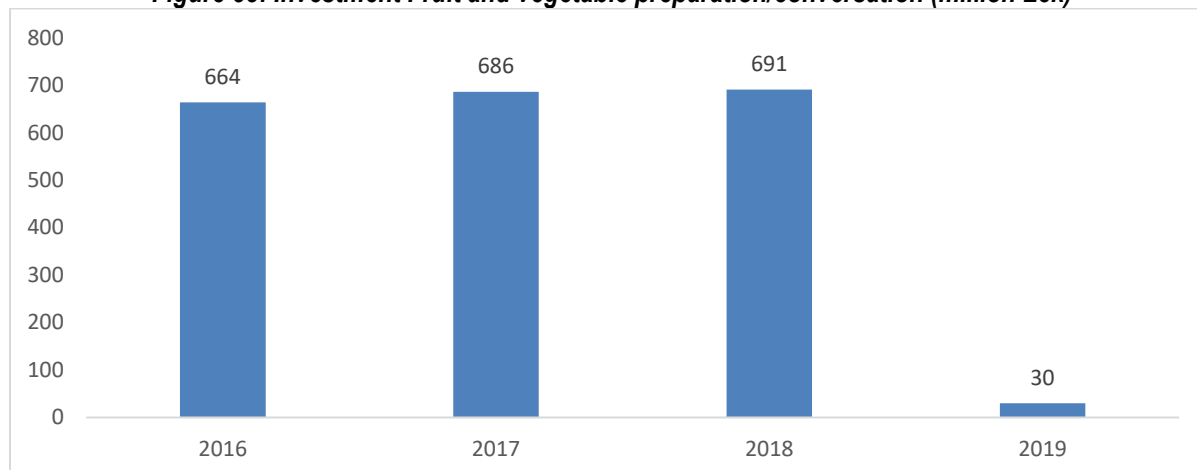


Source: MARD extension survey

### 7.1.2 Processing, trade and services

According to available statistics, investments have increased over the years, except for 2019, when they were reported to be low. Some of the largest processors have already carried out major investments, benefiting also from subsidies.

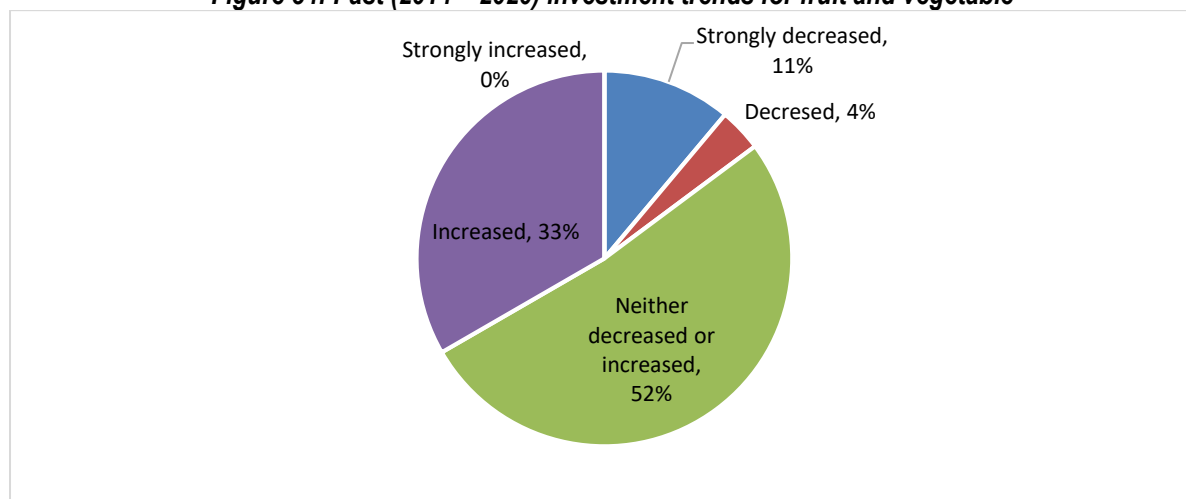
**Figure 33: Investment Fruit and vegetable preparation/conversation (million Lek)**



Source: MARD (2020)<sup>28</sup>

Also, the findings from the extension survey confirms a growing trend in investments in the past years.

**Figure 34: Past (2014 – 2020) investment trends for fruit and vegetable**



Source: MARD extension survey

Regarding trade, there have been observed increased investments in new collection points and in storage capacities. While there are more than two dozen collections points operating near the greenhouse vegetable cluster most of which were established during the past decade), whose main business focuses on vegetable, apple is the sector where cold storage practice is bigger. There are about 100 reported cold apple consolidators (cold storage operators) with a total capacity of 17 thousand Mt most of which were established during the past decade. For more details see also Section 5 above.

<sup>28</sup> Data provided by MARD in the context of EU-Albania Sub-Committee on Agriculture and Fisheries.

### 7.1.3 IPARD II uptake

Fruits and vegetable were eligible for support under IPARD II, for two measures, namely Measure 1 (farm level), and measure 2 (processing/collection/marketing etc) level. IPARD II support has enabled major investments in the sector.

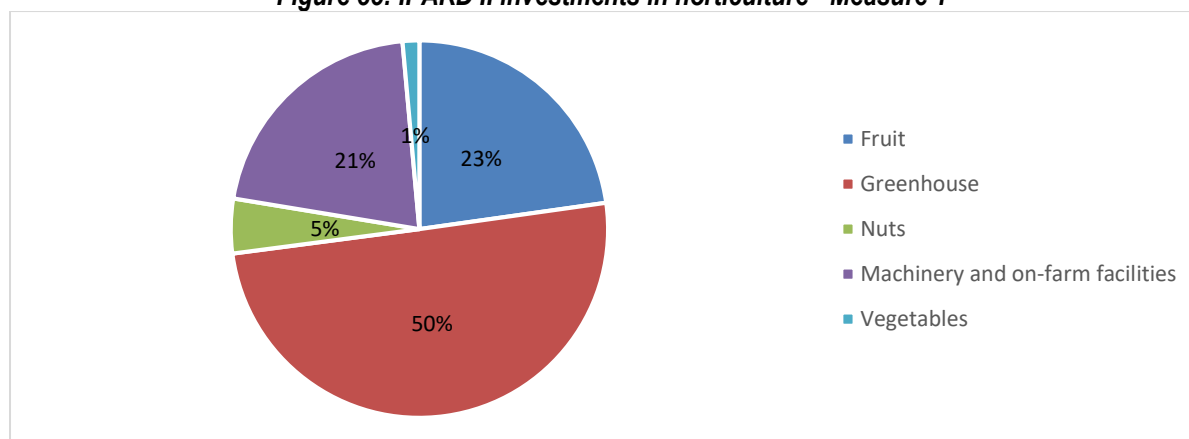
**Table 7.1: Fruits and vegetables support under IPARD II (EUR)**

Category	Measure 1	Measure 3	Total
Fruit	4,121,221.52		4,121,221.52
Fruit processing		3,907,260.68	3,907,260.68
Greenhouse	9,797,698.95		9,797,698.95
Nuts	913,461.87		913,461.87
Sorting grading and packing line		14,134,202.79	14,134,202.79
Investments in agriculture machinery and on-farm post-harvest	4,095,173.39	300,515.84	4,395,689.23
Vegetables	280,201.19		280,201.19
<b>TOTAL</b>	<b>19,534,697.84</b>	<b>18,341,979.31</b>	<b>37,876,676.15</b>

Source: Authors elaboration on ARDA data.

At farm level, IPARD II has largely funded investments in greenhouses (almost half of the Measure 1 financing) with further significant initiatives in fruit orchards, on-farm investments (machinery and post-harvest facilities, such as storage capacities) and nut plantations.

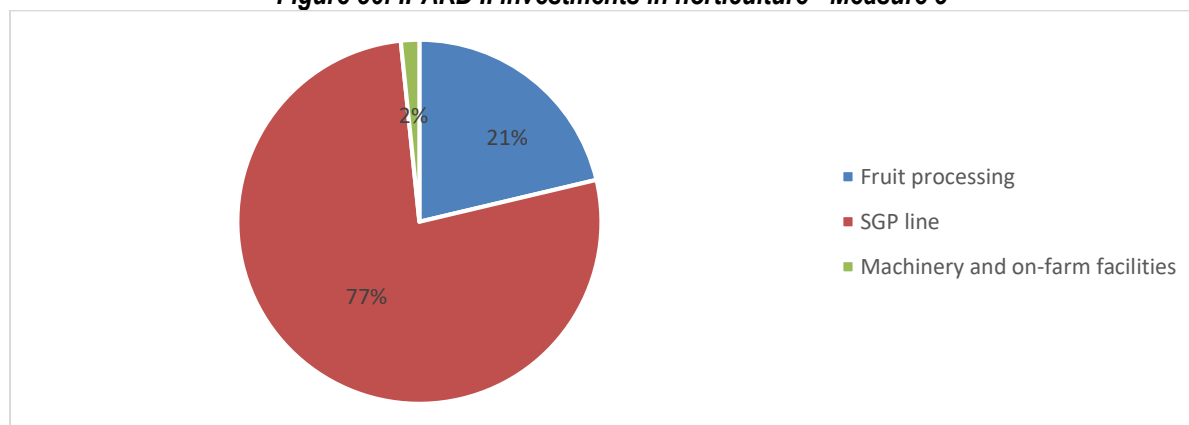
**Figure 35: IPARD II investments in horticulture - Measure 1**



Source: elaboration on ARDA data.

At processing/collection/marketing level, the major investments refer to sorting grading and packing lines, fruit processing, fruit and vegetable handling.

**Figure 36: IPARD II investments in horticulture - Measure 3**



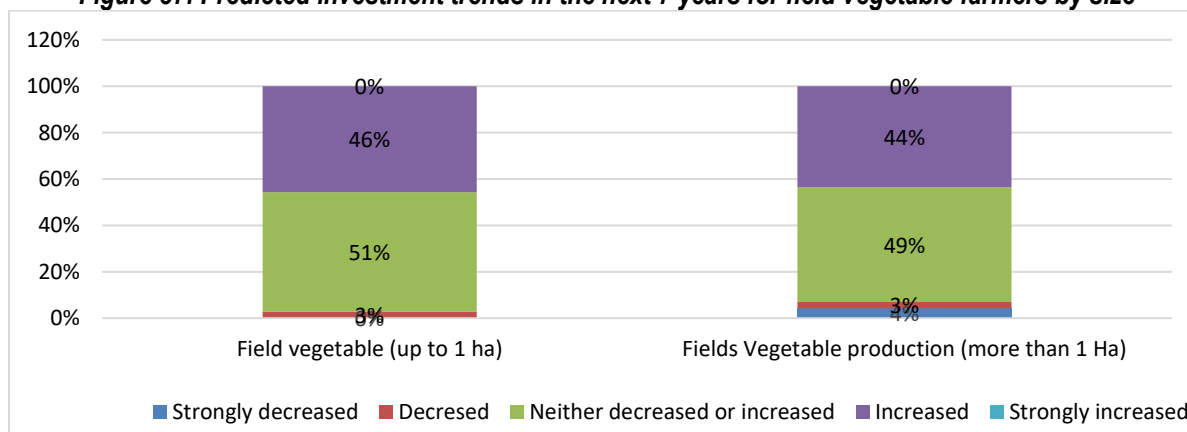
Source: elaboration on ARDA data.

## 7.2 THE INVESTMENT CLIMATE AND THE EXPECTED FUTURE TRENDS

### 7.3.1 Farm level

Survey with extension surveys indicates that investments will increase for both smaller and larger field vegetable farms.

**Figure 37: Predicted investment trends in the next 7 years for field vegetable farmers by size**

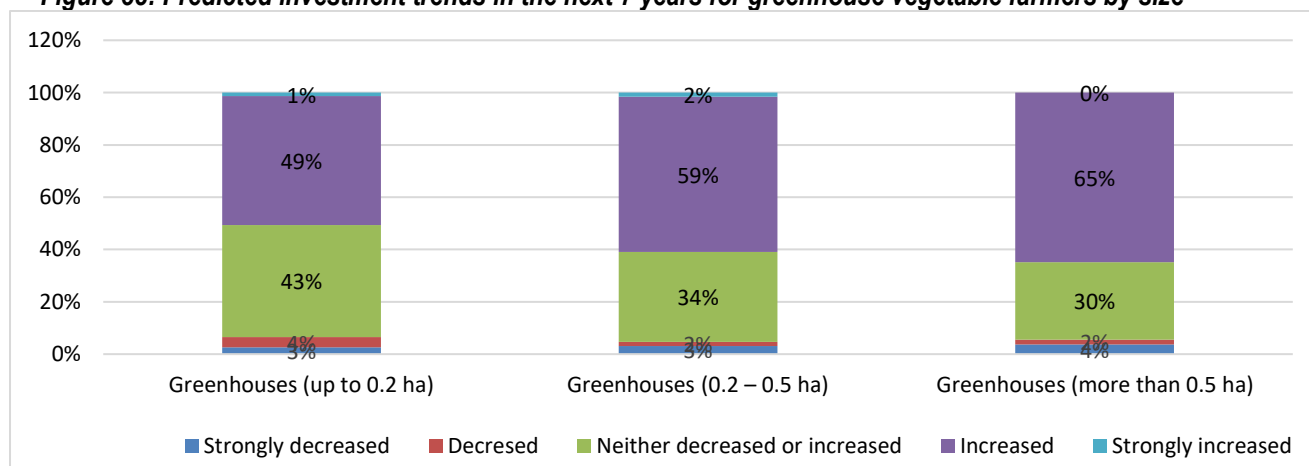


Source: MARD extension survey

In the case of greenhouse vegetable, prospects are even more positive. Almost 2/3 of interviews foresee growth in investments for larger greenhouse farms (above 0.5 Ha). In addition to partial interventions which are necessary (such as plastic replacement), further increase in greenhouse area is expected, considering the potential. However, the COVID19 has affected plans and intentions for investments.

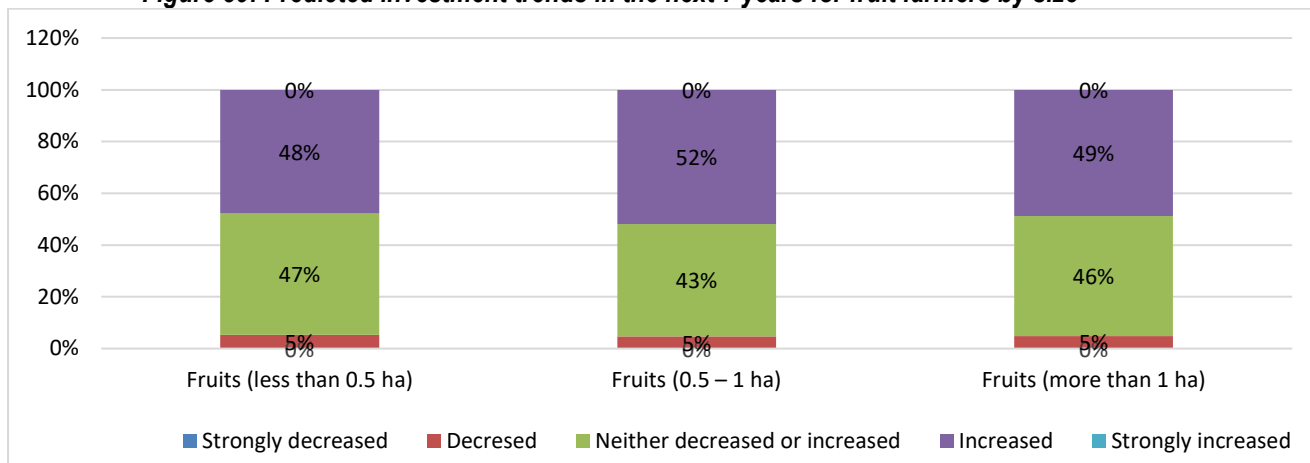
“There is a trend of growing investment in greenhouse but during the last season they have stopped carrying out continuing investments due to COVID19 impact on sales and prices”, stated one exporter.

**Figure 38: Predicted investment trends in the next 7 years for greenhouse vegetable farmers by size**



Source: MARD extension survey

Investments are expected to increase in the fruit sector in the coming years. There is a growing interest to plant varieties that are more demanded by the market, such as Fuji in the case of apple. In addition to new cultivation and replacement of old varieties with market-oriented ones, also investments in drip irrigation and mechanization may grow.

**Figure 39: Predicted investment trends in the next 7 years for fruit farmers by size**

Source: MARD extension survey

The common needs of horticultural production comprise investments for sustainable production: precision agriculture equipment and devices including efficient spraying machines; investments for chemical sharing and collective management of pesticides and relevant waste materials and, at farmer level, for appropriate and safe storage and use of PPP; investments for biodiversity, wild fauna/flora, and habitats protection; in general, actions comprised in agro-environmental measure (Measure 4).

#### Future expected and needed investments for fruits and vegetable farmers

New plantations with market preferred cultivars (e.g., apple, mandarin etc). 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. Improved cultivar mix represents a marketing risk mitigation mechanism. Below are summarized may investments need:

- *New plantations and replacements of existing plantations with more demanded varieties.*
- *Fertigation: wells/irrigation canals, drip irrigation, decatrons or other programmed dosing equipment.*
- *Solar panel systems – energy for water pumping in apple orchards*
- *Hail nets. Based on interviews, hails have become more frequent or problematic, especially for apple and mandarins more recently.*
- *Agricultural machinery, including tractors and mechanized spraying pumps*
- *Organic orchards/vegetable conversion or new (organic) plantations.*
- *Construction/renovation of non-heated green houses. There are huge opportunities to increase greenhouse area. According to export assessments and previous studies, there is a potential for greenhouse area to grow to 5,000 ha. Installation of bio-mass heating systems in central heated greenhouses represents an opportunity to be explored.*
- *Support plastic cover for existing greenhouse and systems for plastic waste management and disposal*
- *Support irrigation systems that use alternative irrigation water sources to (salted) well irrigation water*
- *Installation of bio-mass heating systems in central heated greenhouses (to be considered based on feasibility studies/assessment)*
- *Support pollination beehives*
- *Installation of automatic heat control and/or climate control sensory in green house system to improve energy efficiency systems in central heated greenhouses*
- *Replacement of current non-heated greenhouses simple plastic with thermic plastic.*
- *On-farm collective or individual pre-cooling systems.*
- *Simple processing lines for on farm processing, such as apple juice, dried fruits on farm) (this can be financed under diversification / Measure 7).*

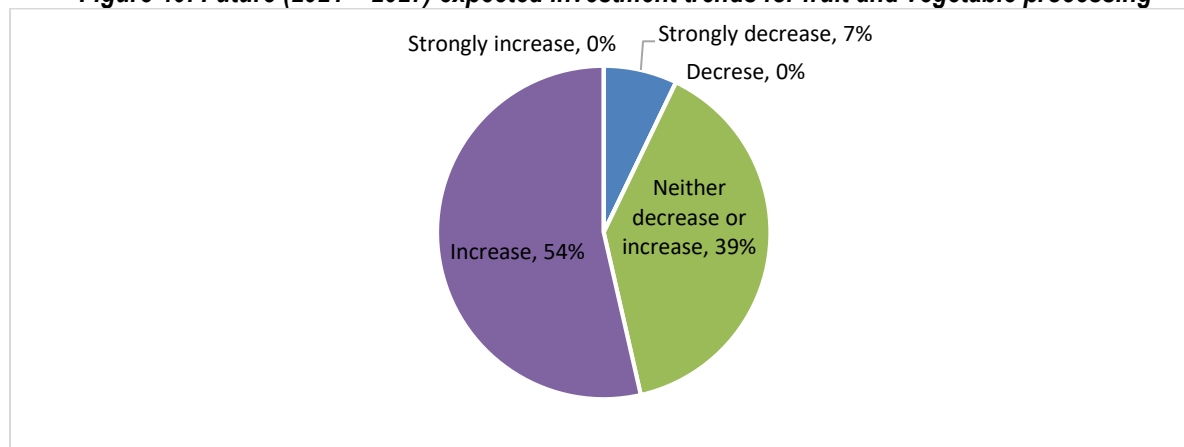
Proposed list of investments that can be supported under IPARD III is summarized in Section 12.



### 7.3.2 Processing and trade

Also, in the case of both fruit and vegetable processing and collection points there is expected growth. While now there is a high number of collection points, the need is to modernize.

**Figure 40: Future (2021 – 2027) expected investment trends for fruit and vegetable processing**



Source: MARĐ extension survey

The expected increase in processing investments would address the current constraint of the sector related to the lack of processing capacity and would favour the development of the entire sector toward added-value outputs and stronger market position, as other neighbouring countries (i.e. North Macedonia) have achieved since years.

#### Future expected and needed investments for fruits and vegetable processing and trade:

In the case of fruits, below are summarized key investments needs:

- Post-harvest and product conditioning facilities and equipment and other equipment
- Cold storages facilities. There are needs to expand the cold storage capacity for fruits, especially apple.
- Construction/re-construction of processing facilities.
- Sorting, grading, cleaning, packaging lines and labelling lines.
- Fruit processing: fruit drying line
- Support to controlled atmosphere type of technology. But given the high cost of such investments, careful considerations are needed (to ensure that investments are justified by the return).
- Mechanization collection/consolidation facilities (palletized transport within large storages and other similar machineries and equipment)
- Specialised refrigerated transport
- Fruit processing: fruit juice processing lines and eventually cider production. One juice producer plans to make a new investment of almost 1 million EUR including new processing line, grading line etc.
- Simple/artisanal fruit processing (although that falls under diversification)
- Fruit processing facilities construction/renovation.

Proposed list of investments that can be supported under IPARD III is summarized in Section 12.

Despite the increase in storage capacities, postharvest technology in Albania is not yet optimised, leading to shorter storage and increased losses. There are needs to expand the cold storage capacity for fruits, especially apple. For example, in Peshkopi, the second largest apple cluster, there is a need to have additional cold storage capacity of at least 2,500 Mt (e.g., 5 by 500 Mt)<sup>29</sup>. Consequently, there is still much room for supporting investment in cold storages, especially in the case of apple, though there are no regular records or quantitative analyses on post-

<sup>29</sup> Interview with Vaip Salkurti, who is a farmers, trader and processor of apple (and other fruits).

harvest losses of fruit in Albania. A complete pre-cooling system is missing in most 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). Investment in cold storage and packaging lines is also a risk mitigation mechanism.

To improve access to attractive export markets, grading and standardization is necessary for all the main types of products. There are only few operators/exporters that have grading lines; thus, investments are needed for fruits such as apple, tangerines, cherries etc. (but also vegetable). For example, in the case of tangerines, in Xarre (production cluster) only 2 out of 10 operators (collection points) are reported to have selection lines – others are planning to invest too. The level of sophistication and cost depends on the type of product. For tangerines or apple, selection lines may cost ca 50,000 EUR based on interviews. For cherries selection lines are more complex and expensive. One interviewed operator plans to make an investment in a modern selection line for cherries, which will be useful both for fresh consumption cherries (to be sold at higher prices), and for processing into juice. Such a line was reported to exceed 300 thousand EUR. This is particularly necessary in case they intend to reach high-potential markets and reach higher sales prices.

Almost all local consolidators and large wholesalers have made modern investment in storage facilities. Packaging houses which include cleaning, sorting, and packaging lines are also a new trend particularly for large export-oriented actors. This category of exporters has also invested in cold rooms even if it does not represent a typical investment for local consolidators.

Vegetables' greenhouse 'industry' is an export-oriented industry. For the time being, the geography of exports is focused on regional countries (Kosovo, Serbia, Bulgaria, Bosnia e Herzegovina) at relatively low reported prices. Since export is growing fast, there is a need to target high income European countries, which are more demanding in terms of product quality and standards. Such a transition would call for investment in marketing and quality infrastructure, including packaging houses. Cold storages are also needed to preserve the quality in case of exporting to high income EU countries. Investment in storage capacity and mechanisation within collection points are also needed.

Given the supply excess (compared to demand and still weak export market) investment in processing industry (apple juice, cider, dried apple, etc.) is both a business opportunity and a risk mitigation mechanism for fruit and apple growers.

## **8. VALUE CHAIN ORGANISATION AND ENABLING ENVIRONMENT**

### **8.1 VALUE CHAIN MAP**

#### **APPLE**

The main groups of actors in the apple value chain are farmers, consolidators (cold storage operators) and wholesalers.

Input suppliers represent an important support to the fruit sector. There are two categories of input suppliers. First, seedling producers / suppliers. Based on technology and size, there can be distinguished three types of nurseries (for more details, see Section 2 above). Some of the leading apple seedling producers are in the Korca production cluster. Second, other input suppliers who sell fertilizers and pesticides but are also an important source of information and advice.

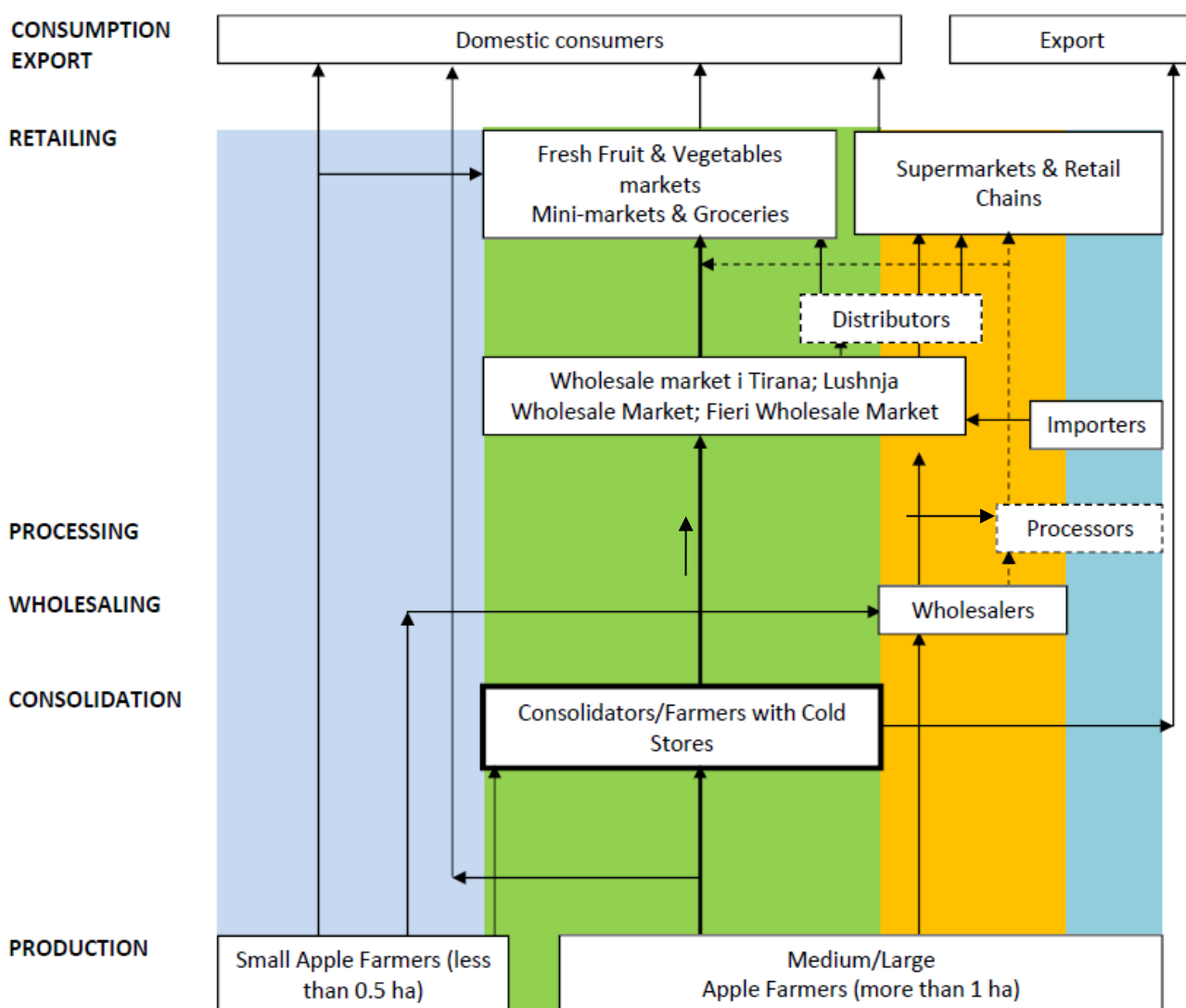
Apple farmers are mainly concentrated in the region of Korca, followed by that of Diber. For more details related to farm typology, population by size etc, see Section 2 of the report.

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, therefore they buy fruits from local producers. Consolidators are a key player to facilitate the market access of apple growers in the traditional market channels.

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 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 soon and are the junction between medium-large apple growers and supermarkets chains.

Small-medium size wholesalers operate in the domestic market only, functioning as the trade junction between consolidators and the retail stage, including all kinds of retail outlets. They are equipped with small simple transport facilities.

For more details see Section 5.

**Figure 41: Apple value chain map**

Source: Skreli and Imami (2019)<sup>30</sup>

## CITRUS

Description of the profiles of the main actors is summarized below. Like apple, there are two categories of input suppliers to the citrus chain: seedling producers / suppliers and other input suppliers who sell fertilizers and pesticides but are also an important source of information and advice.

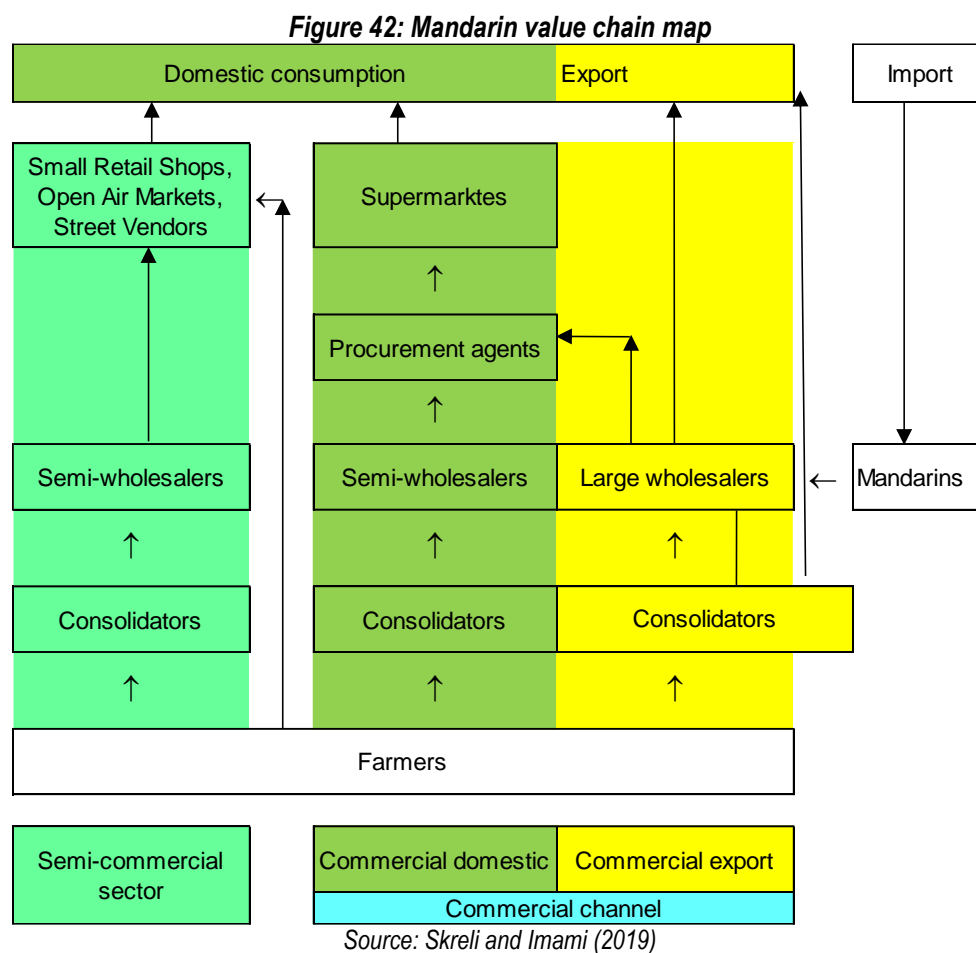
There is an increase in number and size of farmers operating in this sector, especially for mandarins (for more details see Chapter 2).

The mandarin consolidators operating in Konispol municipality play a key role in the mandarin value chain, as they represent the direct access to the chain for all mandarin growers. They supply the wholesaler and retailers but also export to other countries. The consolidators' part of mandarin market is becoming quite competitive. There are several consolidators operating in Konispol area. Their storage capacities are insufficient considering the fast-growing production.

<sup>30</sup> Skreli, E. and Imami, D. (2019). Apple sector study. Albania Agribusiness Support Facility (AASF) Institute of Economics Studies and Knowledge Transfer. Tirane, 2019.

In addition, in the sector there are operating large wholesalers (similar to those highlighted above in the case of apple) and small wholesalers.

The below figure maps the mandarin value chain actors and the main channels through which fruit flows from farmers to end use consumer.



### GREENHOUSE VEGETABLE

The four main categories of actors in the greenhouse vegetable value chain are input suppliers, greenhouse producing farmers, local consolidators and wholesalers. Below we describe actors' profile which is followed by value chain flows and governance.

Input suppliers represent an important actor/node in the greenhouse vegetable sector. While seeds are typically imported, there are several seedling producers, 2 of which are large and are engaged also in the export of fresh fruits and vegetable - in such case they tend to develop closer relations with farmers by providing seedlings and buying their products, taking an important coordinating role. There are input suppliers who conduct (field, demonstration) experiments on adaptation of deferent vegetables cultivars.

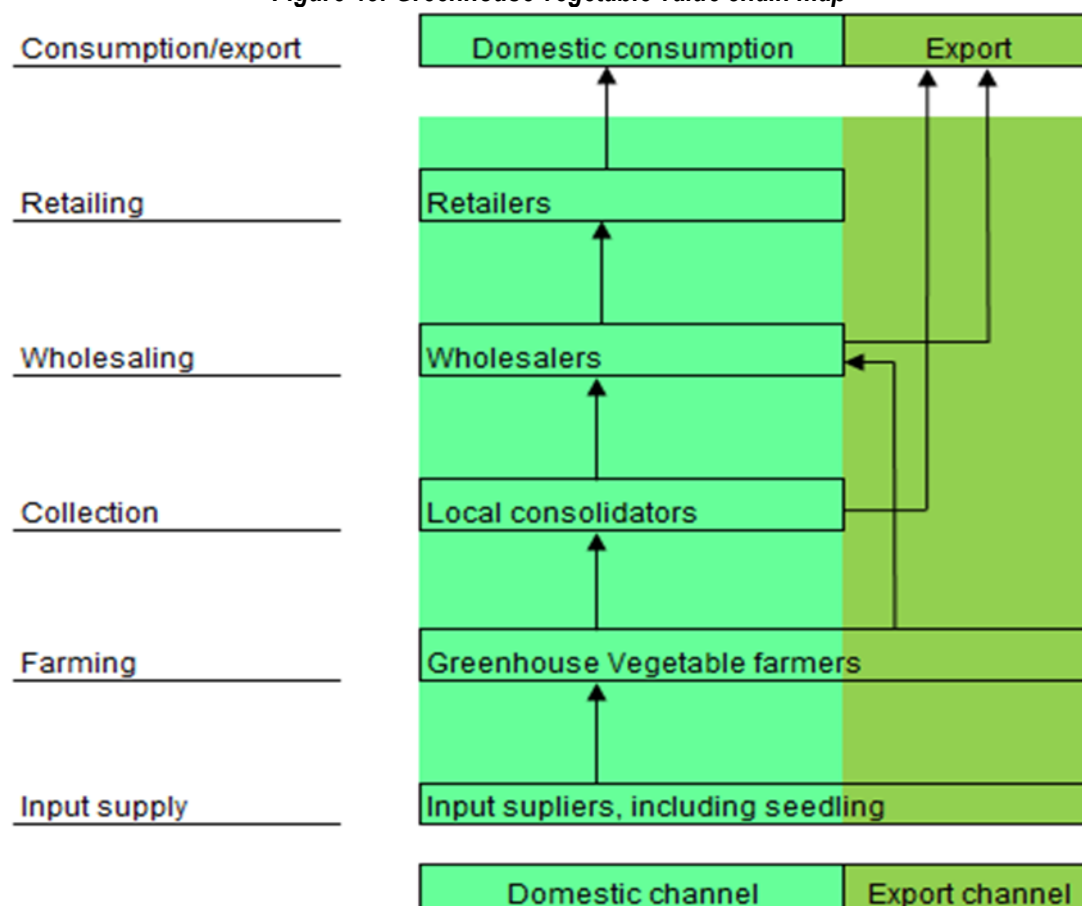
There is a strong increase in the number and size of greenhouses during the past decade – the larger ones with strong export focus (for more details see Chapter 2).

There are about thirty consolidators that operate in the greenhouse production cluster areas, namely municipalities of Berat, Kuçove, Ura Vajgurore, Lushnje, Divjake and Fier. They are mainly based on the production area, collect produce from farmers and export it (for all of them, greenhouse vegetables are the only or at least the main exported/sold products) or sold it to wholesalers for distribution to domestic retailers. The typical investment of local consolidators are storehouse and transportation mean. Most lack cooling storages and sorting, cleaning and packaging lines, with any exception.

Large wholesalers are becoming a key factor in the greenhouse vegetable value chain for the domestic market. They also export fruits, but the core business of large wholesalers is greenhouse vegetable.

Figure below maps the greenhouse tomato and cucumber value chain actors and the main channels through which these products flow from farmers to end use consumer.

**Figure 43: Greenhouse vegetable value chain map**



Source: Skreli and Imami (2019)

## WATERMELON AND MELON

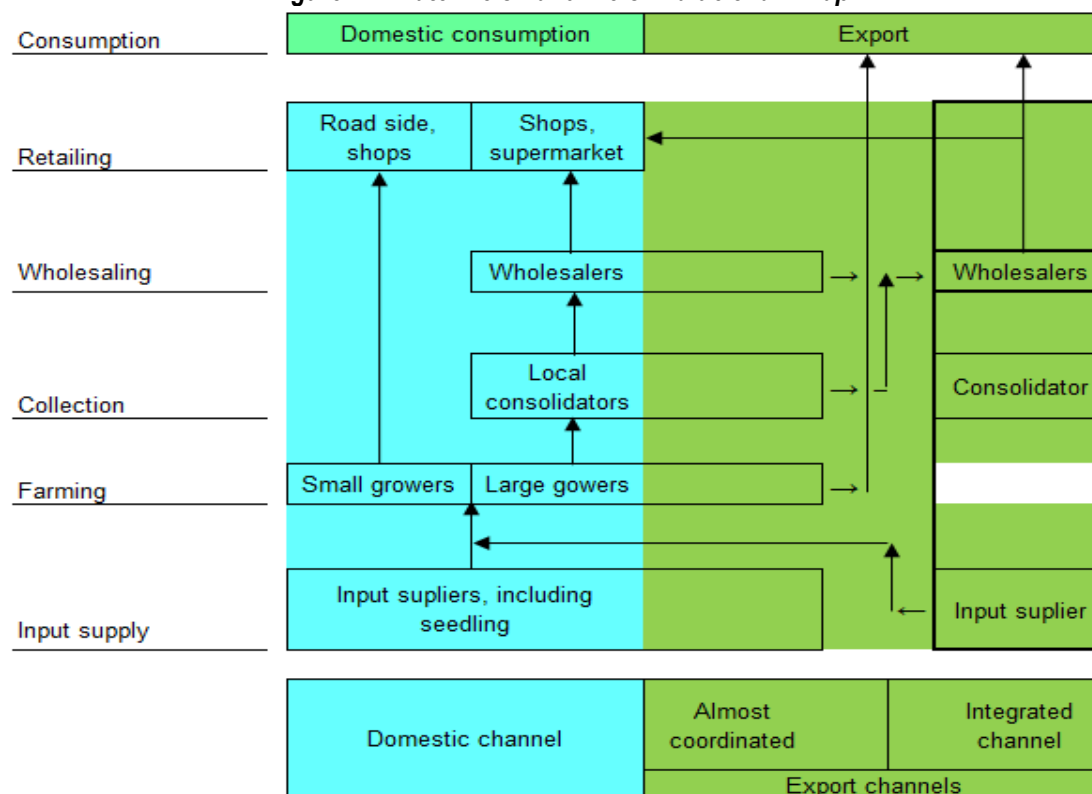
There are three large watermelon seedling suppliers in Albania: Agrolend, Bruka Seedling, and AgroKoni. Apart from these three, there are also a few minor players.

There is a strong increase in the number and size of watermelon and melon farmers– the larger ones with strong export focus (for more details see Chapter 2).

At present, there are a limited number of exporters of the watermelon& melon sector, such as Bruka Seedling, AgroKoni, Biti, Doni Fruits, etc. Integrated consolidators are engaged in more than one level of the chain and while none of them are engaged in production, they generally have established relationships with producers and provide them with a relatively wide range of services.

*“I buy seedlings from Ruzhdi (Koni). He orients me for choosing the market demanded varieties. His agronomist advices me. When I find it very hard to sell the product, I can sell it to him”* stated one large watermelon farmer who was interviewed.

Figure below maps the watermelon and melon value chain actors and the main channels through which the products flow from farmers to end use consumer.

**Figure 44: Watermelon and melon value chain map**

Source: Skreli and Imami (2019)

## 8.2 VALUE CHAIN COORDINATION – CONTRACT FARMING

Better-performing value chains are required to enable competition with imports while improving standards to improve access to export markets, particularly in lucrative EU markets that are very demanding in terms of standards, as highlighted earlier in the report. Standards and technical requirements, including traceability, can be achieved, improved and maintained only through efficient vertical and horizontal coordination.

In Albania, there are observed different forms of vertical coordination, which vary by sector / product and type of farmers. Spot market remains an important way of coordination in the horticulture sector. Regarding the agreements type between farmers and buyers, previous studies conducted in Albania show that written contracts (formal contracting) are not common, while informal (verbal) agreements are widely used. Differences from sector to sector can be clearly seen for the use and type of contracting/agreements. There are sector/products, where agreements (written/verbal) are more common (e.g., greenhouse tomatoes).

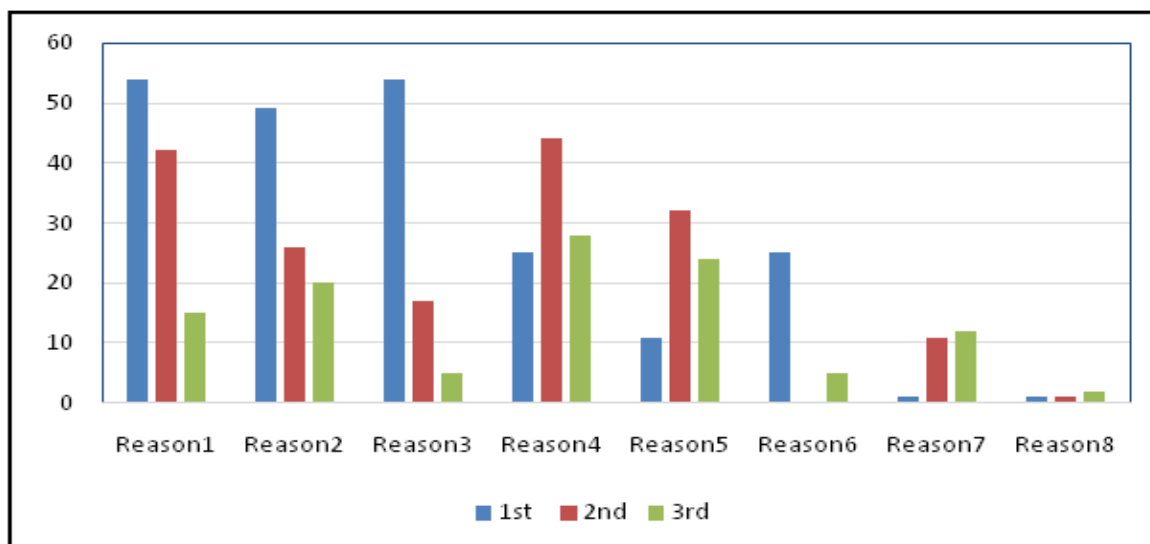
**Table 8.1: Type of Agreements between farmers and buyers for four different sectors**

Subsector/product	Type of contract/relation	Observations	Frequency (%)
Greenhouse tomatoes	Written Contract	23	10.0
	Verbal agreement	84	36.4
	No Agreement	124	53.7
	<b>Total</b>	<b>231</b>	<b>100.0</b>
Apples	Written Contract	11	4.2
	Verbal agreement	59	22.3
	No Agreement	195	73.5
	<b>Total</b>	<b>265</b>	<b>100.0</b>
Watermelon	Written Contract	2	1.2
	Verbal agreement	76	44.5
	No Agreement	94	54.6
	<b>Total</b>	<b>172</b>	<b>100</b>

Source: ISETN (2017)

According to a previous study<sup>31</sup> (carried by the authors of this study report) the main reason for not contracting is that contracting is not a habit of doing business. The second most important reason appears to be that farmers do not see/perceive any benefits from contracts, and the third most important reason for not contracting is that buyers do not agree to contracting terms. Another important reason for not establishing contract outlined by the farmers is that they don't trust the buyers.

**Figure 45: Reasons for not contracting**



Reason 1	Contracts are not a business habit (we are not used/familiar to contracts)
Reason 2	I don't see any real benefit from contracting
Reason 3	The buyer does not agree to have a contract
Reason 4	I don't trust the buyer
Reason 5	I don't want to depend on the buyer
Reason 6	I don't trust on the judicial system and contract enforcements
Reason 7	Unfavorable contracting terms
Reason 8	I don't understand contracting terms

Note: N=403, tomato farmers=231, watermelon farmers=172.

Source: Structured survey; Source: ISETN (2017)

Farmers' trust on the buyer and information provided by the buyer are found as a strong predictor of contracting in the greenhouse vegetables value chain. The rationale here is that the more information the buyer provides to the farmer about the market (e.g., variety required, product standards, prices, market potential) the better the farmer's decision<sup>32</sup>.

Though apple 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 not consolidated (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.

Consolidators are becoming a key factor in the mandarin value chain (similar to consolidators in the case of the apple value chain, which has been analysed in another report). There is already observed coordinated action in the mandarin sector lead by consolidators. Some consolidators have provided guidance to farmers with respect to mandarin cultivars demanded in the export market and more importantly guidance on cultivar mix in order to assure

<sup>31</sup> ISETN (2017). National Economic Potentials of Contract Farming and Agriculture Cooperation in Albania, Report prepared for GIZ

<sup>32</sup> *Ibid.*



a smooth supply. Visionary consolidators who target the EU market consider critical the establishing of working relationships with farmers in order to procure high quality fruits.

In the case of vegetable (especially greenhouse vegetable) and watermelon (and melon) key players (e.g. Doni fruits, Biti & CO and AgroKoni) deal repeatedly with a core group of farmers. Doni Fruit, Hatia Group, Roland-2012 have GlobalGAP certifications for tomato, cucumber as producer groups (option 2), overall collecting 77 farmers for tomato and 29 for cucumber<sup>33</sup>. Although, there is quite some flexibility in the relationships with farmers (there are farmers who enter and exit relationships with buyers), there is a core group of farmers with who buyers have more stable relationships. The latter sell inputs to this group of farmers sometimes with late payments, offer advice and technical information, and buy the farmers produce. In some cases, buyers have also written contracts with farmers such as in case of 'Doni Fruits'.

Another exporter that both export horticulture products and sell inputs, stated that:

*“For exports we buy only from farmers whom we know and whom we supply inputs, to ensure standards compliance. In addition, we engage 4 agronomists that monitor and advice supplying farmers. They meet the supplying farmers 1-2 times per season and who has problems more often. They use basic equipment to measure PH, humidity to orient farmers”.*

There are observed cases input suppliers who extended their activity as collection points/exports as well as collection points who entered into the business of input provision.

*“One of the reasons why we invested and expanded our activity with in sales is to get back debts from farmers in kind, through their produce. Some farmers who cannot pay back for inputs deliver products (pay in kind)”,* stated one major input supplier who has entered into the business of exporting greenhouse vegetable few years ago.

Provision of inputs from exporters aims also the compliance of standards.

*“We have decided to produce and deliver inputs to supplying farmers to ensure standards”* stated representative of one of the largest exporting companies which also sells/provides inputs.

#### **Box 6: Value chain coordination and standards**

Doni Fruits was founded in 1958 in Kosovo where it initially started as a small family business with the primary purpose of collecting, cultivating and exporting fruits and vegetables. With valuable experience gained over the years in export, wholesale and retail trade, Doni Fruits has established a strong presence in Albania, Kosovo and Northern Macedonia.

Doni Fruits is one of the leading exporters of horticulture products in Albania. Doni Fruits deals with all types of fruits and vegetables that are exported from Albania, but greenhouse vegetables are the main exports (namely tomatoes, cucumbers and pepper are the 3 main ones). It exports products to different markets in the region and the EU – they have been exporting to 27 different European markets. It is supplied by about 1,500 farmers, many grouped into clusters or groups according to the main activity (products) that they produce (for more details regarding groups see the following subsection).

Through GlobalGAP certification, Albanian fruits and vegetables producers and exporters have demonstrated they can meet safety standards requirements of some EU markets (especially leading supermarket chains), and in securing contracts with EU buyers, they have achieved better market access and prices for farmers. The GlobalGAP database records 7 producer and producer groups certified for tomato and cucumber (the same ones) and 2 for mandarins.

Ensuring high food safety standards is a top priority for Doni Fruits as it is aiming to increase its presence in higher end markets, especially northern EU markets which offer more attractive prices but also have very demanding food safety standards. Considering also the food safety situation in Albania, internationally recognized certification that ensures the buyer of the food safety (and other relevant) standards, such as GlobalGAP, are essential to target the demanding EU market. Therefore, Doni Fruits has been engaged in recent years in the process of GlobalGAP certification, which implies stronger cooperation with farmers, including also contract farming. Doni Fruits provides advice to supplying farmers to ensure standards. Nowadays Doni Fruit has achieved GlobalGAP certification Option 2 (producer group) for tomato, cucumber, mandarin.

There are several other benefits for both parties engaged in cooperation agreement:

i) Doni Fruits may have control on the technology process by providing the right seeds and some inputs to ensure the right quality and technical assistance to farmers through its employed agronomist who is specialized in plant protection.

<sup>33</sup> Source: GlobalGAP database, 26 February 2021.

ii) Farmers benefits from guaranteed market. The company *provides to farmers the seed varieties needed by the export market.*

Source: Imami et al. (2021)<sup>34</sup> and interviews

Research on Albanian apple farms has shown that farmers who are specialized tend to be more inclined to engage in sustainable or long-term relationships with the buyers<sup>35</sup>. Interestingly, farmers who tend to engage in longer relations with clients are also more likely to engage in some form of contracting. Thus, one may conclude that long-term relations may serve as a precondition for informal contracting, given the need for establishing trust (through long-term relations) while informal contracts may serve as a substitute for formal contracts in the context of small farm size and distrust of law enforcement institutions. Vertical coordination affects farm performance, including losses. Engaging in some form of long-term relations with clients result in lower losses, while conversely spot market relations result in higher losses<sup>36</sup>.

Traceability along the chain is still problematic due to the high fragmentation of primary producers and cultivation plots.

Research on greenhouse value chain shows that farmers operating with agreements show higher levels of satisfaction with the trading relationship than do farmers selling on the spot market. On the other hand, those operating with agreements are under higher levels of exercised power over product quality – thus, farm contracting is an important tool to improve standards compliance<sup>37</sup>.

### 8.3 COLLECTIVE ACTIONS

Collective action, if well managed, contributes to achieving the economies of scale that make it more attractive for buyers to deal with smallholders (thanks to the possibility of consolidating larger volumes and thus reducing transaction costs, of better managing post-harvest handling and thus reducing post-harvest losses, and of facilitating the diffusion of good practices and innovations and thus increasing productivity). In the context of a sector characterized by smallholders and gaps in the areas of food safety, cooperatives can play a crucial role to improve food safety standards and implement traceability more easily. Thus, not only agricultural cooperatives enhance members' efficiency by easing access to productive inputs, advice, and innovation but also may be the best, or only feasible platforms to implement certain standards for smallholders. Furthermore, through collective action, the bargaining power of organized farmers in the contracting process can be strengthened<sup>38</sup>.

In Albania, there have been few cases of successful cooperatives or collective action initiatives – many undertakings have failed due to a number of reasons (including mentality and “bad memories” from the communist past). Many farmers are reluctant to the notion of cooperatives because of the reminiscences to the communist past of the country. On the other hand, after communism, the increased levels of distrust that have characterized Albania, similar to other post-communist countries, have resulted in a general reluctance to engage in collective action also in other domains. Consequently, since early transition, cooperation has been scarce in Albanian agriculture, despite the very small farm size which still characterizes the sector<sup>39</sup>.

However, recently there has been observed a growing interest and willingness to cooperate among farmers. The growing competitiveness and difficulty to access markets (as highlighted earlier in the report) as well as the need

<sup>34</sup> Imami, D., Skreli, E., Valentinov, V. (2021). "Food safety and value chain coordination in the context of a transition economy: the role of agricultural cooperatives". International Journal of the Commons

<sup>35</sup> Gërdoçi, B., Skreli, E., & Imami, D. (2016). Determinants of sustainable relationships in the Albanian apple production sector. International Journal on Food System Dynamics, 7(1), 50-65.

<sup>36</sup> Imami, D., Zhllima, E., Viaggi, D., & Bokelmann, W. (2013). Between weak markets and weak regulations: determinants of contracting in orchard farming in Albania. Journal on Chain and Network Science, 13(1), 37-46.

<sup>37</sup> Keco, R., Xhoxhi, O., Skreli, E., & Imami, D. (2019). To Contract or not Contract: Implications for Farmer–Buyer Trading Relation Performance. International Journal on Food System Dynamics, 10(2), 151-161.

<sup>38</sup> Imami, D., Valentinov, V., and Skreli, E. (2021). "Food safety and value chain coordination in the context of a transition economy: the role of agricultural cooperatives", Working Paper. The International Journal of the Commons and FAO (2020). Smallholders and Family Farms in Albania. Technical Report.

<sup>39</sup> Skreli, E., Xhoxhi, O., Imami, D., Stefanllari, A. (2021). Collective Action Determinants in the Context of Post-communist Economy –Economic Importance of Cooperation Services vs. Farmers' Attributes. Working paper.

for high quality inputs has increased awareness about the importance of cooperation. There was a case when a group of farmers organized themselves to buy pesticides directly abroad – they were happy with the quality and with the arrangements. They travel together to Greece to buy such inputs, thus sharing the travel cost. They also cooperate to transport the product to the wholesale market<sup>40</sup>.

It appears that cooperation is incentivized or supported even by buyers, in order to improve standards. Below there is a case study on collective action in the horticulture sector.

### **Box 7: Collective action and group certification**

Doni Fruits has made efforts to cluster farmers in groups specializing in specific products. GlobalGAP group certification has been a major driver of group formation. The company has cooperated with a growing number of farmers who were certified for the first time under GlobalGAP group certification (currently 66 farmers), with the support of RisiAlbania. Currently Doni Fruit associate 25 tomato growers and 21 cucumber growers within the GlobalGAP producer group<sup>41</sup>. GlobalGAP group certification option is far cheaper when compared to certification of individual farmers, and mechanisms for implementing it. *Through the group it is easier to control and guide the farmers for the production technology processes.*

The interaction between the buyer and group of farmers is showing sustainability. Doni Fruits and other exporters that implemented GlobalGAP group certification manage to export to northern EU markets, while traditionally the main export target has been the Balkan region, and to suppliers of supermarket chains, achieving contracts with higher prices.

Doni Fruits has initiated or supported the establishment of other informal groups. For example, they have supported a cooperative named “Eagle Farm”, which have together 36 Ha. In order to scale up its effort, the company is also considering to support the establishment of formally registered cooperatives. Following the good example of Doni Fruits and other exporters that had implemented group certification, more exporters are introducing it too.

Although the purpose of cooperation was initially focused on joint certification, cooperation among farmers extended also to joint inputs purchase, enabling lower purchase prices and better access to advisory services. Greater cooperation among group members is expected to further benefit them.

*Source: Imami et al. (2021)<sup>42</sup> and interviews*

In the horticulture there several associations which provide technical assistance to farmers, and also serve as lobbying platforms for them. One of the most active associations is the Association for the Development of Agriculture in Mountain Districts (ADAD).

### **Box 8: Case studies related to impact of services**

ADAD was established with the support of FERT (Organisation Professionnelle Agricole Française). FERT provided technical assistance and procured inputs to agricultural producers in the Dibra region. ADAD assists various groups of farmers in Dibër, Kukës and Korçë who are specialized in orchards. The assistance includes the implementation of new technologies and the introduction of new products or types of fruits, such as cherries. Members pay a modest contribution; the costs of most activities have been covered by donor projects, which also enable participation in fairs. Study tours were organized to various countries and within Albania itself, with the support of various donors (although such activities have been in halt or affected during 2020 due to COVID19).

*Source: FAO (2020) and interviews*

<sup>40</sup> FIAS (2019) Smallholder Families' Financial Inclusion Project in Albania - The Needs Assessment Survey. Final Report

<sup>41</sup> Source: GlobalGAP database, 26 February 2021.

<sup>42</sup> Imami, D., Skreli, E., Valentinov, V. (2021). "Food safety and value chain coordination in the context of a transition economy: the role of agricultural cooperatives". International Journal of the Commons

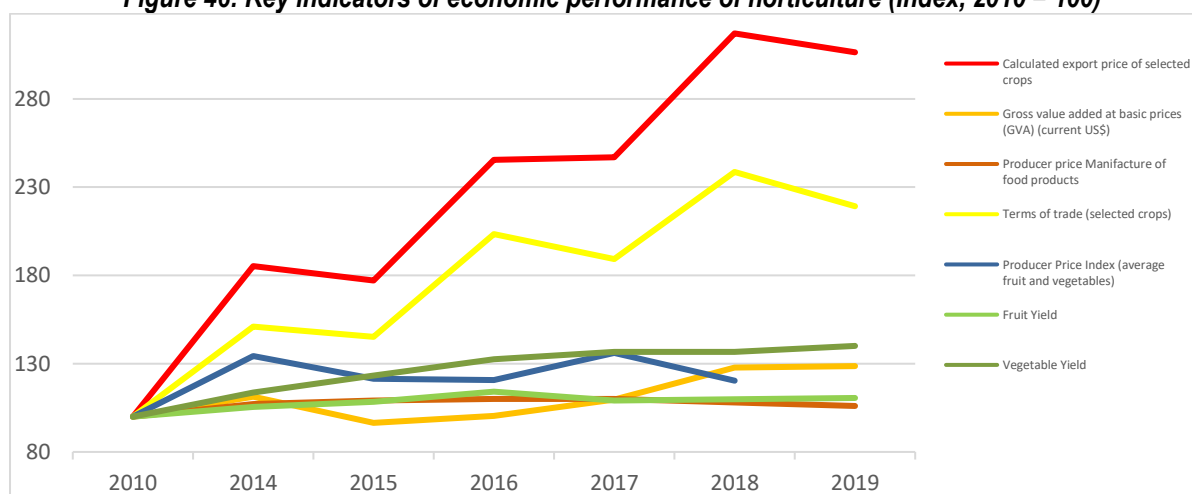
## 9. IDENTIFICATION OF POTENTIALS AND NEEDS OF THE SECTOR

### 9.1 KEY SECTOR TRENDS

The production of fruit trees has been increasing steadily in the recent years – this increase is highlighted by both increased cultivation area and increased yields, reflecting improved technologies and expertise. Also, the cultivated surface and production of vegetables in Albania has been increasing drastically since 2010. There has been an improved performance of the vegetable sector, especially in the case of greenhouse vegetables. The increase of greenhouse area coupled with improved production technologies has resulted in significant increase of production enabling a surplus for the key vegetables produced under greenhouse. On the other hand, fruit and vegetable processing industry is quite weak and is made by ca 20-30 enterprises and many informal semi-industrial operators.

The analysis of economic figures of the horticultural sector and the general economy of Albania show that the sector is growing fast, as the chart below explains<sup>43</sup>. Efficiency of the sector is increasing, the contribution of the sector to the national wealth is also improving, export penetration is growing, in a market-steered process not backed by an equal increase of the efficiency.

**Figure 46: Key indicators of economic performance of horticulture (Index, 2010 = 100)**



Source: Authors' calculations on FAOSTAT, UNSTAT and INSTAT data (2021)

The increase of both export prices and export volumes suggests that the growth is led by the market trend, with consistent improvement of trade based on increased effectiveness and market competitiveness of the sector.

The **growth of the terms of trade index** and the strong increase of the **export price** are signals of improved effectiveness of the domestic horticulture in the market.

The sector health looks much higher than the national economy, particularly considering that the producer price indexes remain stable, with very low growth in the ten years, and in comparison, to the trends of the GDP and the gross value-added indexes, which grow less than these two sector indexes.

On the other hand, the contribution of technology is not highly significant in terms of overall efficiency of the sector, as the **yield** of mayor crops is not growing and only vegetables show an improvement of yields, whilst fruit does not.

The **producer price of fruit and vegetables** grows faster than the food manufacture price. After being constantly above the growth of the national gross value-added, the recent trend shows that the gross-value added is now

<sup>43</sup> The presented data are indexed with reference to 2010 = 100. Methodology: Data are sourced from FAOSTAT (production), UNSTAT (trade) and INSTAT (national accounts and economy data). The export price is calculated as the ration between total value and total volume of exported crops: citrus, apples, strawberries, stone fruits, watermelon-melon, vegetables. Yield is calculated as the ratio between volume of production and cultivated area for mandarin, orange, apples, watermelon-melon, vegetables. Yields of fruit and vegetables are FAOSTAT data.

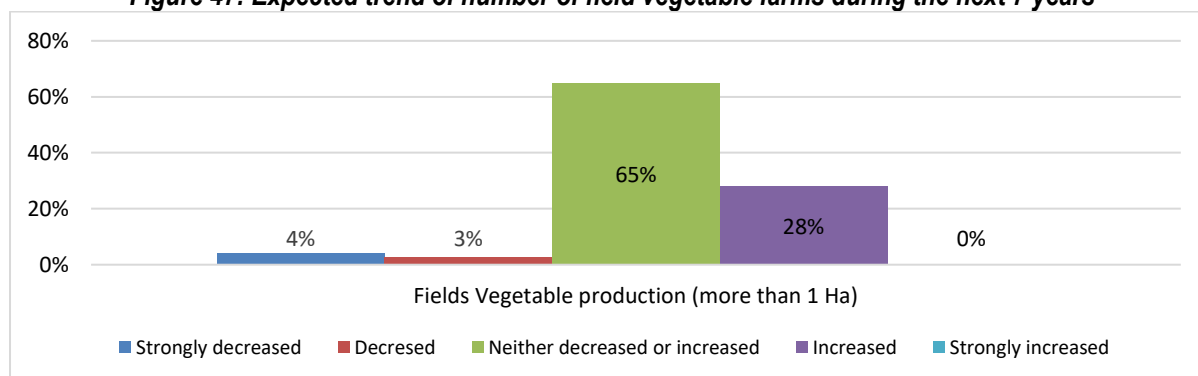
growing more, sign of a position of farmers in the value chain that needs to improve to keep abreast of the growth of the national economy.

**The key trends of the sector can be summarised as it follows:**

- Increased production trends for both fruits and vegetable
- Fast-growing vegetable greenhouse production, led by market trends and increased cultivated area rather than higher efficiency
- Positive market trends for fruit and vegetables sub-sectors
- Stable yields in fruit and improved efficiency in vegetables
- Decreased imports and increased exports, with improvement of terms of trade due to increase of export prices and limited increase or reduction of import prices
- A growing need to shift focus from quantity increase to quality improvement
- Low processing capacity, with tendency to increase
- Increased interest in cooperation and collaboration
- Need for more qualified personnel at all level of the chain

The findings from the extension survey show that there is expected consolidation in the field vegetable sector.

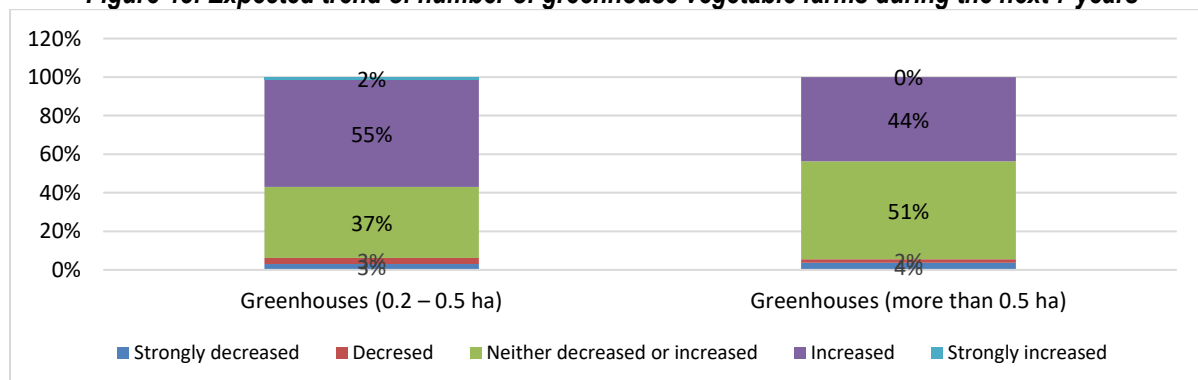
**Figure 47: Expected trend of number of field vegetable farms during the next 7 years**



Source: MARD extension survey

The extension survey confirm that the number of larger greenhouses will increase in the coming 7 years. This is a trend observed in mayor greenhouse cultivation areas in Europe, such as the Netherlands and Almeria. In the greenhouse segment, the major need is to start designing the sector growth to reduce the impact on climate and environment (i.e., plastic waste).

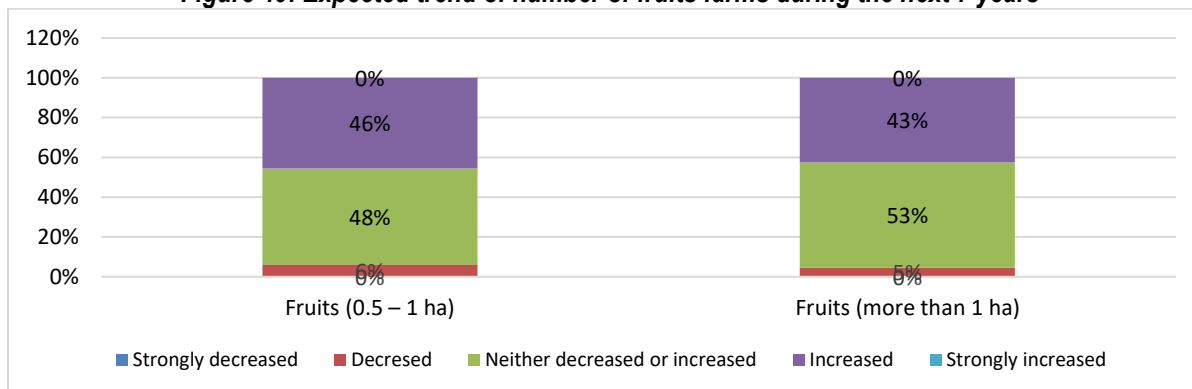
**Figure 48: Expected trend of number of greenhouse vegetable farms during the next 7 years**



Source: MARD extension survey

The extension survey findings confirm that the number of larger fruit farms will increase in the coming 7 years.

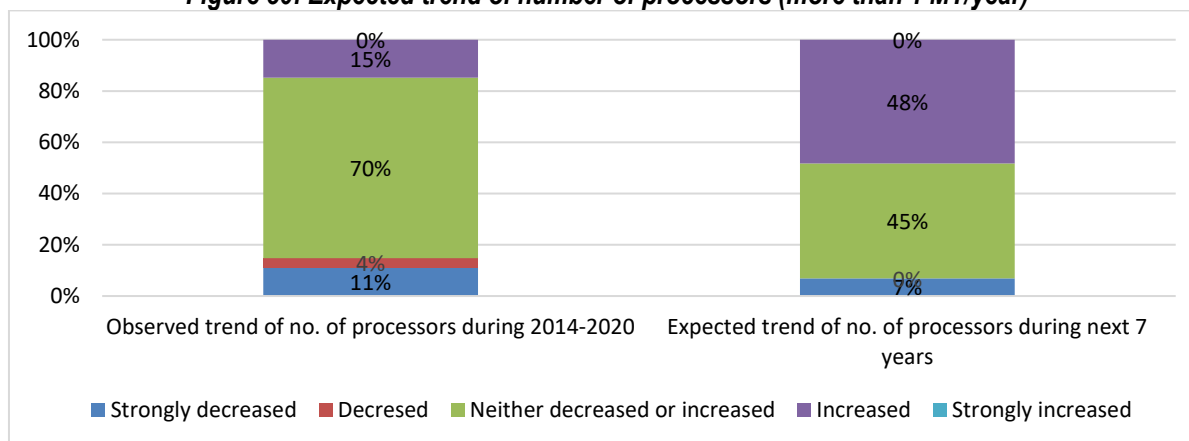
**Figure 49: Expected trend of number of fruits farms during the next 7 years**



Source: MARD extension survey

Also in the case of processors, there is expected an expansion trends, according to MARD extension survey.

**Figure 50: Expected trend of number of processors (more than 1 MT/year)**



Source: MARD extension survey

One major concern (which affects also other sector) is de-population of rural areas, especially among youth. There are very few young people working in the agriculture sector.

“We are proud if the son of a fellow farmers decides to engage in agriculture sector”, stated one interviewee wholesaler.

Low profits/income will discourage farmers, especially younger farmers to engage in the agriculture sector. Thus, over the next 5-10 years, as the older generation will phase out, will be questionable to what extent younger farmers will take over.

## 9.2 SWOT ANALYSIS AND POTENTIAL NEEDS OF THE SECTOR

The sector is characterized by various challenges and weaknesses, most notably small farm size and high fragmentation of production base, expensive and low-quality inputs, limited access to advice and finance etc. which have been analysed in detail in the previous sections. Also, most threats have been highlighted in various parts of the report (e.g., climate change is elaborated in the following section).

The following SWOT analysis strategy is conducted with the objective of identifying financing opportunity in the fruit and vegetable sector at farm level.

**Table 9.1: Fruit and vegetable farm: SWOT analysis**

	OPPORTUNITIES (+)	THREATS (-)
	MARKET -High and increasing domestic demand for fruit and vegetable also due to increased awareness about health, which is enlarging and expanding the demand.	ENVIRONMENT - High production risk related to climate change effects, with growing concern related to plant protection (from pest and diseases) represent a risk.
	MARKET - Growing tourism implies growing market in the long run	MARKET - Expansion of supermarket chains combined with pressure for formalization will make market more difficult for small farms in the short-medium run.
	MARKET - More attention to quality of products from domestic consumers. Growing consumer preference for local fruit and vegetable.	MARKET - Saturation of local market.
	POLICY - Favourable government policy for the sector	MARKET - Prices of fresh agriculture products, especially vegetables, are very volatile and subject to speculation of trade.
	POLICY - Potential support to introduce GIs.	TECHNOLOGY - Soil salinity represents a critical risk for greenhouse vegetable producers in Lushnja region using well irrigation water.
	POLICY - The alignment to EU-Green Deal stimulates the improvement of the environmental performances of the domestic horticulture.	MARKET - Domestic market is not really demanding in terms of marketing standards.
	ENVIRONMENT - Energy is largely obtained from renewable sources.	LEGISLATION - The lack of proper land titles represents a risk and a limitation, often making farmers ineligible for grants such as IPARD and for loans).
	MARKET - Selected seeds suppliers cooperate with collection points, to orient jointly farmers for those varieties which are mostly demanded in the market.	
	TECHNOLOGY - Good soil and climate conditions for a wide range of fruits and vegetable	
STRENGTHS (+)	Exploitation	Adjustment
TECHNOLOGY - Tradition in production of main fruits and vegetable	Investments to increase and improve production; irrigation systems.	
TECHNOLOGY - Existence of clusters for some products (e.g., greenhouse vegetable (Lushnje-Berat), fruit such as apple (Korce), mandarin etc, with accumulation of expertise, services etc.	Support traditional horticultural production and knowledge in the rural areas.  Development of GI schemes and stimulus to participation.	
ECONOMY - Growing number of larger farms.	Investments to develop horticultural clusters.	
MARKET - Consolidating trade channels (for some products and markets). Some farmers have stable	Assist champion farmers to develop quality products.	

relation with exporters, who also provide the farmers high quality seedling in line with export market demand.	Development of pre-cooling facilities to start integrated post-harvest management of quality fruits.	
MARKET - Vegetables' greenhouse is an export-oriented success story, with good competitiveness and growing emphasis on using high quality inputs.	Support the expansion of greenhouses clusters paired with improvement of technology. Support new plantations using local cultivars for large farmers in the first place.	
MARKET - Use of local varieties with a very good commercial potential	Support farmers developing initiative connected with the tourism sector.	
MARKET - Recent growing interest and willingness to cooperate among farmers.		
MARKET - Export-oriented quality certifications are being adopted and promoted by large farms: these leading farms are stimulating organisation of farmers.		
<b>WEAKNESSES (-)</b>	<i>Improvement</i>	
ECONOMY - Small farm size and fragmentation of production base	Technical assistance to farmers on new orchards and adoption of appropriate varieties.	Investments to mitigate climate change impacts.
TECHNOLOGY - Heterogeneity of varieties within the same farms (e.g., for fruits)	Increased production and improved logistics (including storage capacities) to extend availability of production of fresh fruits and vegetable throughout the year. Support improvement of the quality (production technology and especially post-harvest).	Stimulate farmers' marketing initiatives and branding of produce.  Direct selective support to stimulate efficient and viable farms.
TECHNOLOGY - Insufficient attention to quality of inputs, affecting yields, quality and eventually residuals: low price is more important, as access to inputs is affected by farmers' low financial capacity. Smaller vegetable farmers often tend to produce seedlings on farm.	Stimulate green conversion of the horticultural production and energy production from biomasses.	Consider preferential investments under the value chain approach.  Since export is growing fast, target high income European countries, which are more demanding in terms of product quality and standards, with investment in marketing and quality infrastructure, including packing houses,
TECHNOLOGY - Some varieties are not suitable both in terms of production as well as market demand	Stimulate on-farm investments to incorporate the farm-to-fork principles.	Stimulate farm aggregation and land consolidation.
TECHNOLOGY - Weak production technology, equipment and infrastructure, including irrigation.	Design specific policies for producer organisations.	Develop schemes to facilitate access of farmers to insurance.
TECHNOLOGY - Despite the increase in storage capacities, current cold storage capacities do not meet the demand.	Stimulate value chain strengthening via contract farming and sales agreement between farmers and processors / traders.	Invest in weather monitoring stations linked with an IPM information system for farmers.
TECHNOLOGY - Insufficient farmers know-how or inappropriate practices related to plant protection, with low attention to <i>farm-to-fork</i> principles, and	Investment in storage capacity and mechanisation within collection point.	Support advisory services for farmers. Reduce the digital divide of growers and stimulate IT investments to favour connection with new, modern market channels.  Design packages to facilitate the access of



<p>postharvest: the incapacity to control timing of harvesting or sell may lead to price risk Improper use of inputs can affect product quality.</p>		<p>farmers to product and soil analysis.</p>
<p>TECHNOLOGY - Low level of digitalisation of the production.</p>		<p>Stimulate aggregation and cooperation of farmers to consolidate and standardise the offer</p>
<p>TECHNOLOGY - Farmers hardly carry out any lab analysis (e.g., soil analysis)</p>		
<p>MARKET - Weak agroindustry, with small absorption of primary production.</p>		
<p>TECHNICAL ADVICE - Lack of qualified technicians and technical assistance. The main source of advice is input suppliers. Absence of weather monitoring systems to facilitate adoption of IPM.</p>		
<p>TECHNOLOGY - VET, research and technology transfer in horticulture lag and cannot fulfil the needs.</p>		
<p>Downstream value chain and services to farmers (market information, post-harvest, insurance, finance, etc.) are weak.</p>		
<p>INPUTS - Price and quality of inputs are seldom satisfactory: chemical treatments against diseases and pests have a high cost. TECHNOLOGY - While a legal framework for inputs exists, the low implementation and lack of adequate controls are a serious concern for the progress of the sector, as improper quality of inputs is a concern for efficiency and quality of products.</p>		
<p>MANAGEMENT - Insufficient financial management, lack of cost analysis may lead to 'blur' financial situation and low financial predictability of farms.</p>		
<p>MARKET - Greenhouse export is focused on regional countries (Kosovo, Serbia, Bulgaria, Bosnia e Herzegovina) at relatively low reported prices.</p>		
<p>MARKET - Unreliability of farmers in respecting supply</p>		

contracts agro-processors make difficult establishing long-term contracting relations with supplying farmers.		
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**Table 9.2: Processing: SWOT analysis**

OPPORTUNITIES (+)	THREATS (-)
ECONOMY - Expected growth of the sector due to increasing demand	TECHNOLOGY - VET, research and technology transfer in horticultural processing lag and cannot fulfil the needs.
POLICY - Favourable government policy for the sector. Availability of support and subsidies (including IPARD III) for enterprises which will adopt higher standards.	MARKET - Strong competition from other countries for most processed fruits (e.g., juices) and vegetable (including tomatoes sauce and catch-up)
POLICY - No duties on equipment imported from medium-technology countries	ECONOMY - Pressure for formalization increases processing and distribution costs.
POLICY - Potential support to introduce GIs.	POLICY - Growing pressure to comply with national and EU standards –.
ENVIRONMENT - The alignment to EU-Green Deal stimulates the improvement of the environmental performances of horticulture processing	TECHNOLOGY- lack of specialised, efficient production for processing.
ECONOMY - A major current advantage for processing is the low labour cost in Albania.	POLICY - Informal operators thriving because of lax market surveillance and law enforcement.
TECHNOLOGY - Access to services has improved (such as marketing, labelling).	MARKET - High competition from imported products for high end-market segments. Majority of processed import products are more competitive than the domestic productions.
TECHNOLOGY - Undergoing improvement in post-harvest will increase quality of raw material for industry, especially fruit.	SOCIAL - Depopulation of rural areas. Difficulty to find, qualified employees. Limited interest of youngsters for vocational training.
TECHNOLOGY - Good climatic conditions and natural resources for growing a wide range of different raw fruit and vegetables.	MARKET - Strengthening of supermarket chains leads to higher working capital requirements, because of longer payment periods and because they find it easier and cheaper to deal with imported products, making competition from imports more direct and international producers benefiting from well-established brands and from access to distribution channels.
ECONOMY - Low cost of raw material in peak production periods.	MARKET - Prices of fresh agriculture products, especially vegetables, are very volatile and subject to speculation of trade.
TECHNOLOGY - There is a tradition in the production and consumption of processed fruit and vegetables.	MARKET - Increased awareness about health is reducing the domestic demand for processed fruit and vegetables.
TECHNOLOGY - Good potential of the raw material production base for vegetables.	MARKET - Domestic market is not yet demanding much in terms of marketing standards.
TECHNOLOGY (ECONOMY) - Supply of raw material adequate to needs for fruit.	

STRENGTHS (+)	<i>Exploitation</i>	<i>Adjustment</i>
MARKET - Domestic processing companies have gained a stable market share for some products	Develop modern marketing and branding strategies and activities in selected segments of the market to target consumers.	
MARKET - The present production range of processed fruit has a competitive price edge toward imported products.	Develop marketing strategies to increase the volumes of sales, with communication and branding and collaboration with customers.	
MARKET – Strong consumer preferences for local processed food, including diaspora.		
TECHNOLOGY - Growing technological and managerial experience for the successful companies.		
TECHNOLOGY - Some large processing plants already made significant investments to improve their facilities according to international standards.		
WEAKNESSES (-)	<i>Improvement</i>	
ECONOMY - Collaboration in the processing sector among companies is low.	Stimulate collaboration among processors and better representation of the sector.	Stimulate collaboration of farmers, including forms of land consolidation and collective mechanisation.
MARKET - Unfair competition from informal processors.	Improve the processing technology to be ready to compete when labour cost increase.	Improve market surveillance and law enforcement.
MARKET - No institutionalized stakeholders to facilitate production contracts (POs and industry association).	Improve raw materials' consolidation centres and collection system, with modern technologies (i.e. pre-cooling facilities).	Develop training and VET in horticulture processing, strengthening the capacities of VET providers and promoting the collaboration of stakeholders, first the processing sector community.
ECONOMY - Fragmentation of primary production limits competitiveness of raw materials for processing.	Stimulate green conversion of horticultural processing, energy production from biomasses and low-energy storage.	Develop special credit lines for processors to facilitate access to credit and formation of working capital for procurement of raw materials.
ECONOMY – Scarce and expensive working capital available	Development of GI and traditional product schemes to qualify domestic production and stimulus to participation.	Support procurement of glass packages. Strengthening of collaboration between processors and primary producers through contractual agreements, contract farming.
ECONOMY - Fragmentation of production, increasing costs and complexity of logistics.	Support to participation in horticultural clusters.	Support investments in processing factories to achieve the hygiene standards requested by EU regulations regarding HACCP, GMP and microbiological criteria.
MARKET - Lack of contracting for some products and processors – relying on spot market does not guarantee traceability		Support control systems on primary production to disseminate GAP and keep
TECHNOLOGY - Inability to meet EU standards for the very small F&V processing enterprises.		

ECONOMY - Existing economies of scale not compatible with production of glass packaging, the most diffused. Dependence on expensive imported (glass) packaging.		MRL of raw materials under control.  Develop financial packages in collaboration with financial institutions to support the environmental and technological progress of the processing sector.
TECHNOLOGY - Lack of qualified specialists (F&V processing technology, laboratory etc.) in rural areas.		Stimulate investments that consider environment protection, with awareness information, training and finance.
TECHNOLOGY - Technology of processing not yet aligned with high environmental requirements.		
TECHNOLOGY – Limited production diversification.		

## 10. IDENTIFICATION OF TRAINING AND ADVISORY NEEDS FOR THE SECTOR

### 10.1 TECHNICAL AND VOCATIONAL TRAINING

The Albanian Government has been undertaking a major reform in agricultural research starting in 2006. In 2006, national research reform nominally gave the Agriculture University of Tirana (AUT) the leading position for scientific research. The MARD established five ATTC, which were charged with conducting applied research in various agricultural fields. ATTC Vlore in fruit trees and olives. ATTC Vlora has been running a mist propagation unit, the *in vitro* laboratory, cultivars collections and collection plots.

A bottom-up approach is used to establish the ATTC annual research agenda, which involves farmers' representatives' extension agents, specialists, and other stakeholders. The typical problems that farmers have are identified through the extension network. These are then selected at the Ministry level for inclusion in the research agenda of the ATTCs. The ATTCs transfer the research agenda into on-farm-research projects. The results of these projects are diffused into field demonstration or through the cooperation of extension agents in the form of leaflets and brochures.

As a result of the limited resources, the public extension services play a relatively small role in providing support and technical assistance to off-farm subsectors (i.e., processors, wholesalers and retailers). The limited supply for knowledge is important due to the need for more technological skills and reduced education levels in rural areas.

### 10.2 TRAINING TO VALUE CHAIN ACTORS

The main source of training and advice are input suppliers. Representative from leading seeds producing companies, such as Enza Zaden, organize trainings and demonstrations with input suppliers and farmers. When new varieties are introduced, they are first tested in different farm typologies (e.g., large, average and small/weak), and in the cases they prove successful, they are used as examples to inform farmers and input suppliers.

While input suppliers have been and remain the main source of training and advice for farmers, (typically delivered for free) there are concerns about the conflict of interest. Reportedly some input suppliers may orient farmers towards inputs where they earn higher margins, and also the dosage may be guided by the interest to sell more. There are also concerns about the professional competence of some input suppliers, exposing farmers to risks (with unprofessional advice).

There are several associations active in the horticulture sector, that provide advice and training to farmers. One of them, Association for the Development of Agriculture in Mountain Districts (ADAD) provides technical assistance

and procured inputs to agricultural producers in the Dibra region. In addition to trainings and advice, ADAD also organizes study tours to various countries and within Albania itself, with the support of various donors. For more details on associations, including ADAD, see Section 8.

COVID19 negative affected capacity building to farmers. According to interviews, leading input suppliers reported that few or no trainings were provided to farmers during 2020.

### 10.3 IMPROVING ADVISORY AND TECHNICAL SERVICES

According to interviews and previous studies the priority needs for capacity building are<sup>44</sup>:

- Primary producers
  - Advice on cultivar selection. The choice of species or cultivar as well as the adaptation of the plant to the soil and climate is considered a priority need for capacity building - especially the latter should be seen and reviewed carefully, as in the context of climate change, there are also zoning changes.
  - Advice on plant nutrition and plant protection. Plant protection is also considered a priority need for traditional plants (apple, plum, cherry) but also for newly planted plants. For the latter, complete technological packages are required, including soil analysis and plant compatibility with the soil, pruning, irrigation, plant protection, etc.
  - Advice for quality and safety standards, such as GlobalGAP, considering sustainable use of inputs and sustainable management of environmental practices: waste, plastic, empty PPP containers, water, biodiversity, etc.
  - Wide creation of awareness among farmers on the environmental implication of primary production and methods to reduce it through sustainable practices and adoption of the farm-to-fork principles.
  - Advice for preparing business plans (and preparing applications) and consulting for cost and price calculation / financial education.
  - Technical assistance on cooperation in agricultural, establishment of producer groups, co-operatives and producers' organisations, adoption of contract farming.
  - Specialised assistance to greenhouse farmers for a digital transition of the greenhouse operations.
  - Training to agronomists and advisors on digitalisation of the greenhouse operations and adoption of precision agriculture in open-field operations.
- Post-harvest management
  - Training to cold-store managers and consolidators on post-harvest management and technology as well as cold-stores' administration and managerial skills.
  - Advice on quality standards for post-harvest practices.
  - Value chain promotion, organisation of harvesting and collection of fresh produce.
- Processing
  - Training to entrepreneurs and managers on value chain promotion, modern sourcing and procurement of raw materials,
  - Advice on quality standards for processing, transition to HACCP.
  - Training, advice, and awareness raising on the environmental implication of processing activities and methods to reduce it through sustainable practices.

The most preferred method is individual or group coaching/assistance. Other preferred methods of capacity building are also field practice and the combination of classroom and field. Farmers prefer with a lot of personalized assistance and field practice and less classic classroom training. Also, experience exchange trips within the country to learn the "best practices" of technology, could be a very effective method for changing the mentality on technology. In other countries, the Farmer-Field-School method is adopted for dissemination of knowledge among small farmers.

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<sup>44</sup> ISETN (2020). Vlerësimi i peizazhit dhe burimeve natyrore dhe zhvillimi i kurrikulave për adresimin e nevojave të fermerëve për rritje kapacitetesh. Technical report prepared for World Vision.

**Box 9: Importance of advice based on soil analysis**

Most farmers do not carry out soil analysis. Overall, most farmers have limited awareness about standards and technical regulations. A survey carried out early 2017 with watermelon and greenhouse farmers, reveals that only about 25% of the farmers have carried out irrigation water or soil analysis. As a result, many farms are characterized by low performance in terms of yield and quality of production. Due to lack of soil analysis, input suppliers provide prescription for inputs regardless of the needs of the plant and the constituent elements of the soil.

"Farmers don't do soil analysis. If they would do soil analysis, would be easier for them, but also for us, input suppliers, to provide the right advice and prescriptions", highlighted one input supplier in Kozare.

An "experiment" conducted recently related to apple fertilization based on soil analysis resulted in increased yields as well as cost reductions. Specifically, a farmer with 4 ha of apples, after the analysis of the soil, with the advice of the agronomist based on the results of the analysis, significantly reduced the amount of fertilizer (due to saturation of the soil with some nutrients) resulting in a saving of about 150,000 ALL for that year from the reduction of fertilization costs, not to mention the positive effects related to the conservation of soil and groundwater resources, which are polluted or damaged by excessive fertilization.

*Source: Interviews, ISETN (2017), ISETN (2020)<sup>45</sup>*

Considering that the improvement of the quality of the outputs and the efficiency of the production processes are expected to be the major drivers of the national horticultural sector growth, the availability of qualified personnel is an essential requisite of the sector improvement. Hence, education becomes crucial component of the initiatives that should be taken to support the development of the domestic horticulture. Among these latter, the qualification of the sector personnel is of paramount importance. This shall be achieved with improvements to the VET system in horticulture, strengthening the capacities of VET providers and promoting the collaboration of stakeholders, first the processing sector community. Investments are necessary to improve the quality of education in horticulture at all levels: primary production, processing, marketing, business management. As a result of these investments, the sector businesses should have better access to:

- (a) Farmers: technical education, specialised training, and technical assistance provided by qualified technicians.
- (b) Processors: technical education, specialised training, access to qualified personnel, and technical assistance provided by qualified technicians.

To accompany the growth of the sector, there is need for a comprehensive strategy to revamp the entire chain from research to VET and technical assistance to the entire chain, from primary production to processing and marketing.

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<sup>45</sup> ISETN (2020). Vlerësimi i peizazhit dhe burimeve natyrore dhe zhvillimi i kurrikulave për adresimin e nevojave të fermerëve për rritje kapacitetesh. Technical report prepared for World Vision.

## 11. ALIGNING TO THE GREEN DEAL

### 11.1 CLIMATE CHANGES AND FRUITS & VEGETABLE SECTOR IN ALBANIA

The implications of climate change for Albanian agriculture and horticulture could be substantial. Climate changes have been observed/manifested through various phenomena, such as: spring (or even summer) frost, hails, floods, prolonged droughts, and unequal distribution of precipitations. Natural disasters have become more common, and weather conditions are becoming more unpredictable. This has led to early blossoms of flowers – when fruits blossom earlier due to higher unusual temperatures in early spring, they are exposed to late frosts; diffusion of diseases, inefficacy of plant protection inputs, higher resistance of diseases; physical damage from strong winds (combined with heavy rains or hails); improper ripening/harvesting season changes; withering of the plant parts due to extreme low temperature during winter; negative effect on the fruit quality from higher oscillations of temperature (day vs night) .

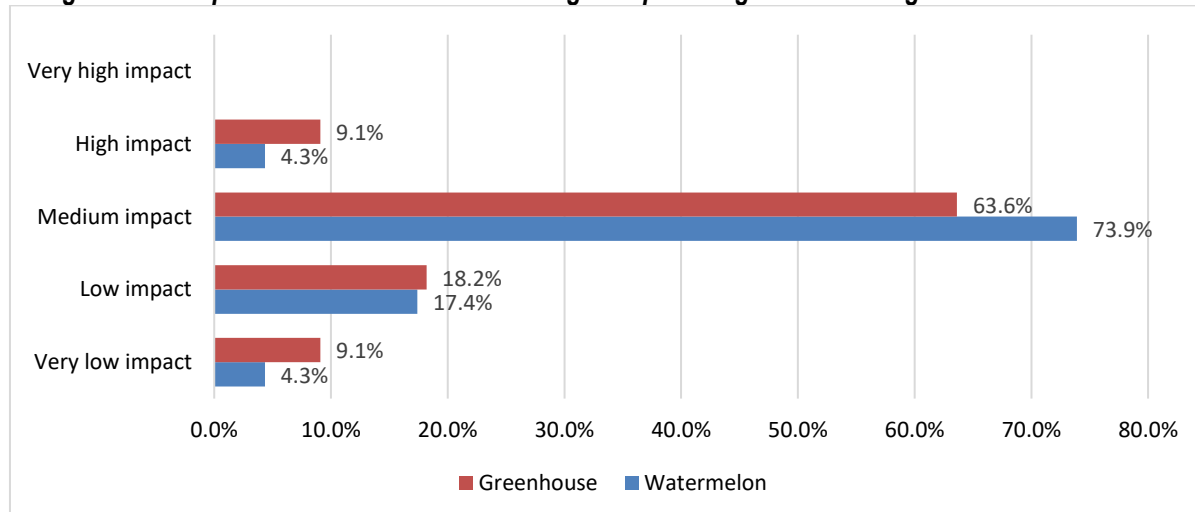
Below we provide insight into the effect of climate changes for the selected value chains<sup>46</sup>.

#### Greenhouse vegetable and watermelon

Both greenhouse vegetable and watermelon (and melon) have a strong export orientation; and the climate change effects for these value chains may adversely affect export performance considering that the export markets are more demanding and competitive than the local markets in terms of volumes, quality and timing. Given that greenhouse vegetables need irrigation, the main potential climate factor is water scarcity leading to temperature stress. Additionally, in some years, tunnels prepared early for the cultivation of watermelon are damaged by the floods due to heavy rains.

Most production experts and farmers perceive that climate changes have a medium impact on greenhouse vegetable and watermelon production and performance, respectively 64% and 74%. Around 27% perceive a low or very low impact for greenhouse and about 23% for watermelon. Less than 10% perceive a high impact for both products, and no one perceived a very high impact.

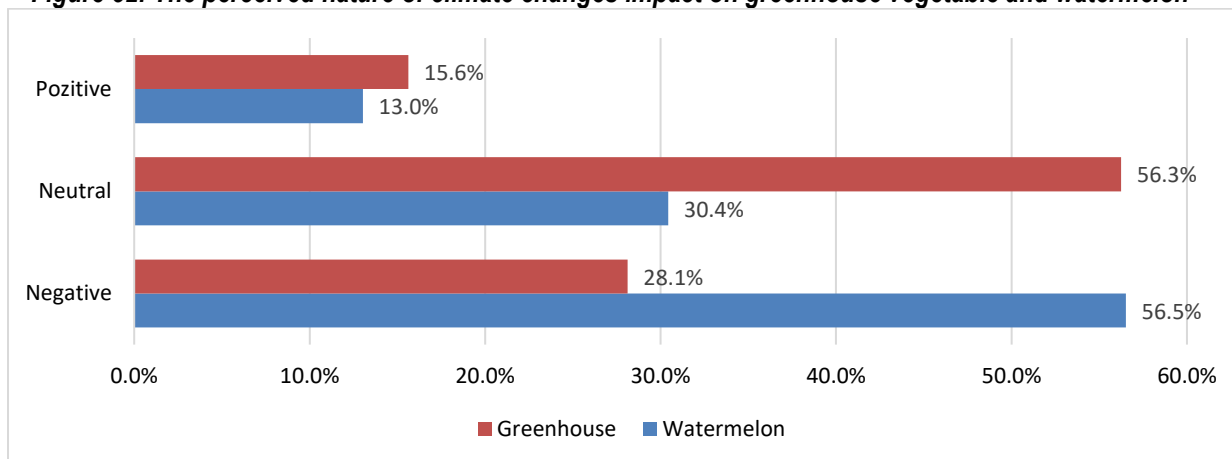
**Figure 51: The perceived level of climate changes impact on greenhouse vegetable and watermelon**



Source: Imami and Skreli (2019)

Among those who perceive that climate changes have an impact on production and performance, the views differ regarding products. In the case of greenhouse vegetable, most respondents view that the impact is neutral – indeed, by default, greenhouse activity tend to be more “immune” towards climate changes. About 16% perceive a positive impact and 28% perceive a negative impact. In the case of watermelon, most respondents (56%) perceive a negative impact.

<sup>46</sup> This subsection is largely based on: Imami, D. & Skreli, E. (2019). Agricultural Risk - A rapid assessment and recommended mitigation mechanisms. Technical report prepared for EBRD AASF project. That study is based on surveys with value chain actors and experts, to which references are made in this chapter.

**Figure 52: The perceived nature of climate changes impact on greenhouse vegetable and watermelon**

Source: Imami and Skreli (2019)

Regarding greenhouses (most greenhouses have plastic cover), a major concern is heavy hails and snow. The exposure to such risks varies also by region/area.

Some negative impacts are related to the incidence and severity of different greenhouse pests by becoming major setback to vegetable cultivation. This is due to influences on the pest and disease occurrences, host-pathogen interactions, distribution and ecology of insects, time of appearance, migration to new places and their overwintering capacity.

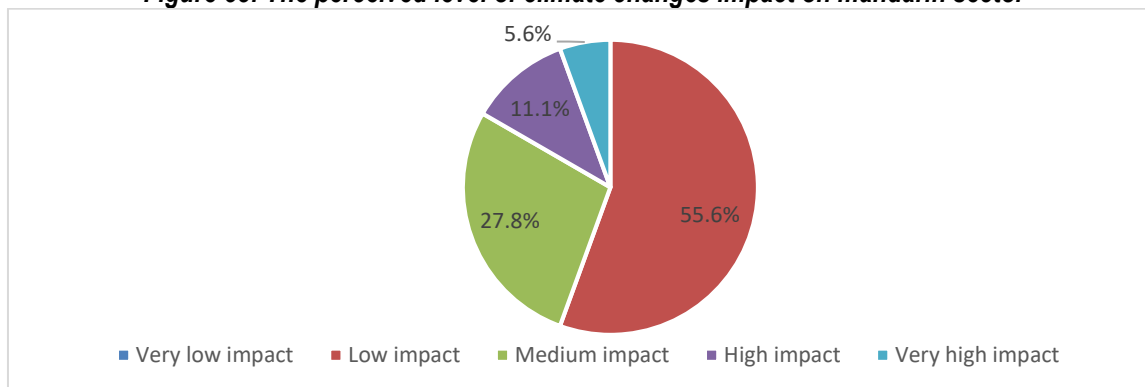
On the other hand, climate changes have a positive effect on greenhouse vegetables – there are greenhouse vegetable farmers who produced tomatoes through the winter without heating, thus selling the produce with very high price (during winter, tomatoes prices are higher because they are imported). The reason why now they can produce during the cold winter months, while that would not be possible 20 or 30 years ago, was due to climate changes. Furthermore, drought caused by climate changes may represent an opportunity for a country with abundant water resources such as Albania which has a big competitive advantage compared to competing countries less endowed with water resources. On the other hand, due to climate changes, neighbouring countries (such as Northern Macedonia) can achieve earlier harvesting for (unheated) greenhouse products (now compared to before), diminishing Albania's competitive position (resulting from the fact that Albania has warmer climatic conditions). Naturally, Albanian unheated greenhouses production is matured/harvested earlier when compared to colder neighbouring countries, however, the time gap may alter due to climate changes.

#### Fruits: mandarin

All respondents view that climate changes have an impact on mandarin production / performance - none stated that there is very low impact - however most respondents view that the impact of climate changes is low (56%) to moderate (28% of respondents).



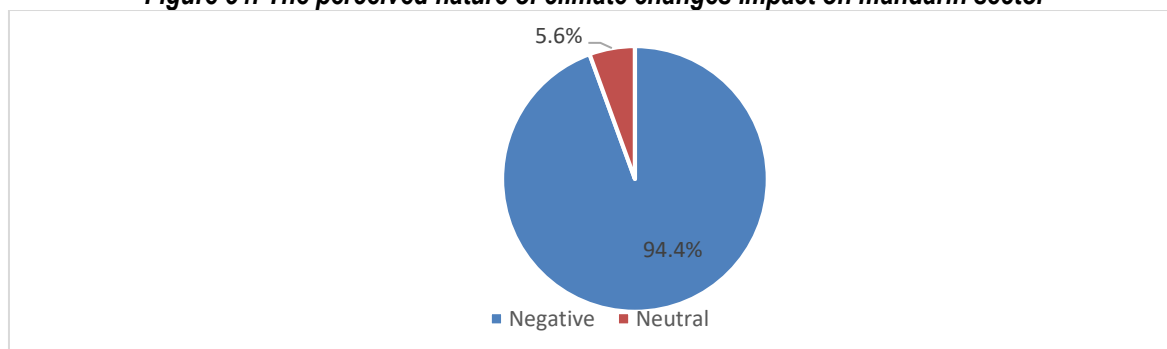
**Figure 53: The perceived level of climate changes impact on mandarin sector**



Source: Imami and Skreli (2019)

Of those who perceive that the climate changes have an impact most respondents 94% view that the impact is negative, while no one views or perceived any positive impact from climate changes. Increase in temperatures or the water deficit will affect their commercial competitiveness of citrus, including mandarin, cultivation. In the case of citrus, high temperatures alter the balance between sugars and acids, giving rise to fruit without its characteristic acidic touch, which is key to its commercial viability.

**Figure 54: The perceived nature of climate changes impact on mandarin sector**

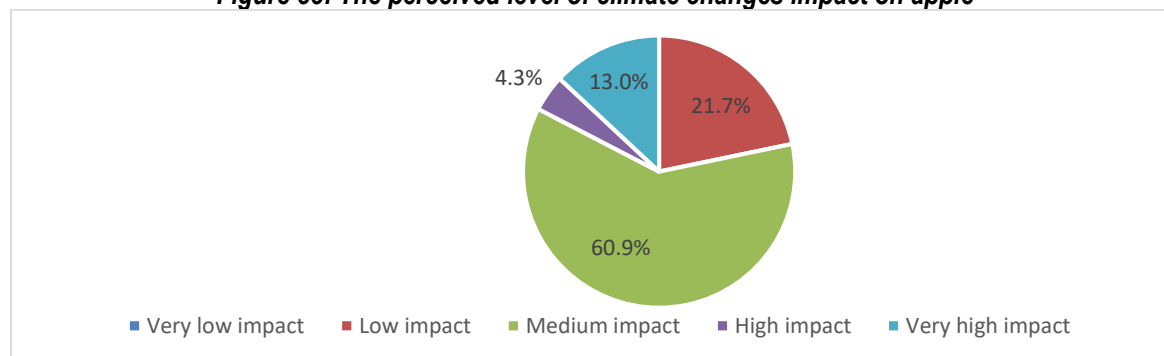


Source: Imami and Skreli (2019)

Fruits: apple

All respondents view that climate changes have an impact on apple production / performance - none stated that there is very low impact - however most respondents view that the impact of climate changes moderate (61% of the respondent).

**Figure 55: The perceived level of climate changes impact on apple**

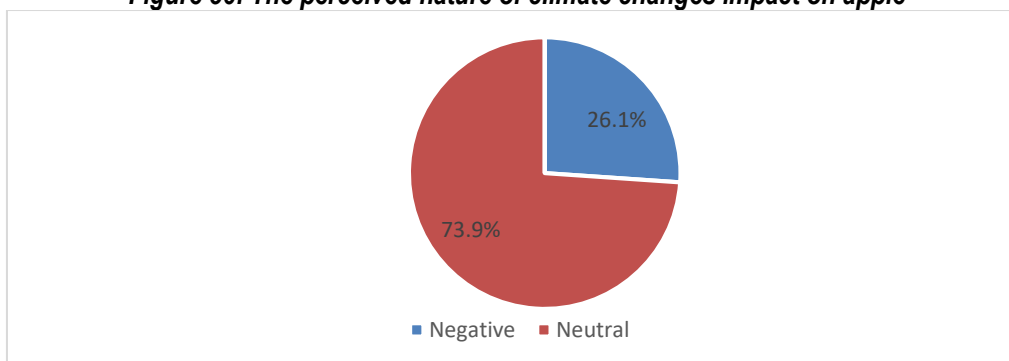


Source: Imami and Skreli (2019)

Of those who perceive that the climate changes have an impact most respondents (74%) view that the impact is neutral, while no one views or perceives any positive impact from climate changes.

A major negative impact perceived from climate changes is the increased frequency of hails. The cost of hail nets is very high, especially if orchards do not have a supporting system. However, investment in hail nets is becoming an obligatory cost to avoid complete loss of production, considering growing concerns (eg. from apple and citrus/mandarin) farmers. Expected increase in temperature will affect the phenology of apples, altering their patterns for sprouting, flowering, giving, and ripening the fruit.

**Figure 56: The perceived nature of climate changes impact on apple**



Source: Imami and Skreli (2019)

## 11.2 EU GREEN DEAL RELEVANCE TO THE SECTOR

In relation to the EU Green Deal, the main challenges for the Albanian horticulture refer to plastic management and disposal, the *from farm-to-fork* strategy, circular economy, organic agriculture and biodiversity. In the *farm-to-fork* strategy, the main challenge for the sector refers to the sustainable use of pesticide and the adoption of integrated pest management. Biodiversity requires attention to start stimulating propagation and cultivation of autochthonous varieties that may expand in the future. The expansion of greenhouse cultivation needs attention to plan properly the disposal of plastic and other waste from the cultivation. Organic cultivation may offer good opportunities to the domestic horticulture, while contributing to the relevant component of the EU green Deal.

The development of the fruit and vegetable sub-sector value chains will deeply happen in connection with the gradual alignment to the EU Green Deal; moreover, regardless of EU GD aligning process, climate change will anyhow impose over time some structural changes to the F&V sector, especially in those areas where floods or draught will become more frequent.

At the same time, aligning to EU GD will stimulate innovation and will give the opportunity to transform existing isolated pilot initiatives into mainstream investment and business models.

With reference to the different GD components, the key remarks are summarized below.

*Climate change* is expected to impact on profitability of several crops, increasing irrigation needs and costs in some areas where water is already scarce (e.g., Saranda, Lushnje), changing the profitability parameters of heated greenhouses (the duration of period for which heating is needed will be shorter) and opening opportunities for new sub-tropical crops.

The introduction and improvement of systems for the reduction of gaseous emissions and dust contamination are initiatives that the horticultural sector should consider in order to improve the environmental performances in the climate change principle of the EU-Green Deal. Primarily in the areas most affected by scarcity of water, investments in more efficient use of water resources (e.g., drip irrigation systems, restoring water reservoirs) should be encouraged, while costs related to dig new wells should be not allowed and anyhow not considered as an eligible expenditure. Sustainable water management might be achieved with the improvement of the irrigation infrastructure and efficient systems for water recovery and treatment.

Supporting transition from annual crops to fruit production should be considered, too.

*Farm to fork.* In most Albanian farms, agronomic practices are not adequate: in small farms fertilisers are commonly underutilised and PPP often misused. In the F&V production clusters (soft citrus in Saranda, apples in Korce, greenhouses between Berat and Lushnje, intensive table grapes cultivations) intensive farming is connected to heavy use of PPP and fertilisers. Optimising the use of inputs, cutting waste throughout the whole supply chain,

ensuring traceability, and optimizing logistics is the objective of the *farm to fork* EU-GD component. Priority actions in this area refer to:

- Production techniques, with the adoption of integrate production and organic production; introduction of precision-agriculture systems and machinery and technical means that reduce the environmental impact; use of resistant plants and seeds and organic seeds and seedlings; eco-friendly soil management.
- Green management of the cultivation fields' areas, by grassing of the cultivation/orchard inter-rows, development of green buffer-zones, hedges, tree-lined areas, nests and shelters for birds and wild fauna.
- PPP management, with construction of collective plants for the preparation / distribution of mixtures of pesticides and fertilisers, construction of units to wash the PPP spraying machine, investments in management systems of the related wastewater, establishment of systems of collection and disposal of PPP empty/used containers.
- Traceability, implementing systems for data recording on the use of chemicals and withholding periods as well as transferring the records to the buyers.

Investments should support transition from conventional to organic production regime (foreseen in Measure 4), improving agronomic practices through counselling (Measure 10), supporting the development of professional agronomic services rendered by specialised rural workers<sup>47</sup> (Measure 7) and introducing paraxialities for the adoption of more energy-efficient equipment.

Actions implemented by farmers in protected areas and natural areas eligible for Natura 2000 network have high priority in the diffusion of the *farm-to-fork* principles.

Re-introducing as a primality the provision included in the 2018 National Scheme (which instead foresaw a subsidy) to support the use of pollinators in greenhouse production should be also considered.

*Biodiversity conservation.* As for agro-biodiversity, a primality should be introduced for the establishment of autochthon fruit cultivars (under Measure 1). The practical application of this primality could be limited by the need to introduce additional specifications and limits<sup>48</sup>.

The conservation of same rare cultivars could be also supported through Measure 10 (Agro-environmental), expanding the provision, now limited to livestock breeds, also to rare cultivars.

*Circular economy.* This is one of the areas where the EU GD is more relevant for the F&V sector in Albania, together with “climate change” and “clean energy production”.

Key topic is plastic: huge amounts of plastic are used for greenhouse covering and for packaging, this last in all stages of the supply chain, from post-harvest to final consumers. IPARD III cannot support investments in production of bioplastic: equipment for packaging production is customary eligible both under Measure 1 and 3, but not the production of packaging (a current cost). At present, equipment to produce bioplastic could be conveniently used only by value chains whose waste is used to produce bioplastic as a by-product. Moreover, many of this waste can be also used to produce biogas (molasses, potatoes waste), so that there is a certain “green competition” about the use of waste. As a conclusion, plastic is a very serious problem in F&V sector, in terms of scale of use and quantity of waste, but so far there have been not found pilot experiences or proposals from value chain operators to reduce the problem using the tools offered by IPARD III.

Looking at possible policy action, the prospect is completely different and there is a major scope for intervention, introducing norms to define suitable bioplastics (what kind of bioplastics can be used to do what), incentives to use them or taxes to compensate the damage made by non-recyclable plastics (so-called “plastic tax” is an issue widely discussed in EU member states, but adopted only in some states) and bolstering the plastic recycling business. Other issues are related to the possible renovation of the 2018 National scheme to support the purchase of plastic covering for greenhouses and tunnels. Linking such support to the use of bioplastics would make the facility

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<sup>47</sup> This may include activities such as pruning, spraying.

<sup>48</sup> Limits are related to the ecosystem (autochthon cultivars are best suited to their origin area) and to the fact that for most autochthon cultivars there is no genetic material certified in accordance with international standards. It Provision of extra support under Measure 4 or preferential criterions under measure 1 to autochthon varieties/cultivars is constrained by the lack of a catalogue of fruit and vegetables autochthon germoplams (while for olive and grape there is such a catalogue).

scarcely usable, because of unclear norms (what is eligible as bioplastic, as mentioned above) and because bioplastic is not yet commonly available in the Albanian market of agricultural inputs.

In the horticultural sector, other focus of circular economy should be on packages. With an overall production of more than 1.5 million tons per year, the roughly estimated use of packages is of at least 50 million packages: a quantity that requires attention to reduce waste and stimulate recycling and reuse. This might be obtained through the use of returnable packages and the recycling of packaging materials (wood, carton, plastic). Reduction of the use of packages might be promoted through sensitisation of value chain actors, although major results are expected from reuse and recycling. Several organisations are active in the management of returnable plastic crates (RPC), including international players such as IFCO, Euro Pool System, CPR System<sup>49</sup>.

Another issue encompassing circular economy and clean energy production is related to the optimization of the use of inputs and outputs in heated greenhouses, using biomass to generate heat and electricity and recovering the unused heat the produced CO<sub>2</sub>. This aspect is considered in the section below.

*Clean energy production.* There is important scope for energy production in greenhouses and F&V processing. Initiatives that may be considered include the introduction of combined energy production systems (co-trigeneration) and the introduction of energy plants from renewable sources.

In Albanian greenhouse cultivations, a few pilot experiences for a basic use of biomass heaters (using waste from other value chains) have been implemented; a sizable investment has been also done near Tiranë into high-tech greenhouses heated with gas; the adopted technology recovers the produced CO<sub>2</sub> to accelerate plants' growth.

In financing new heated greenhouses, IPARD III can privilege (through a premiality) the use of biomass heaters, the adoption of technologies for CO<sub>2</sub> recovery and the use of thermal solar panels. Where electric equipment is used, the share of energy self-production should be adopted as one of the parameters to rank different applications.

Fruit and vegetables' production is also a major user of fuel (for farm machinery) and an important user of electricity (for irrigation and post-harvest practices). Investments for the installation renewable energies production equipment (photovoltaic, biomass) for self-consumption should be made available and, more in general, transition to electrification of farm machinery encouraged. Fruit and vegetables' storage and processing is a major user of electricity, especially when sorting-grading-packing lines are involved (cold storage units). Most of Albanian electricity is already produced from renewable sources, so at country level there is not a major scope to replace a renewable energy with another; however, at enterprise level, there is a scope to reduce costs, so that the conditions are in place to introduce as a *conditionality*: (i) the purchasing of cold storage systems with low energy consumption class (including insulation and efficiency of cooling system)<sup>50</sup>, (ii) the eligibility of investments to install renewable energy equipment (the main options being photovoltaic or biomass, with possibilities for biogas production from processing waste) for self-consumption. The economic feasibility of this option has been already proved in other value chains, as IPARD II already financed the self-production of renewable energy through photovoltaic panels in a meat processing plant in Korçë.

The adoption of combined transport systems and the introduction of low-impact transport facilities (gas-powered and electric vehicles) may improve the *sustainability of mobility* and should be considered for long-haulage transports and for transports related to urban mobility and delivery of horticultural products.

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<sup>49</sup> Following a constant growing trend, the Italian group CPR System has reached 150.7 million movements of boxes followed by 6.7 million movements of pallets (2019 data). IFCO, the world leader in this specific service, has a much larger volume of movements per year. Nowadays IFCO operates a pool of over 300 million Reusable Plastic Containers (RPCs) globally, which are used for over 1.7 billion shipments of fresh fruits and vegetables, meat, poultry, seafood, eggs, bread, and other items from suppliers to grocery retailers.

<sup>50</sup> A specific case study on no-energy storage of fruit come from Italy. The apple consortium Melinda established 34 hypogean cells inside old mine galleries, 275 m under the apple orchards. Every cell is 25 m long, 11 m high and 12 m wide, and can contain approximately 3000 bins of apples, 300 kg per bin for an overall total of 1,000 tons of apples. Gas-tightness is guaranteed by the rock's structure and by a thin layer of sprayed concrete, while thermal insulation is given by the rock mass. In one or two years, once the rock around the cells cools off for the first 5-7 m, this layer will serve as thermal insulation for the cells themselves. The cells are all provided with the most advanced technical and safety equipment, such as external CO<sub>2</sub> absorbers, which eliminate the CO<sub>2</sub> exceeding the ideal level for the storage of the apples and standard requirements of carbon dioxide in the air. The cells can be opened only when the green light is on.

## 12. OUTCOME

### 12.1 KEY FINDINGS AND CONCLUSIONS FROM THE SECTOR ANALYSIS

The fruit and vegetables sector has been among the highest ranked priority sectors for government support. The sector was supported by IPARD since the establishment of the facility in the programming period 2007-13. Complementary support was also provided through NSS (Nationally Support Schemes). Important efforts and investments were also devoted to improving infrastructure (specialized, as wholesale markets, and not specialized, as roads), which contributed to the success of the sector).

The main driver for change in the last fifteen years has been first the recovery of productivity in a few products for fresh consumption (first melons and watermelons, after tomatoes, cucumbers, peppers, apples and, more recently, citrus fruit) and after fresh produce export. A key role in this process was played by some production clusters (Korce for apples, Divjaka for melons and early vegetables, a specific area between Lushjine and Berat for protected crops, Saranda/Xarre for citrus) and by wholesalers/exporters, who in many cases started their activity as input suppliers and afterwards expanded their activity to wholesale trading and exporting.

Substantial growth of the protected crops sub-sector was witnessed in the last decade; greenhouse production first grew on the base of increasing number of basic facilities (a standard 1,000 sqm not-heated greenhouse) and after with the introduction of larger more technology-intensive facilities, even with the intervention of wealthy investors external to the sector.

At present, fresh vegetables exports has become an important driver for development; however, export is limited to a few products (basically tomatoes and peppers from protected crops) in a few markets and for a limited time of the year (March-May). There is still space for growth, but these limitations pose a threat to be overcome, to pursue the objective of having fresh produce export providing a substantial and reliable contribution to agri-food trade balance.

A specific and important development is related to the delocalization of part of strawberry production from Southern Italy, as production in Fier for the domestic and Italian market gives some competitive advantages.

Almost 40% of all fresh vegetable exports consist in cucumbers and tomatoes exported in the period March to May, meaning that most of the trade surplus is generated by protected crops or by early productions from very specific areas, such as Divjaka and the greenhouse cluster of Lushnja.

The growth and modernisation of the domestic horticultural sector follow six directions aimed at improving efficiency, quality and environmental sustainability of the sector:

1. Improving the technology of primary production, particularly in fruit and greenhouse production, to increase yields and the environmental efficiency of the cultivations.
2. Developing the greenhouse cluster of Lushnja with modernisation of the cultivation techniques to increase yields, enlargement of the average size of farms to increase efficiency, expansion of the cultivation to improve economies of scales<sup>51</sup>. Pre-conditions for the expansion relate to the clear export orientation of the output with consistent marketing capacity and the environmental safety of the cultivations concerning plastic management, use of chemicals, waste disposal, energy consumption.
3. Modernising the processing industry with updated technologies and approximation to international hygiene standards that incorporate effective control and management systems.
4. Stimulating collaboration and coordination in the value chains with initiatives that bring farmers together – producers' groups, Producers' Organisations, co-operatives and associations – and supply chain agreements between buyers and farmers, such as supply contracts and contract farming.
5. Building stronger connections with the consumers through improved marketing techniques, better communication and consistent branding initiatives at both collective level (through clustering initiatives, GI, TGS) and individual level (trademarks).

<sup>51</sup> Recent study (E. Skreli, and Imami, D. 2019 – Greenhouse Vegetable Sector Study) foresee potential for expansion of the overall greenhouse cultivations in Lushnja up to 5 thousand ha.

6. Entering a solid green transition that respects and protects the environment, with sharp initiatives inspired by the EU Green-Deal *farm-to-fork* principles that bring into Albania more organic farming, traceability, sustainable use of pesticides, and aims at a processing sector that reduces energy consumption as well as waste production and pursues circular economy schemes.

Investments and specific complementary interventions are necessary to reach the objectives. In particular, the sector strategies should give attention to the following areas: the dissemination of Integrated Production Management; the mitigation of climate change and green interventions; the diffusion of applied research; the reduction of bureaucracy and facilitation of construction permits; the creation of better conditions for the improvement of the collaboration among farmers and along the chain, through the incorporation of the Common Market Organisation principles; the certification and promotion of territorial products and their association with rural strategies.

## 12.2 PRIORITY INVESTMENTS IN PRIMARY PRODUCTION

### 12.2.1. Types of investments

Based on the analysis of economic data available, interviews and survey with extension services, the strategic implications for the sector should include the following:

- Increase of efficiency of fruit and open-field vegetables with adoption of better technology and use of inputs to improve the production performances.
- Adoption of improved marketing techniques to exploit the positive market trend, improve export focus and enhance the market positioning of domestic horticultural crops.
- Improve quality, safety and environmental standards, in the light of EU approximation alignment and export market demand.

In order to achieve the above development objectives, the investments with highest priority in fruit and vegetables production should be focused on the following areas: i) increasing competitiveness of fruit production, widen the range of produced fruit, increasing production of Mediterranean fruit cultures; ii) further increase protected cultures competitiveness, pursuing quality along the commodity chain, increasing use of technology in greenhouses and , iii) increase quality and improve post-harvest infrastructures in production clusters

*Classification of investments in relation to sector development objective*

The same investments can be classified in function of the sector development objective:

#### (a) Investments to improve farmers' marketing

- a. *New fruit plantation with focus on market demanded varieties*
- b. *On farm processing (this relates more to diversification)*

#### (b) Investments to improve efficiency, quality and volumes of production

- a. *Agriculture machinery, including tractors and mechanised spraying pumps*
- b. *Hail protection nets, especially for apple and mandarin orchards*
- c. *Devices for precision agriculture and the digitalisation of primary production*
- d. *On-farm collective or individual pre-cooling systems*
- e. *On farm storage*
- f. *Specific investments for greenhouses*
  - Plastic cover replacement (greenhouses)
  - New greenhouses and tunnels
  - Greenhouse construction for watermelon off-season and early production
  - Digital control systems

#### (c) EU Green Deal-oriented investments

- a. *Farm-to-fork*
  - Organic farming
  - On-farm PPP and fertilisers' storage units
  - Collective weather monitoring units and networks

- Collective centres for spraying-machines cleaning and calibration
  - Collective chemical-sharing units
  - Pollination beehives
- b. *Optimisation of energy use and production*
- Solar energy units
  - Zero-energy on-farm storage cells.
  - Solar panel systems – energy for water pumping in apple orchards
  - Systems for energy production from biomasses
- c. *Circular economy*
- Collective centres for collection and disposal of agricultural waste, residues, PPP containers.
  - Adoption of reusable crate systems for sustainable use of packages, collective package washing centres
- d. *Water savings solutions*
- Drip irrigation and fertigation: wells/irrigation canals, decatrons or other programmed dosing equipment
  - Drainage systems
- e. Specific investments for greenhouses
- Low-energy supply to greenhouses
  - Installation of bio-mass heating systems in central-system heated greenhouses
  - Environmental-control devices as part digitalisation of the production process
  - Automatic heat control and/or climate control sensory in green house system to improve energy efficiency systems in central heated greenhouses
  - Replacement of current non-heated greenhouses simple plastic with thermic plastic
  - Systems for plastic waste management and disposal

### 12.2.2. Proposed eligibility criteria and size thresholds

#### *Minimum size at the beginning of investment*

At the beginning of investment, it is required to prove viability, and previous experience and a certain scale of ongoing engagement could be used as an indicator. For example, there may be consider the possibility to include a minimum size prior to investment, such as: Farms with over 0.10 Ha greenhouse vegetable, and over 0.20 Ha of orchards or field vegetable have a certain market orientation, because production of that size is only feasible and justified if it is mainly produced for sell rather than self-consumption.

#### *Minimum size at the end of investment*

In order to support changes towards to economic viable farms, it is recommended to support farms with minimum of 0.20 Ha greenhouses, at least 1.00 Ha for field vegetable and 1.00 Ha orchard.

Table 12.1 below summarizes information on the way to calculate viable farm size at the end of investment.

Table 12.1: Viable farm size<sup>52</sup>

Indicators	Thresholds		
Minimum wage	30,000 ALL		
Livelihood of 2 persons: (12 months*2 persons*minimum wage)	720,000		
Category	Greenhouse	Field vegetables, melon & watermelon	Orchards
Margin ALL/Ha (average intervals)	3,000,000	300,000 - 600,000	600,000 - 900,000
Viable (min. eligible) area (ha)	0.20-0.30 Ha	1.00– 2.00ha	0.8 - 1.2 Ha

<sup>52</sup>Gross and net margins vary significantly from crop to crop (different types of field vegetable and fruits have different financial performance indicators) and from year to year. Here we provide estimated ranges based on previous studies such as AASF (2019) and on field interviews.

### Size of projects

The proposed minimum limit of total value of eligible investments per project is € 10,000.

**Preference criteria** can include the following:

- Quality-oriented production, certified Global GAP or organic
- Gender and age wise criteria (women and farmers under 40).
- Integration with processing industry, demonstrated by production contracts.
- Formal integration of producers into a licensed cooperative.
- Use of renewable energies in greenhouse heating

### **Expected absorption capacity**

The absorption capacity of the fruit and vegetables sector in the first two IPARD II calls scored 19.5 M Euro, which makes fruit and vegetables by far the largest sector benefitting from Measure 1.

Investments have been mostly addressed to greenhouses establishment, post-harvest/storage facilities farm machinery and, irrigation systems. The average size of investments scored 145,000 Euro.

In the next programming period it is expected that the average size of investments will grow, as to maintain competitiveness, producers will need to achieve economies of scale and to increase capital intensiveness, increasing mechanization and systems to optimize the use of inputs.

Improved value chain coordination (contract farming) would hopefully re-launch open field vegetables production, with consequent sizable needs for investments in farm machinery and efficient irrigation systems.

Considering the above, it could be possible to expect in the next programming period an absorption capacity ranging between 15 and 25 M Euro.

## **FRUIT AND VEGETABLE PROCESSING**

### **Types of investments**

Based on the analysis of economic data available, interviews and survey with extension services, the strategic implications for the sector should include the following:

- Improve current capacity lines or introduce new processing lines;
- Improve storage capacity, standardization/selection/packaging;
- Improve marketing;
- Improve quality, safety and environmental standards, in the light of EU approximation alignment and export market demand.

### **Proposed eligibility criteria and size thresholds**

#### Size of projects

The proposed minimum limit of total value of eligible investments per project is € 50,000.

**Preference criteria** can include the following:

- Quality-oriented production, supported by quality certifications or organic
- Gender and age wise criteria (women and farmers under 40).
- Integration with primary production industry, demonstrated by production contracts.
- Energy self-sufficiency **and** zero-emissions energy production system (heating and electricity)



### **Expected absorption capacity**

The absorption capacity of the fruit and vegetables sector in the first two IPARD II calls scored 18.3 M Euro, which makes fruit and vegetables the largest sector benefitting from Measure 3.

Investments have been mostly addressed to fresh produce supply chain, achieving important improvements in post-harvest, product conditioning (sorting/grading/packing lines) and logistics. The average size of investments scored 0.9 M Euro.

In the next programming period, it is expected that the pace of investments in fresh produce supply chain will slow down; however, the absorption capacity will remain sizable.

Improved value chain coordination (contract farming) would hopefully re-launch open field vegetables production and vegetable processing, with consequent sizable needs for investments in renovating and strengthening the processing industry, which strongly needs to widen its range of productions.

The possibility to re-establish a capacity for production of frozen vegetables depends from the possibility to establish a functional system of contract farming

Considering the above, it could be possible to expect in the next programming period an absorption capacity ranging between 15 and 20 M Euro

## **SYNOPSIS OF PROPOSED INVESTMENTS AND SUPPORT MEASURES**

### **Priority investments and compatibility with IPARD III Measures**

Table 12.2 below summarizes the proposed eligible investments for IPARD support. This list includes only those priority investment needs which are compatible with IPARD rules and whose successful implementation can be verified with ordinary on-the-spot verification means. Additionally, the table proposes specific initiatives in other measures that are recommended to secure the best benefit from the proposed investments.

#### ***Table 12.2: Proposed measures and eligible investments***

Sub-sector	Type of investment	IPARD III compatibility
F&V production	<ul style="list-style-type: none"> <li>• Equipment, tools, machines and works to improve irrigation and fertigation and optimise use of water resources, including water pumps (electric, solar, wind pumps) and tertiary irrigation works, but excluding opening of new or additional wells.</li> <li>• Purchase of specialised machinery and equipment tools and equipment for planting, harvesting, pest control, distribution of fertilisers and transport of products, including hand-operated and machine-operated equipment such as specialised tractors and cultivators, sprayers, harrows, trailers, harvesters or other specialised equipment for F&amp;V production.</li> <li>• Construction, refurbishment or reconstruction of on-farm post-harvest facilities, farm machinery recovery and other support structures, inputs depots and product storage facilities.</li> <li>• Construction or reconstruction of facilities for production of propagation materials and relevant equipment and machinery, including seeds and seedlings greenhouses, mist propagation facilities, but excluded equipment and facilities for tissue culture</li> <li>• Devices and equipment for precision agriculture</li> <li>• On-farm collective or individual pre-cooling systems and other post-harvest facilities and equipment, including: post-harvesting tools, equipment and premises, plastic re-usable crates, pre-cooling and cooling units and temporary storage facilities, conditioned and non conditioned, field cleaning/sorting equipment and tools.</li> <li>• On-farm manure and other by-products composting facilities for production of organic fertilizers and compost, limited to the self-consumption needs of the farm</li> <li>• Equipment and installations for on-farm renewable energy production; installed power must be limited to self-consumption needs related to farming, equipment and machinery.</li> <li>• Internal road network and parking places within a farm holding.</li> <li>• Investment for production of renewable energy, including biogas, wind and photovoltaic energy for self-consumption needs.</li> </ul> <p><b>Specific to fruit culture</b></p> <ul style="list-style-type: none"> <li>• Investments in planting or replanting of orchard plantations (excluding vineyards that are not used for table grapes and olive groves), including cost of propagation material, works carried out by a third party for soil preparation, planting and replanting, with the exception of soil fertilizing.</li> <li>• Hail protection nets.</li> </ul> <p><b>Specific to protected crops</b></p> <ul style="list-style-type: none"> <li>• Establishment or upgrading of greenhouses and tunnels for fruit and vegetables, including replacement of parts not subject to yearly substitution/renovation, improvement of insulation, heating, fertigation, and temperature control systems, relevant software and electronic or mechanic equipment.</li> <li>• Equipment, including ICT equipment and software for protected crop monitoring, and automated or semi-automated administration of inputs, including systems for remote control of multiple greenhouses blocks.</li> <li>• Replacement of existing greenhouse internal equipment and machinery with machinery with higher certified energy efficiency, including heating equipment.</li> <li>• Greenhouses or hoop houses having a minimum height of 3.0 m and suitable for a minimum utilisation of 3 years and with a surface <math>\geq 0.5</math> ha</li> <li>• Replacement of cover systems with improved covering with a duration &gt; 5years and improved energy efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure 1</li> </ul>
	<ul style="list-style-type: none"> <li>• Transition to organic production.</li> <li>• Introduction of pollination beehives.</li> <li>• Adoption of IPM/GAP.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure 4 (agro-environment)</li> </ul>

	<p>Advisory and knowledge transfer on:</p> <ul style="list-style-type: none"> <li>• Quality standards, classification, IPM/GAP</li> <li>• Optimisation of agronomic practices, including sustainable use of inputs and energy, calibration and maintenance of spraying machine, storage and measurement of chemicals.</li> <li>• Logistics, marketing and contract farming.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure 10 (advisory services)</li> </ul>
<b>F&amp;V processing</b>	<ul style="list-style-type: none"> <li>• Purchase or renovation of sorting/grading packaging lines</li> <li>• Construction, reconstruction and equipment of storage facilities equipped with devices and equipment for temperature control (monitoring and conditioning), including cold storage facilities and underground facilities.</li> <li>• Equipment and solutions, including infrastructural solutions, for energy efficiency, heat recovery, thermal stabilization, passive and active control and conditioning of air flows.</li> <li>• Construction and reconstruction of premises and facilities, functional to the F&amp;V processing activity, including service premises, in-factory exhibition and testing rooms, administrative buildings, in-factory access roads, fencing.</li> <li>• Equipment and processing lines for fruit and vegetables processing, including reconstruction and addition of components to existing lines.</li> <li>• Equipment and processing lines for F&amp;V drying and for F&amp;V freezing</li> <li>• In-factory transport and administrative facilities, including internal roads and parking, administrative facilities.</li> <li>• Handling equipment functional to processing line.</li> <li>• Facilities, equipment and solutions for recovery and management of waste and wastewater.</li> <li>• Packaging and bottling equipment and lines, including lines for wholesale and retail packaging.</li> <li>• Equipment and installation for renewable energy production for self-consumption needs.</li> <li>• Self-control laboratory and quality control devices, including investments for implementation of traceability systems and improved control of residues.</li> <li>• Equipment and facilities for recovery of by-products from F&amp;V processing.</li> <li>• Equipment and ICT systems for control of storage conditions, internal handling control and automation, processing processes control, energy use control, administration.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure 3</li> </ul>
	<ul style="list-style-type: none"> <li>• Equipment for cleaning, cutting, grinding, mashing, de-stoning, homogenizing.</li> <li>• Equipment and facilities for in-farm F&amp;V processing limited to drying, appertization and vacuum preservation technologies with a capacity ≤5,000 kg output per year of processing, including filling and bottling equipment.</li> <li>• Equipment and facilities for the production of heat and energy required for the processing process.</li> <li>• Equipment and installation for renewable energy production for self-consumption needs.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure 7</li> </ul>
	<p>Advisory and knowledge transfer on:</p> <ul style="list-style-type: none"> <li>• Good-Manufacturing Practices -GMP, microbiological criteria, hygiene, HACCP and other quality schemes</li> <li>• Food productions technologies</li> <li>• Logistics, marketing and contract farming</li> </ul>	<ul style="list-style-type: none"> <li>• Measure 10</li> </ul>

Source: Authors' elaborations (2021).

The following investment categories are further specified as follows:

- *New orchard plantations*: Minimum size is 1.00 Ha for by the end of investment.
- *Farm mechanisation and irrigation*: Purchase of specialised horticultural machinery and equipment (such as specialised tractors and cultivators, sprayers, harrows, trailers, harvesters or other specialised equipment); purchase of new or upgrading of existing on-farm drip-irrigation.
- *On-farm renewable energy production* for self-consumption, including solar, wind and biomass energy production, but excluding biogas. Renewable energy installations and equipment must not utilise agricultural land (building rooftops and embedded equipment are eligible).

## Preferential treatments

In addition to general preferential treatment factors (gender-related, young farmers/entrepreneurs), preferential treatment should also be given concerning EU Green Deal Alignment. Such preferential treatments should be reflected in the scoring system.

Also, preferential treatment for initiatives and investments in promising production clusters (Korca for apples, Saranda for citrus fruit, Fier for strawberries, Lushnja for greenhouse vegetables<sup>53</sup> and the mountainous areas of Korce and Kukes for potato) can be considered.

Should more than 50% of the proposed investment fall within one or more categories contributing to alignment to EU Green deal, the entire investment should get a preferential treatment in the scoring system: the scoring system should therefore assign some points to the category "alignment to EU Green Deal." In the fruit and vegetables sector, the following investments should be considered eligible for preferential treatment.

**Table 12.3: Investments eligible for EU Green Deal preferential treatment**

Sub-sector	Type of investment
F&V cultivation	<ul style="list-style-type: none"> <li>• 100% use of drip irrigation systems</li> <li>• Protected crops with heating systems completely fed with renewable energy or with zero emission systems (CO2 recovery)</li> <li>• Organic production established or converted in a protected area</li> </ul>
F&V processing	<ul style="list-style-type: none"> <li>• Equipment and installations for solar (thermal and photovoltaic) and biomass energy self-production</li> </ul>

## 12.3 RECOMMENDATIONS FOR COMPLEMENTARY INTERVENTIONS

### Integrated Crop Management

Most farmers do not carry out soil analysis. In the case of greenhouse vegetable, soil salinization is becoming a major concern, while in the case of fruits, high content of nutrients due to excessive unnecessary fertilization resulting in residuals and high production costs, as highlighted previously in the report. Given this situation it is necessary for the government to ensure that farmers do soil analysis so that they can adapt the plant to the soil and fertilize the plant based on the soil analysis. Some alternatives for this could be paying for or subsidizing soil analysis, preparing a pilot project in a designated area to cover the costs of soil analysis, and advising farmers on plant nutrition based on soil analysis, and so on.

As highlighted in the report, one of the major concerns the timing and way PPP are administered. To reduce risk, farmers (e.g., apple farmers) tend to use excessive sprays (eg. 20 times per year), resulting both in high costs but also high residuals, affecting consumer health. In order to address this concern, there is a need to have functional prognosis centres and systems coupled with advice.

### Climate change<sup>54</sup>

Awareness, education and know-how related to climate changes should be taken seriously, in addition to related investments. There should be awareness about climate changes, and how to handle the effects of climate changes at farm level. If this knowledge is in place, better and more efficient use of inputs could be achieved. Agriculture extension services can be advised and trained on issues related to climate change. As the small farmers in Albania has limited financial resources, their adaptive capacity is particularly low, requiring a stronger effort by the Government and development partners to have an important role in enhancing the adaptive capacity of the Albanian agricultural sector.

<sup>53</sup> See pre-requisites in the strategic proposals.

<sup>54</sup> Imami, D. Skreli, E., Kullaj, E. Shoshi P. (2019) Climate changes implications in the agriculture sector – the case of a Mediterranean country dominated by smallholdings. Agricultural sector development and policies in Western Balkans – challenges and prospective in the light of EU integration. 5-6.09.2019; Budapest, Hungary: Corvinus University of Budapest.

Applied research should also be given priority. Better understanding of the types of climate changes related risks and potential mitigation mechanisms would enable better policies and decisions. Furthermore, there is a need for more applied research regarding climate changes impact and feasible mitigation mechanisms. Climate changes affect mostly products produced for the export market, which require standards. Therefore, it is important to introduce and promote varieties and techniques that fit to climate change conditions, learning from other countries that have faced some climatic.

On the other hand, climate changes may represent opportunities for introducing new species or varieties to Albanian agriculture and forestry, which should be explored and capitalized. For example exotic fruits. In the case of greenhouse production, climate warming can bring down production costs, or, can expand the production map and calendar of crops which are already cultivated in parts of Albania.

The risks of climate change cannot be effectively dealt with, and the opportunities cannot be effectively exploited, without a clear plan for adaptation which includes steps for aligning agricultural policies with climate change, for developing institutional capacities and supporting on-farm investments. Developing such a plan involves a combination of further research and consultation of key stakeholders, particularly farmers, as well as in-country agricultural experts.

Climate changes call for a revision of current regionalization policy. Although the Albanian government has prepared a regionalization policy, evidence supports that geographic boundaries of crops cultivation and (though less) livestock breeding have changed. Hence, there is a need to revise the suitability of crop and livestock to climate, soil and other supply conditions.

### **Green interventions**

The initiator of the organic transition must be educated, good farmers, who need training and technical assistance to enter the conversion process and achieve the certification after having adopted the appropriate techniques, organised the sourcing of organic planting materials and organic-approved inputs.

### **Legal constraints**

Interviewees highlighted that one of the difficulties faced for new investments, especially in the case of constructions, is acquiring the permits. Review of relevant procedures should be considered.

### **Collaboration**

The reference model might be the producers' organisations launched by the European Union as part of the Common market Organisation, boosted by side initiatives such as contract farming and agricultural co-operatives.

### **Certification and promotion of territorial products**

Promotion of territorial products is necessary to improve competitiveness. Pilot initiatives can be considered and supported.

## 13. ANNEXES

### ANNEX 1: INTERNATIONAL TRADE DATA

**Table 13.1: International trade by country, other fruits**

Country	Export amount (tons)	% Share in export amount	Country	Import amount (tons)	% Share in import amount
Strawberries					
Italy	518	27%	Greece	22	84%
Kosovo	396	20%	Netherlands	3	13%
Serbia	350	18%			
<b>Total</b>	<b>1,935</b>	<b>100%</b>	<b>Total</b>	<b>26</b>	<b>100%</b>
Apricots, cherries, peaches					
Montenegro	260	35%	Greece	5,355	82%
Kosovo	252	34%	Italy	723	11%
Serbia	89	12%	N.Macedonia	311	5%
<b>Total</b>	<b>748</b>	<b>100%</b>	<b>Total</b>	<b>6,527</b>	<b>100%</b>
Oranges					
Kosovo	131	67%	Greece	13,129	93%
Montenegro	63	32%	Italy	609	4%
<b>Total</b>	<b>197</b>	<b>100%</b>	<b>Total</b>	<b>14,136</b>	<b>100%</b>

Source: EUROSTAT (2020)

### OTHER VEGETABLES

**Table 13.2: International trade of cabbages by year**

Year	Exports			Imports			Export/Import	
	000€	Tonnes	€/kg	000€	Tonnes	€/kg	Value	Weight
2010	167	2,142	0.1	32	70	0.5	526%	3051%
2014	1,153	8,243	0.1	61	120	0.5	1885%	6892%
2015	1,337	6,253	0.2	30	82	0.4	4426%	7635%
2016	1,960	8,101	0.2	44	92	0.5	4416%	8821%
2017	2,179	10,105	0.2	40	70	0.6	5400%	14342%
2018	2,319	9,092	0.3	196	388	0.5	1184%	2346%
2019	4,249	10,136	0.4	43	85	0.5	9912%	11978%

Source: EUROSTAT (2020)

**Table 13.3: International trade of peppers by year**

Year	Exports			Imports			Export/Import	
	000€	Tonnes	€/kg	000€	Tonnes	€/kg	Value	Weight
2010	50	348	0.1	935	1,577	0.6	5%	22%
2014	871	1,994	0.4	931	1,442	0.6	94%	138%
2015	1,436	2,602	0.6	782	1,190	0.7	184%	219%
2016	3,105	5,573	0.6	635	947	0.7	489%	589%
2017	5,787	9,528	0.6	638	976	0.7	907%	976%
2018	7,186	10,651	0.7	812	1,168	0.7	885%	912%
2019	10,833	17,585	0.6	640	910	0.7	1694%	1933%

Source: EUROSTAT (2020)

**Table 13.4: International trade of potatoes by year**

Year	Exports			Imports			Export/Import	
	000€	Tonnes	€/ kg	000€	Tonnes	€/kg	Value	Weight
2010	4	7	0.5	3,035	9,485	0.3	0.1%	0.1%
2014	285	971	0.3	5,741	19,139	0.3	5%	5%
2015	214	734	0.3	3,939	15,510	0.3	5%	5%
2016	308	948	0.3	5,138	19,811	0.3	6%	5%
2017	236	724	0.3	4,791	17,221	0.3	5%	4%
2018	543	1,511	0.4	4,145	15,510	0.3	13%	10%
2019	553	1,413	0.4	7,567	20,692	0.4	7%	7%

Source: EUROSTAT (2020)

**Table 13.5: International trade of onions by year**

Year	Exports			Imports			Export/Import	
	000€	Tonnes	€/ kg	000€	Tonnes	€/kg	Value	Weight
2010	157	846	0.2	2,270	7,240	0.3	7%	12%
2014	353	2,211	0.2	2,752	8,390	0.3	13%	26%
2015	754	3,909	0.2	2,950	8,040	0.4	26%	49%
2016	880	3,664	0.2	3,525	7,349	0.5	25%	50%
2017	1,128	3,630	0.3	3,250	6,821	0.5	35%	53%
2018	1,301	4,884	0.3	4,182	8,269	0.5	31%	59%
2019	2,187	5,229	0.4	3,943	6,870	0.6	55%	76%

Source: EUROSTAT (2020)

**Table 13.6: International trade of beans by year**

Year	Exports			Imports			Export/Import	
	000€	Tonnes	€/ kg	000€	Tonnes	€/kg	Value	Weight
2010	1	1	0.9	76	96	0.8	1%	1%
2014	16	20	0.8	8	19	0.4	193%	104%
2015	94	73	1.3	5	11	0.5	1810%	634%
2016	187	143	1.3	5	11	0.5	3525%	1284%
2017	74	67	1.1	35	47	0.8	209%	142%
2018	47	46	1.0	7	10	0.7	715%	474%
2019	148	136	1.1	3	4	0.6	5494%	3180%

Source: EUROSTAT (2020)

**Table 13.7: Exports and Imports of vegetables by type and country in 2019**

Country	Export amount (tons)	% Share in export amount	Country	Import amount (tons)	% Share in import amount
Vegetables total					
<b>Serbia</b>	27,826	20%	<b>Kosovo</b>	9,493	24%
<b>Kosovo</b>	26,059	19%	<b>Greece</b>	5,971	15%
<b>B&amp;H</b>	14,897	11%	<b>Serbia</b>	5,232	13%
<b>Total</b>	137,093	100%	<b>Total</b>	39,365	100%
Cabbages					
<b>Kosovo</b>	2,347	23%	<b>Greece</b>	55	65%
<b>Ukraine</b>	965	10%	<b>Spain</b>	14	17%
<b>Serbia</b>	959	9%	<b>Germany</b>	8	9%
<b>Total</b>	10,136	100%	<b>Total</b>	85	100%
Peppers					
<b>Kosovo</b>	4,764	27%	<b>Greece</b>	436	48%

<b>Serbia</b>	2,409	14%	<b>Turkey</b>	282	31%
<b>Montenegro</b>	1,880	11%	<b>Montenegro</b>	128	14%
<b>Total</b>	17,585	100%	<b>Total</b>	910	100%
Potatoes					
<b>Kosovo</b>	841	60%	<b>Kosovo</b>	9,384	45%
<b>Montenegro</b>	451	32%	<b>Netherlands</b>	3,253	16%
<b>Serbia</b>	62	4%	<b>Greece</b>	2,435	12%
<b>Total</b>	1,413	100%	<b>Total</b>	20,692	100%
Onions					
<b>Serbia</b>	1,061	20%	<b>Serbia</b>	3,685	54%
<b>N.Macedonia</b>	1,020	19%	<b>China</b>	1,272	19%
<b>Montenegro</b>	845	16%	<b>Netherlands</b>	712	10%
<b>Total</b>	5,229	100%	<b>Total</b>	6,870	100%
Beans					
<b>Kosovo</b>	38	28%	<b>Greece</b>	3.965	93%
<b>Serbia</b>	31	23%	<b>Italy</b>	0.131	3%
<b>Greece</b>	26	19%			
<b>Total</b>	136	100%	<b>Total</b>	4	100%
Tomatoes					
<b>Serbia</b>	16,847	22%	<b>Italy</b>	1,324	47%
<b>Kosovo</b>	14,972	19%	<b>Turkey</b>	910	32%
<b>B&amp;H</b>	8,987	12%	<b>Greece</b>	507	18%
<b>Total</b>	77,838	100%	<b>Total</b>	2,821	100%
Cucumbers					
<b>Serbia</b>	5,906	27%	<b>Greece</b>	380	78%
<b>Kosovo</b>	2,562	12%	<b>Turkey</b>	32	6%
<b>N. Macedonia</b>	2,446	11%	<b>Croatia</b>	29	6%
<b>Total</b>	22,014	100%	<b>Total</b>	486	100%
Watermelons					
<b>Kosovo</b>	14,420	44%	<b>Greece</b>	66	46%
<b>Czechia</b>	3,674	11%	<b>Poland</b>	23	16%
<b>B&amp;H</b>	3,175	10%	<b>Brazil</b>	20	14%
<b>Total</b>	32,476	100%	<b>Total</b>	143	100%

Source: EUROSTAT (2020)



## ANNEX 2: BIBLIOGRAPHY

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**ANNEX 3: LIST OF INTERVIEWED STAKEHOLDERS**

<b>Names</b>	<b>Profile</b>
Arjan Halili	Expert/ Service provider (citrus sector)
Aleksi Bonjo	Processor
Altin Hajdaraj	Equipment supplier
Astrit Balliu	Expert
Eftali Qerimi	Processor
Enea Thomai	Input supplier
Enver Isuf	Expert
Genci Mita	Processor
Gojart Smara	Berries entrepreneur
Harizi Maringlen	Exporter/trader and input supplier
Ilas Dushaj	Input supplier
Kamella Marra	Input Supplier
Lorenc Molishi	Processor
Mustaha Goga	Exporter
Neta	Wholesaler/exporter
Nikolla Ndoni	Processor and input supplier
Odeta Nasi	Processor
Pellumb Saliu	Collection point (and also farmer)
Ramo Merkohila	Expert/ATTC
Sajmir Biti	Trader / input supplier
Tokli Thomai	Expert
Vaip Salkurti	Processor, trader (and also farmer)
Xhek Mukaj	Expert/ATTC
Xhevaire Dulja	Expert

The above list consists of traders/exporters/wholesalers, input suppliers and leading experts. In addition, over a dozen farmers have been interviewed.