



# VALUE CHAIN IN FRUITS AND VEGETABLE PROCESSING SECTOR IN KOSOVO





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**Prepared by**

Dr. Sc. Iliriana Miftari

**With the support of Project Consultants:**

Prof. Dr. Mujë Gjonbalaj

Hartim Gashi

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# ASSOCIATION OF FRUIT AND VEGETABLE PROCESSORS – PEPEKO

The Association of Fruit and Vegetable Processors in Kosovo, PEPEKO is nonprofit entity, created in 2014 and legally registered as an association in October 2015. The main objective of the association is the protection of interests of local processors in order to further develop the industry of processed fruits and vegetables and contribute to the economic growth and employment throughout the value chain and territory of Kosovo.

The association is just starting with its activities, and it is taking the form of an entity to support its members and contribute to the general wellbeing of the sector.

The association has organized several activities, such as:

- Coordination meetings with key stakeholders from the sector
- Joint application for supply chain organization
- Organized cross visits to regional and EU companies
- Organized participation in a number of trade fairs for international representation of fruit and vegetable processors

The association has seven members currently, three of which are establishing-committee members. Membership interest is very high at the moment, and it is expected to be developed within two years of project development. This initiative will ensure the Kosovo Association of Fruit and Vegetable Processors is fully operational and strengthened to provide services to its members. The association has shown its potential and its need in the sector. However, the past experience and inexistence of an association has hindered the development of the fruit and vegetable sector.

The local businesses have identified the need and importance for group membership. The Association of Fruit and Vegetable Processors is a very important player in Kosovo's economy, representing a bridge for more than 8,000 fruit and vegetable growers and consumers in the local and international market. By implementing activities foreseen within this project, the association will be strengthened and able to continue its contribution to developing the fruit and vegetable sector in Kosovo.

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# EXECUTIVE SUMMARY

## 1. INTRODUCTION

In the last decade, the agriculture sector has gained considerable attention and support from the Government of Kosovo, as well as from the donor community. The financial support through direct producer and rural development measures has increased significantly since 2007, and it is expected to increase in the upcoming years. The increase by government and donor support has been followed with an increased interest of the private sector to invest in agri-food industry. The country economy is increasingly structured around the agri-food value chains that contribute to Gross Domestic Product (GDP) and employment as well as improve of the trade balance. Therefore, it is very important to have an assessment of the agri-food value chain development trends, obstacles, and opportunities. By having such an assessment, the policy makers and other stakeholders along the agri-food value chain will be able to make the financial support schemes and private sector investments more effective.

In 2018, the Association of Fruit and Vegetable Processors of Kosovo “PePeKo” conducted a baseline assessment on the current situation of the fruit and vegetable sector in Kosovo. The aim of this study was to analyze the development of the sector of

fruits and vegetables in the two preceding years (2016-2017), current processing capacities, marketing strategies, job creation potential, and business environment. This study is a continuation of the 2018 study. The main aim of this study was to assess and analyze the recent development of the agri-food value chains with the focus on vegetables (peppers, gherkins, and tomato) and the fruits (apple and strawberry). The study provides information of the sector development within the last two years, current situation of primary production and processing capacities, food safety standards, marketing and trade, export opportunities, employment, supply channels, and challenges related to the business environment. The study addresses a series of specific objectives and research questions related to the agri-food value chains development and uses datasets including both primary and secondary sources, structured instrument for data collection and analytical methods that enable the provision of a set of indicators that describe the development patterns and challenges of the selected agri-food value chains. The findings of this study may serve as reference for future policy development and support entrepreneurs of the selected agri-food value chains towards better decision-making processes.





## 2. THE OVERVIEW OF SELECTED AGRICULTURE SECTORS

The agricultural sector contribution to GDP accounts for 10.0% and is estimated to employ around 4.6% of total employees (MAFRD, 2018). This indicates that agriculture remains an important sector for the national economy. Within the agriculture sector, horticulture production covers about 40% of the total agricultural output, 30% of vegetables and approximately 8% of fruit production. The cultivated

area with vegetables in opened fields and greenhouses increased by 4% in 2017, when compared to 2016, but it decreased again in 2018 (see Table 1). Similar pattern is shown for the total production of vegetables (see Table 2). The increase of cultivated area with fruit tree is even higher – 13% in 2017 (MAFRD, 2018).

**TAB. 1 CULTIVATED AREA WITH MAIN VEGETABLES IN KOSOVO, 2012-2018**

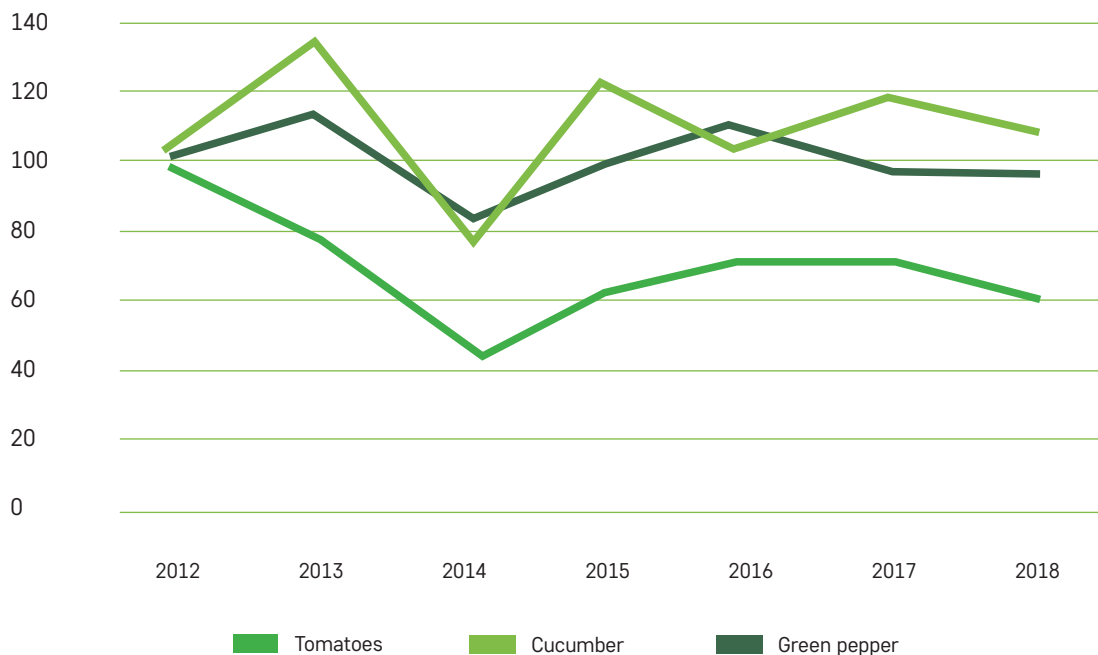
Year/Type	2012	2013	2014	2015	2016	2017	2018
Potatoes	3,198	2,777	3,695	3,353	3,795	4,290	3,606
Cabbage	568	851	556	594	807	917	832
Cauliflower	13	29	-	32	83	47	46
Leek	93	143	44	78	70	73	72
Onion	881	1,060	1,041	1,079	1,228	1,465	1,185
Tomatoes	1,271	950	558	791	866	862	757
Cucumber	255	340	193	317	259	305	273
Green pepper	3,153	3,686	2,553	3,090	3,363	3,035	3,038

SOURCE: AGENCY OF STATISTICS, 2012-2018; DEPARTMENT FOR AGRICULTURAL STATISTICS AND ECONOMIC ANALYSIS OF MINISTRY OF AGRICULTURE, FORESTRY AND RURAL DEVELOPMENT 2012-2018

Of the total cultivated area with vegetables, tomato production amounts at 8% and cucumber is 3%. A considerably higher share of the total cultivated area with vegetables counts towards green peppers (15%). In regard to the trend of cultivated area, it can be seen in Figure 1, that the cultivated area

with tomatoes and cucumbers was fairly stable from 2014 to 2018. The situation stands differently for green peppers, where the cultivated area fluctuates significantly from one year to another. The changes of cultivated area with tomatoes and peppers appear to be correlated with market prices.

**FIG. 1 CHANGE OF CULTIVATED AREA WITH TOMATOES, CUCUMBERS AND GREEN PEPPERS, 2012-2018**



Of the total cultivated area with vegetables, tomato production amounts at 8% and cucumber is 3%. A considerably higher share of the total cultivated area with vegetables counts towards green peppers (15%).

**TAB. 2 TOTAL PRODUCTION IN TONS OF MAIN VEGETABLES IN KOSOVO, 2012-2018**

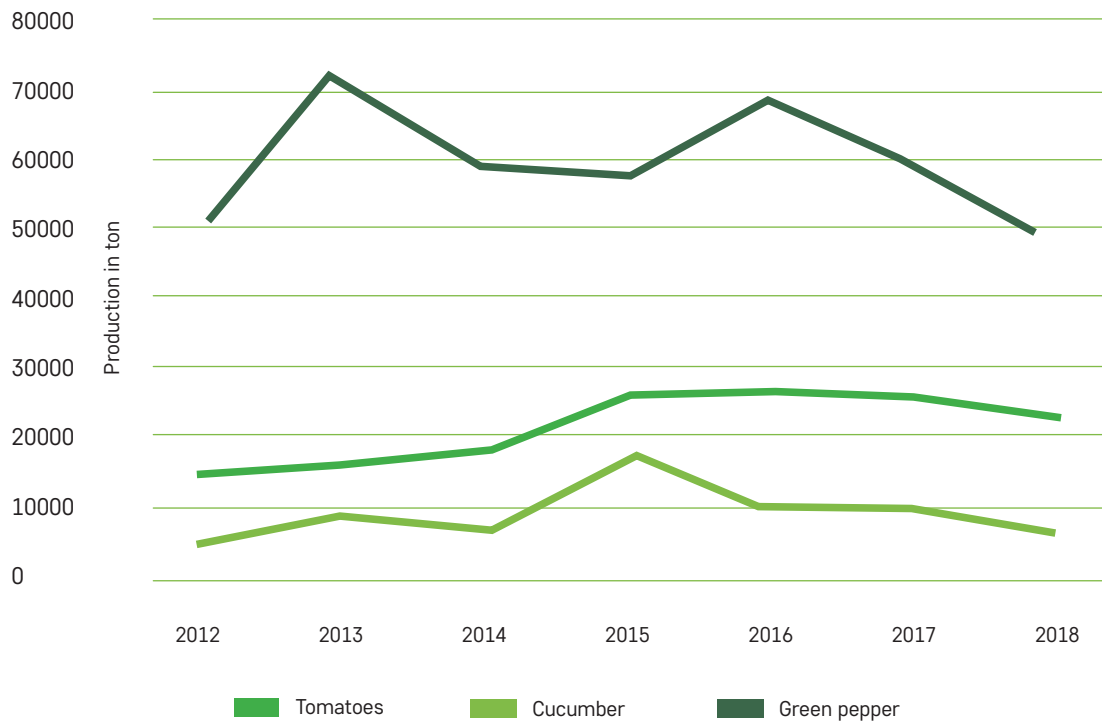
Year/Type	2012	2013	2014	2015	2016	2017	2018
Potatoes	33,407	50,847	64,027	70,678	98,583	118,250	68,790
Cabbage	13,975	21,924	14,426	16,694	25,957	25,184	21,997
Cauliflower	169	1,793	-	218	1,571	911	725
Leek	1,293	2,206	640	1,942	1,831	1,671	1,303
Onion	8,601	15,308	12,812	13,795	19,814	22,436	16,317
Tomatoes	13,693	17,291	17,386	24,333	27,215	24,698	22,639
Cucumber	5,239	8,975	5,428	17,365	10,428	10,204	7,009
Green pepper	50,744	72,928	57,921	55,469	68,849	62,934	49,907

SOURCE: AGENCY OF STATISTICS, 2012-2018; DEPARTMENT FOR AGRICULTURAL STATISTICS AND ECONOMIC ANALYSIS OF MINISTRY OF AGRICULTURE, FORESTRY AND RURAL DEVELOPMENT 2012-2018.

Kosovo has the highest yield of peppers in the region, about 20 ton/ha. Most of the commercial (>2 ha) and semi commercial (0.5-2.0 ha) farms of peppers are located in Rahovec and Gjakove. Pepper production is dominated by small farms accounting for 64% of the total pepper farms, followed by semi-commercial farms (30%) and commercial farms of (6%). The total domestic use of vegetables, in particular tomatoes, peppers, and potatoes, increased in the last two years (2017-2018), and it is expected to further increase as a result of increases in the purchasing power of consumers and healthy consumption habits. Vegetables appear to be important in the diet of Kosovo consumers; how-

ever, not as important as they are in the diets of the regional consumers. According to the Agriculture and Rural Development Plan, the annual consumption of fresh vegetables per capita in Kosovo is estimated at 146 kg, which is lower than that of the region – Albania (173 kg/capita), Bosnia and Herzegovina (168 kg/capita) and North Macedonia (156 kg/capita). Whereas, the consumption of processed vegetables, compared to that of fresh vegetables, in Kosovo is lower – 1.5 kg/capita (EU 8-12 kg/capita) (Fischer, CH., 2002). The low consumption of processed vegetables can be explained by the fact the families in Kosovo process vegetables at home.

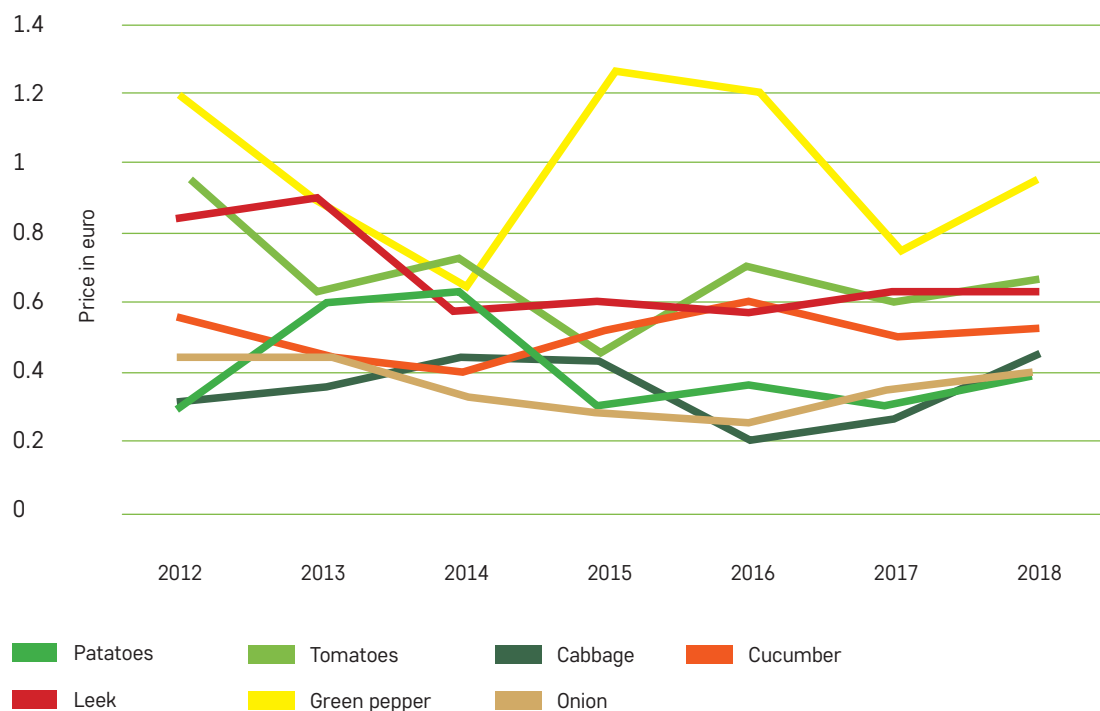
**FIG. 2 PRODUCTION OF TOMATOES, CUCUMBERS AND GREEN PEPPERS, 2012-2018**



The yield of vegetables, especially in open fields, remains low, and this is may be as result of farm structure – small size farms with high fragmentation of land and outdated production technology. The cultivated area with tomatoes and cucumbers decreased in 2018, when compared to 2017, except for the area cultivated with green peppers which remained the same. Areas cultivated with tomatoes in 2018 were 12% fewer than in 2017 and 10% fewer for cucumbers. Total production of tomatoes and cucumbers followed the same path as cultivated areas; there was a decrease of 8% and 30% in total production for tomatoes and cucumbers respectively in 2018. Even though the cultivated area with green peppers was almost the

same in 2017 and 2018, total production in 2018 was about 20% less than that in 2017. Regardless of low production and low yields, the demand for most of the vegetables mostly consumed in Kosovo (potatoes, tomatoes, pepper, pumpkin, cucumber, watermelon, melon, cabbage, onions and beans) followed an increasing trend. The market prices for vegetables tend to fluctuate in particular for green peppers and tomatoes, which are considered to be the most demanded vegetables. The tomato price per kg was 15% higher in 2018 than in 2017, and the price for green peppers was even higher (37%). The average market price of cucumber in 2018, however, was similar to the average market price in 2017.

**FIG. 3 MARKET PRICES OF MOST CONSUMED VEGETABLES IN KOSOVO, 2012-2018**



SOURCE: AGENCY OF STATISTICS, 2012-2018; DEPARTMENT FOR AGRICULTURAL STATISTICS AND ECONOMIC ANALYSIS OF MINISTRY OF AGRICULTURE, FORESTRY AND RURAL DEVELOPMENT 2012-2018.



The tomato price per kg was 15% higher in 2018 than in 2017, and the price for green peppers was even higher (37%). The average market price of cucumber in 2018, however, was similar to the average market price in 2017

**TAB. 3 CROP AREA OF VEGETABLES IN HA FOR THE PERIOD 2014-2018**

	2014	2015	2016	2017	2018	Average	Participation of each crop in total area in %, 2018	Change 2018 / 2014 in ha	Change 2018 / 2014 in %
Potatoes	3,695	3,353	3,795	4,290	3,606	3,531	36.76	-189	-4.98
Cabbage	556	594	807	917	832	732	8.48	25	3.09
Cauliflower	-	32	83	47	46	42	0.46	-37	-44.57
Leek	44	78	70	73	72	82	0.73	2	2.857
Onion	1,041	1,079	1,228	1,465	1,185	1,134	12.08	-43	-3.50
Tomatoes	558	791	866	862	757	865	7.71	-109	-12.58
Cucumber	193	317	259	305	273	277	2.78	14	5.40
Green pepper	2,553	3,090	3,363	3,035	3,038	3,131	3	-325	-9.66
Total Area	8,640	9,334	10,471	10,994	9,809	9,788	100	-662	-6.32
Green pepper	2,553	3,090	3,363	3,035	3,038	3,131	3	-325	-9.66
<b>Total Area</b>	<b>8,640</b>	<b>9,334</b>	<b>10,471</b>	<b>10,994</b>	<b>9,809</b>	<b>9,788</b>	<b>100</b>	<b>-662</b>	<b>-6.32</b>

SOURCE: SAK, AGRICULTURE HOUSEHOLD SURVEY, 2014-2018.

Fruits comprise an important share of cultivated agricultural area accounting about 23%. Among fruits, apple, plum, and watermelon are of the most cultivated fruits covering up to 5,560 ha. Significant increase has been observed in the last three years in the area cultivated with watermelon. Other fruits like pear, cherries, and melon are cultivated in a smaller area. Strawberries and raspberries have modest shares and are produced in small scales; however, they represent an important market op-

portunity, and special attention has been paid to them by policymakers. The average yield of strawberries is lower (3.1 ton/ha) than the average yield reached at regional countries, which is over 4 ton/ha. The cultivated area with apple in 2018 increased by 18% when compared to 2017, while the total production was significantly higher in 2018 (98%). The average market price of apple decreased by 17% in 2018 compared to the previous year.

**TAB. 4 CULTIVATED AREA WITH MAIN FRUITS IN KOSOVO, 2012-2018**

Year/Type	2012	2013	2014	2015	2016	2017	2018
Pear	326	561	210	367	416	456	479
Apple	1,725	2,024	1,973	1,972	2,076	2,155	2,556
Cherry	50	88	51	27	73	78	82
Plum	1,404	1,843	699	1,518	1,518	1,524	1,821
Watermelon	847	827	781	781	1,127	1,201	1,182
Melon	271	455	167	193	301	388	298

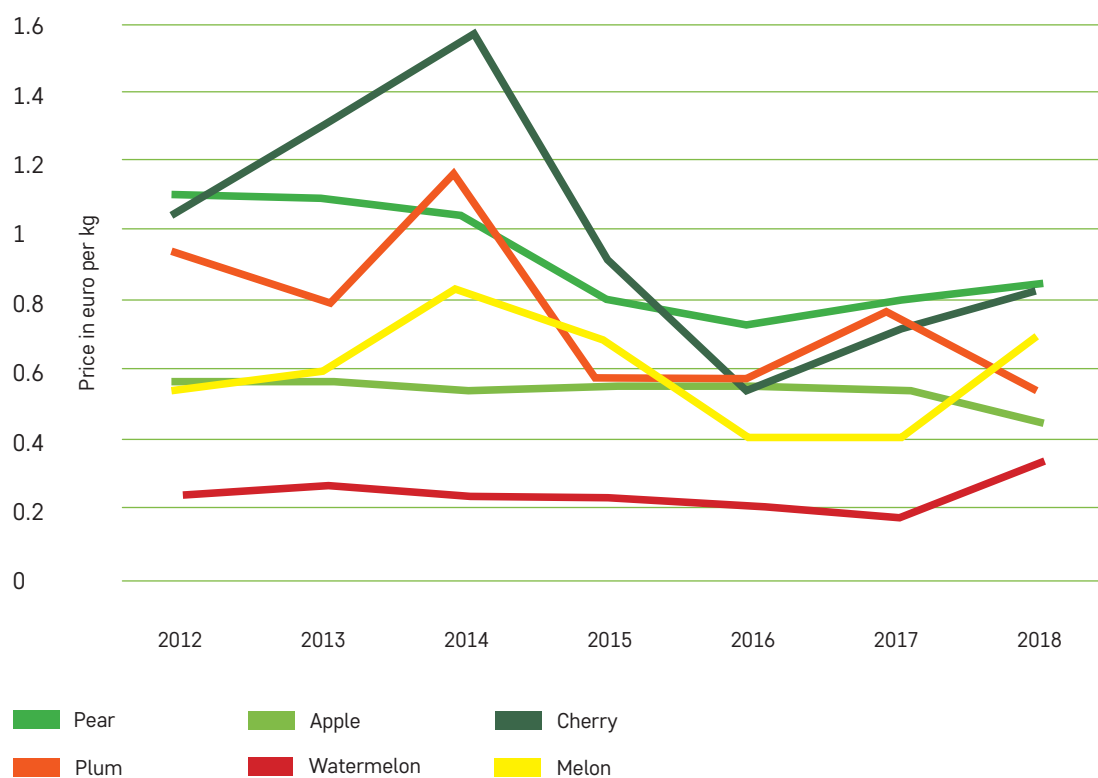
SOURCE: AGENCY OF STATISTICS, 2012-2018; DEPARTMENT FOR AGRICULTURAL STATISTICS AND ECONOMIC ANALYSIS OF MINISTRY OF AGRICULTURE, FORESTRY AND RURAL DEVELOPMENT 2012-2018.

**TAB. 5 TOTAL PRODUCTION IN TONS OF MAIN FRUITS IN KOSOVO, 2012-2018**

Year/Type	2012	2013	2014	2015	2016	2017	2018
Pear	1,562	4,259	210	3,189	3,966	2,083	3,500
Apple	8,120	16,786	1,973	18,352	27,485	13,159	26,093
Cherry	167	354	51	99	405	298	410
Plum	17,514	24,433	699	17,543	12,722	7,393	10,643
Watermelon	17,080	17,641	16,669	17,404	29,997	28,740	22,918
Melon	2,455	4,824	1,778	2,966	5,558	6,113	4,141

SOURCE: AGENCY OF STATISTICS, 2012-2018; DEPARTMENT FOR AGRICULTURAL STATISTICS AND ECONOMIC ANALYSIS OF MINISTRY OF AGRICULTURE, FORESTRY AND RURAL DEVELOPMENT 2012-2018.

**FIG. 4 MARKET PRICES OF THE MOST CONSUMED FRUITS IN KOSOVO, 2012-2018**



SOURCE: AGENCY OF STATISTICS, 2012-2018; DEPARTMENT FOR AGRICULTURAL STATISTICS AND ECONOMIC ANALYSIS OF MINISTRY OF AGRICULTURE, FORESTRY AND RURAL DEVELOPMENT 2012-2018.

As it can be seen in Figure 4, the consumer market prices for apple and watermelon were stable for the period 2012-2018. The prices for other fruits,

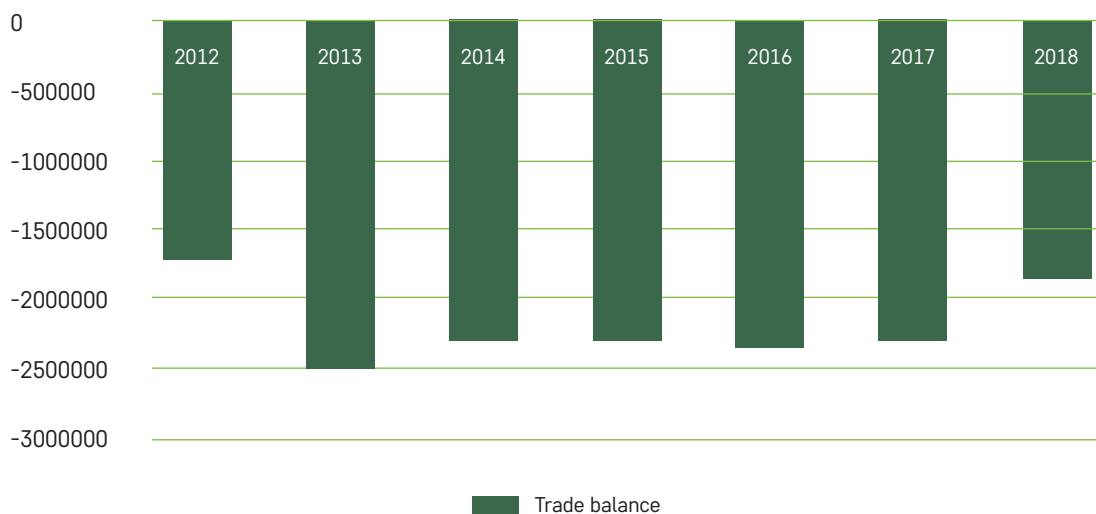
however, in particular for cherry, plum and melon were significantly changing during the same period of time.

**TAB. 6 CROP AREA OF VEGETABLES IN HA FOR THE PERIOD 2014-2018**

ha	2014	2015	2016	2017	2018	Average	Participation of each crop in total area in %, 2018	Change 2018 / 2014	Change 2018 / 2014 in %
Pear	210	367	416	456	479	385.6	7.46	63	15.14
Apple	1,973	1,972	2,076	2,155	2,556	2146.4	39.82	480	23.12
Cherry	51	27	73	78	82	62.2	1.27	9	12.32
Plum	699	1,518	1,518	1,524	1,821	1416	28.37	303	19.96
Watermelon	781	781	1,127	1,201	1,182	1014.4	18.41	55	4.88
Melon	167	193	301	388	298	269.4	4.64	-3	-0.99
<b>Total Area</b>	<b>3881</b>	<b>4858</b>	<b>5511</b>	<b>5802</b>	<b>6418</b>	<b>5294</b>	<b>100</b>	<b>907</b>	<b>16.45</b>

SOURCE: SAK, AGRICULTURE HOUSEHOLD SURVEY, 2014-2018.

**FIG. 5 TRADE OF MAIN VEGETABLES WITH EU COUNTRIES, 2012-2018**

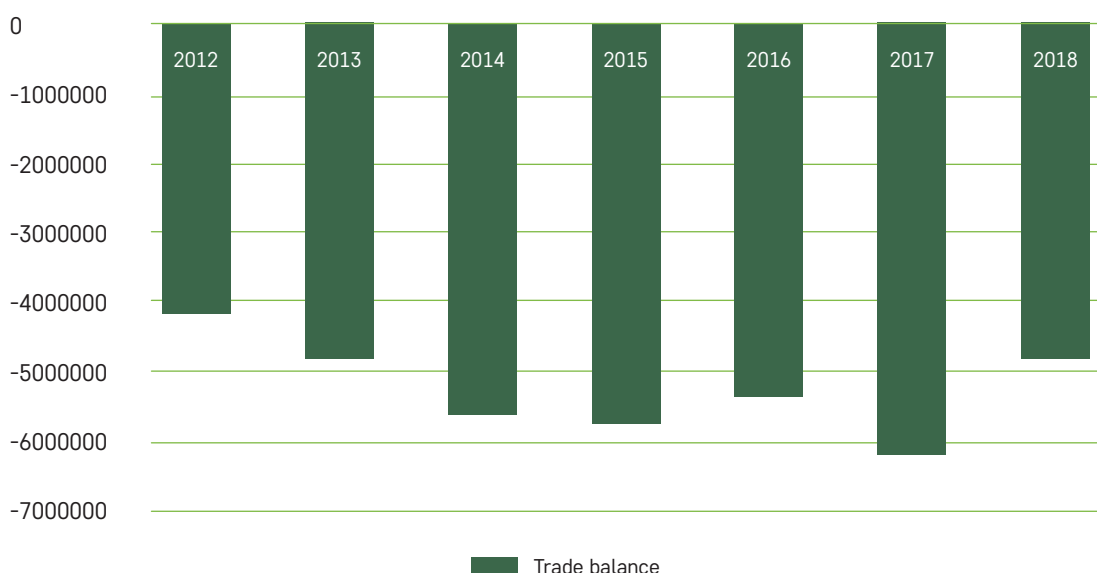




Trade balance for vegetables and fruits similar to other agro-food products remains problematic. The share of vegetable exports relative to imports has slightly increased in 2018, but there is no significant improvement in the trade balance of vegetables for the time period 2012-2018. The situation stands even worse for fruit trade where Kosovo, in 2018, exported only 12% of the import value of fruits. The main export partners for Kosovo within the EU were Germany, Italy and Slovenia. Among South-

eastern European countries (SEEs) Kosovo mainly exports agro-food products to Albania and the North Macedonia and to a smaller extent also to Serbia and Croatia. With regard to imports of agro-food products from the EU, Germany, Slovenia, Italy, and Bulgaria remain the main partners, accounting for more than 60 % of all agro-food imports. Among SEE countries, Kosovo imports agro-food products mainly from the North Macedonia, Croatia and Bosnia and Herzegovina.

**FIG. 6 TRADE EXCHANGE OF MAIN FRUITS WITH EU COUNTRIES, 2012-2018**



**Traders:** The traders in Kosovo's value chain consist of wholesalers and retail outlets. In the case of fresh products for processing, it is more common that farmers sell directly to processors, but often sales are done also via wholesalers. Fruits and vegetables produced for fresh consumption are sold directly to wholesalers and retailers. Several collection centers have been established, and few of them are located in the production region of Rahovec that collects pepper. There are collection centers and cold stores in the main regions of production of raspberry (e.g. Podujevo, Shterpece) as well. Retail market consists of several locally-owned supermarket chains, small convenience shops, and green markets. Despite the growth of

the supermarket chains, it is still common that consumers buy fresh fruits and vegetables in the green markets and convenience stores. Also, direct purchases from producers are reported (that can take place in green markets where farmers also sell their produce) (for more, see the following section on distribution channels).

**Input suppliers:** The farmer growers purchase inputs to produce their crops, thus input suppliers are crucial in the operation of the value chain. The input suppliers deal with supply of seeds and fertilizers, farm equipment, irrigation pipes, plastic foil, ties, metal and concrete poles, etc. There are about 150 agrochemical input dealers in Kosovo, of which 3-4

are well known in each region. These input dealers are members of the association KODAA (Kosovo Dealer Agriculture Association), which works jointly with the Kosovo Chamber of Commerce. These dealers also play the vital role of advisors on seeds, pest management and plant protection, as well as other farming practices. In terms of skill and knowledge transfer, the stakeholders involved at this level of the value chain play a very important role. Below we describe the main categories of input suppliers.

**Vegetable Seeds:** These are mainly purchased from other input dealers and usually from different countries, such as Serbia, North Macedonia, Slovenia and regional countries. Nevertheless, in recent years, farmers have also bought from Holland, Germany, Hungary, and other EU countries. This is true especially for pepper and other vegetables where hybrid seeds ensure higher yields. The new varieties of pepper are mainly imported and promoted by input dealers. Regarding pepper seeds, especially the Somborka variety, farmers are still using their own saved seed, which has a negative impact on the yield and quality of pepper intended for processing. The varieties Kurtovska Kapija and Slonovo Uvo (red pepper) are either used from saved seeds or purchased from **Macedonia** or Serbia. With regard to hot peppers (feferoni), farmers used to get seed from **Macedonia** in the past, but currently they are looking at opportunities to get these varieties from Hungary and Turkey.

**Seedling Vegetables:** Most of the farmers producing pepper are producing their own seedlings in a very outdated way using small greenhouses or tunnels. The quality of seedlings is still low and has a negative impact on the yield. The cost per seedling is between 3 and 5 cents. In Albania, there are specialized greenhouses that are used to produce only seedlings contracted by the farmers, in which case although the cost is similar or slightly higher, the quality is better. This system could have been rep-

licated in Kosovo, but it requires time and a change of system for the growers. Regarding raspberry seedlings, until recently, most of the farmers have imported seedlings from Serbia (price 20-25 cents per seedling); projects like USAID/NOA have imported seedlings from England (60 cents per seedling).

**Fertilizers and Pesticides:** These inputs are mainly imported, except for organic manure. There is lack of choice of fertilizers, and most dealers usually import NPK 15:15:15, which in many cases does not meet quality standards. In recent years, there have been some positive changes, but more information on requirements for each value chain should be available, and input dealers need to supply the required types of fertilizer. There are only a few importers of fertilizer, who import mainly from Serbia, North Macedonia, Greece, Austria, and Ukraine.

**Pesticides are imported both from the Balkan region and the EU:** North Macedonia, Serbia, Hungary, Slovenia, Poland, and Germany, while there are some companies supplying pesticides from Jordan and other Middle Eastern countries. The companies are usually representatives of very well-known companies, like Bayer from Germany or Pegasus from Jordan. The quality of pesticides is questionable, as sometimes these pesticides are repackaged in Serbia and the active ingredient concentrations are incorrect. In some situations, the recommended pesticides are not available, and farmers travel within Kosovo or Serbia to find them.

**Machinery & Equipment:** There are specialist companies selling machinery and equipment e.g. Bibaj, Haxhijaha etc. In the fruit and vegetable sector, there are no dealers, and due to high prices, farmers buy fewer machinery and equipment than before. Tractors are mainly 35 – 45 KfW, and for vegetables, farmers use Goldoni tractors as they can easily move between the rows. Many farmers are still using tractors and machinery produced more than 20 years ago in Serbia or Croatia.



## 3. METHODOLOGY

The methodology on value chain study reflects various approaches. The desk research conducted in the early phase of the project provides background information of the sector development and the selected value chains. The value chain study follows the approach used by FAO (e.g. FAO, 2007 and FAO, 2014). The desk research served as a base for the questionnaire development and primary data collection. The interviews with eleven fruits and vegetables processing companies in Kosovo have been conducted during July-August 2019 by senior researchers. The questionnaire collected information on employment, production, distribution channels, contracts, sales, and quality standards. The objective of the value chain survey was:

- to obtain information and better understand production changes in the last two years and market development patterns in Kosovo, challenges and opportunities, with the focus on processed fruits and vegetables value chains;
- to develop the value chain coordination and access to market;
- to progress towards safety and quality standards, and analyze the implication of relevant institutions market access.



## 4. MAIN FINDINGS

### 4.1 PRODUCTION AND PROCESSING CAPACITIES

The horticultural processing industry comprises of at least 12 processing companies. The current capacity of the processing fruits and vegetables does not fulfil the domestic market demand. The majority of the local processors are small with the product lines comprising of pickles, juice, canned vegetables, ajvar, jam, and marmalade. The fruit and vegetable processing industry in Kosovo is growing and its processing technology is improving. Taking into consideration their processing capacities, they can be classified in three categories:

- Industrial processors (5 companies)
- Medium-scale processors (7 companies)
- Small-scale processors.

Only five out of 12 interviewed companies declared production and processing capacities, which reached the total of 2,445 tons for the year 2018. The processing capacity in 2017 was 5,164 tons, but it comprises processing capacities of five companies out of the 11 included in the study. About 50% of the interviewed companies increased processing of fruits and vegetables in 2018 compared to 2017, 40% decreased it, while the remaining 10% processed around the same quantity as the year before. The supply with raw material is mainly (over 80%) from local producers, and the rest is fulfilled with imports. Referring to the previous baseline assessment conducted by PePeKo and the results obtained in the survey, it is observed that processing capacities of fruits and vegetables have a positive trend from 2015 to 2018.

### 4.2 EMPLOYMENT

All of the interviewed representatives of the processing companies were male, with an average age of 43 and generally with a bachelor degree completed mainly in the field of economics. Only two out of 12 interviewees had finished their education in agriculture and food technology. Eight out of twelve interviewees were either production or marketing managers. The average time of be-

ing actively involved in the company was 6 years. On average, one processing company employs 31 workers who are involved in production activities. The total number of employees working for the interviewed companies is 1,094, out of which 109 were involved in administration, 378 in production, 284 in marketing, and 996 employees were engaged in seasonal activities.

**TAB. 7 DESCRIPTIVE STATISTICS OF THE EMPLOYMENT OF COMPANIES INCLUDED IN THE STUDY**

	<b>Total</b>
Number of employees working in the company	1094
Number of administrative employees	109
Number of employees involved in production	378
Number of employees involved in marketing	284
Number of seasonal employees	996

About 50% of the interviewed companies stated that the number of employees increased in 2018 when compared to 2017, 30% had the same number of employees, and the other 20% had reduced

the number of employees in 2018. Similar pattern is observed also for changes in seasonal workers between 2017 and 2018.

**TAB. 8 DESCRIPTIVE STATISTICS OF THE EMPLOYMENT BY GENDER**

	<b>Total</b>
Number of full-time employees men	133
Number of full-time employees women	276
Number of part-time employees men	38
Number of part-time employees women	127
Number of seasonal employees men	241
Number of seasonal employees women	392



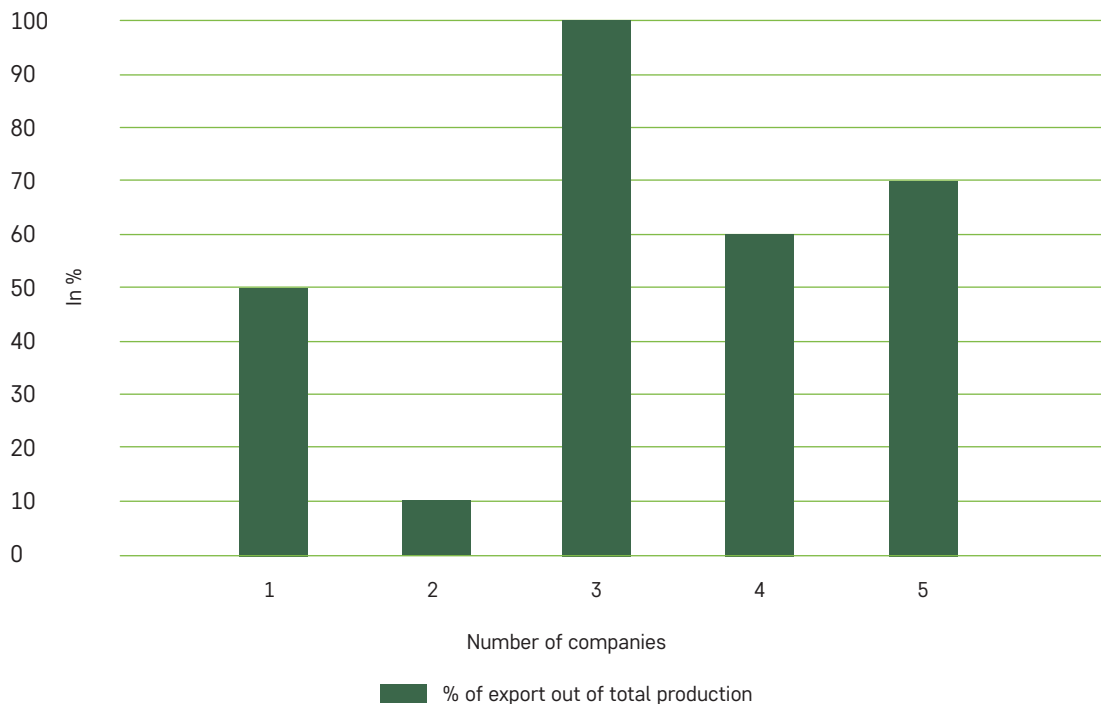
The total number of employees working for the interviewed companies is 1.094, out of which 109 were involves in administration, 378 in production, 284 in marketing, and 996 employees were engaged in seasonal activities.

## 4.3 DISTRIBUTION CHANNELS IN VALUE CHAIN

The analysis of distribution channels is based on quantitative and qualitative data. The main distribution channels for processed fruits and vegetables are retail and wholesaler. Over 70% of the interviewed companies sell their processed products to retailers; however, the percentage of the quantity sold through this channel is small (about 30%). The rest is sold to wholesalers, bars, restaurants, or directly to consumers. In 70% of the cases, the companies sell to the same buyers due to the written

contracts or timely payment. Four out of 12 companies sell the majority of their processed fruits and vegetables to wholesalers. About 42% of the interviewed companies were able to export. From these five companies that were able to export, an analysis on the share of export from the total production was conducted, and this share of exports varied from 10 to 100%. Four out five companies exported more than half of their production.

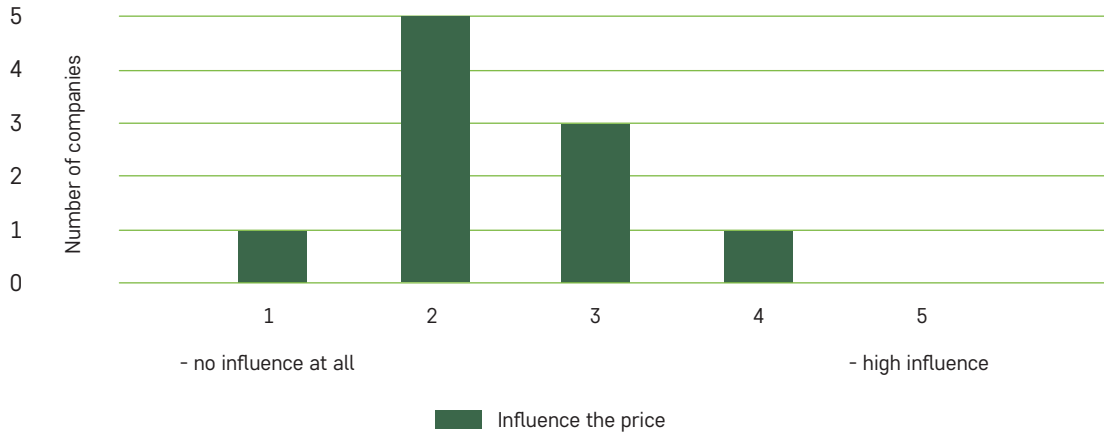
**FIG. 7 THE PERCENTAGE OF EXPORT SHARE OUT OF TOTAL PRODUCTION**



Over 80% of the companies included in the study have year-long contracted their main buyers. Their communication with the main buyers is regular. Only two out of 12 companies included in the sur-

vey had no signed contracts with the main buyers, and this is mainly due to the choices of their buyers. Almost 60% of the companies declared they do not have influence on prices.

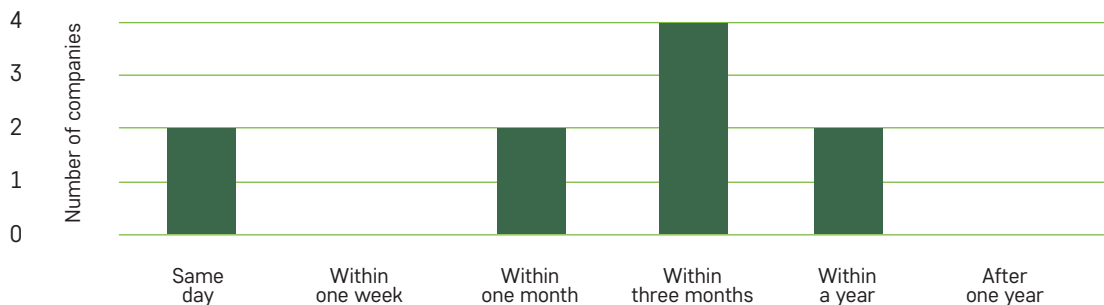
**FIG. 8 THE INFLUENCE OF PRICE TO THE MAIN BUYERS**



Almost all companies (80%) included in the survey indicated that the main form of payment is via bank. Even though most of the companies have written contracts with the main buyers, most of them proclaimed that they had delays in receiving money mainly from local buyers after the delivery of products. For instance, although the contract foresees that the payment will be received at least 60 days after the receipt of the products; whereas, in most of the cases, they do have to wait up to 120 days. As a result, many of the companies face a liquidity

problem, as they are not able to meet their short-term obligations such as repaying loans, paying operational bills to their suppliers, and sometimes paying employee salaries. In 70% of the cases, the products are ordered weeks in advance by the buyers. As almost 60% of the production is exported, this means the products need to be transported to longer distances, and that is why the order is received several weeks in advance and usually takes three to four days to reach the destination, but within the day if the order is from local buyers.

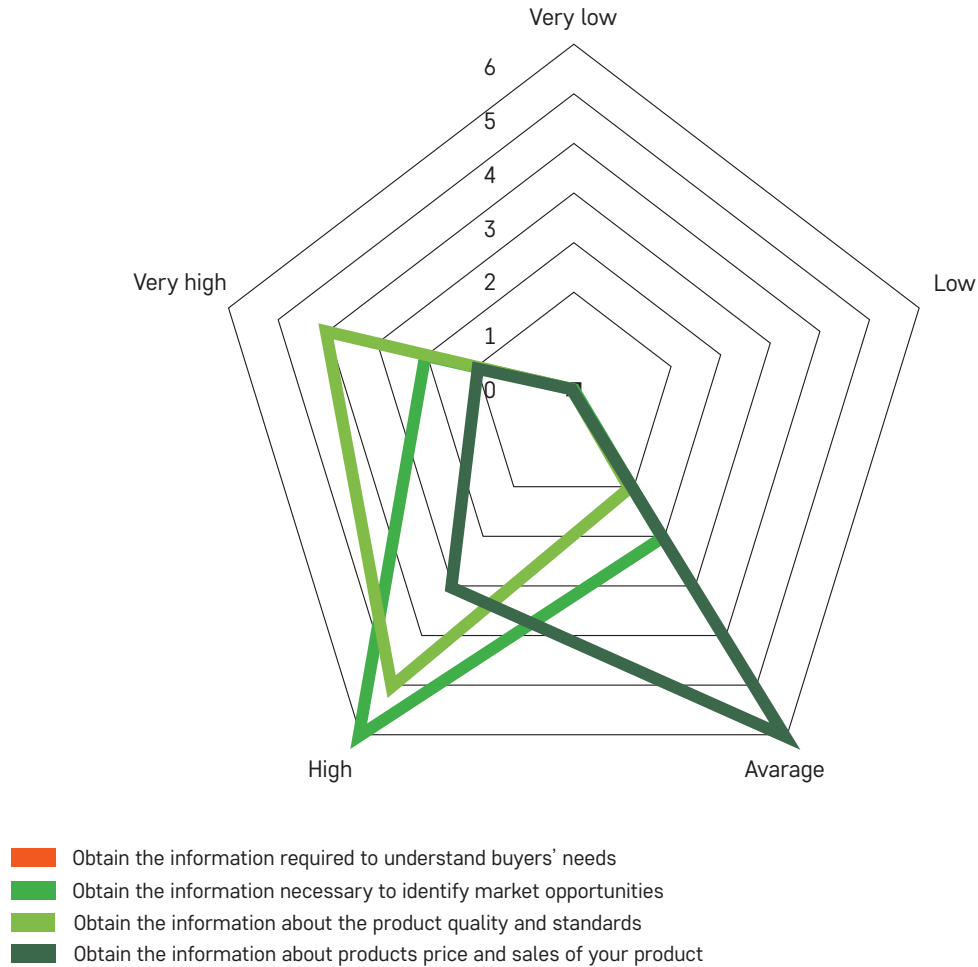
**FIG. 10 TIME NEEDED TO RECEIVE MONEY AFTER THE DELIVERY OF PRODUCT**



About 70% of the companies stated that the product inspection before/during the purchase of their products is the main form of their buyers' assess-

ment of their product standards/quality, followed also by lab analyses.

**FIG. 11 THE IMPORTANCE OF INFORMATION ABOUT BUYER'S NEEDS, MARKET OPPORTUNITIES, QUALITY STANDARDS, AND SALES PRICES**



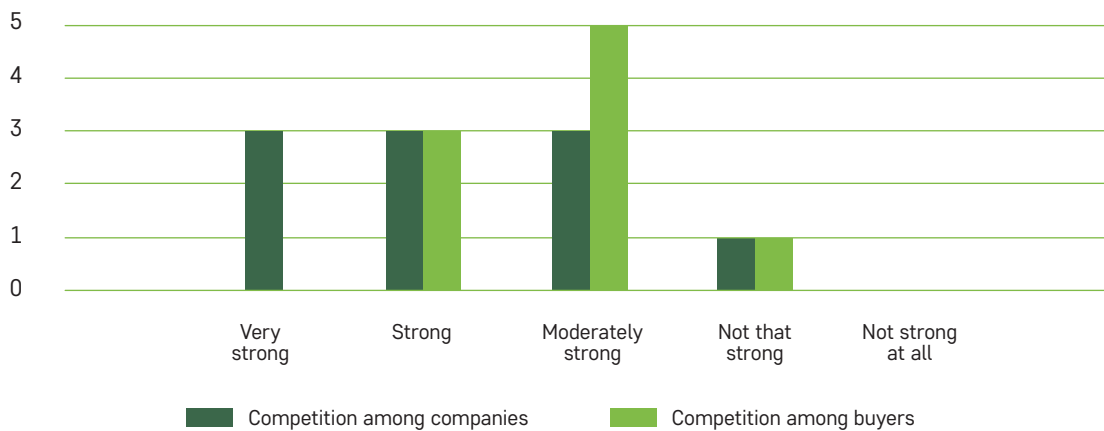


Only four out of 10 interviewed companies were certified with the ISO and HACCAP standards, while the rest of the companies claimed that they are still in the process of certification. However, most of the companies stated that they send their products for quality and safety analysis tests at least 4 times per year in local laboratory such as Institute of Peja and National Institute for Public Health. In addition, all of the interviewed companies know the origin of the raw material, and almost 70% perceive the safety of their products as high and even higher for the quality of the inputs they buy. About 60% of the companies included in the survey claimed that governmental agencies inspect their facilities about food safety standards often. A higher percentage (80%) stated that governmental agencies sometimes inspect their products in the market about food safety standards. About 50% declared they trust institutions that conduct laboratory analyses. Almost all interviewed companies have been advised by external consultants in 2018, mainly on the production issues or developing new products. Their buyers/clients are the main source

of information about the market demand. All of the companies included in the survey received trainings on calculation of costs and profits, and almost all of them calculated production costs and profits of each product they process. About 90% of the interviewed companies have received grants in the last five years, and most of the companies (80%) considered the access of information about the government grants as effortless.

Almost all (90%) of the companies included in the survey are members of processing producer group or cooperatives, but although none of them carry on joint production activities with other companies, 70% of them carry on joint sales activities (70% of the companies). All of them are members of PePe-Ko Association and Kosovo Chamber of Commerce and consider themselves as active members of these associations, when with them they have very good communication relationships in daily bases. All of the companies indicated their willingness to cooperate with other companies for joint input provision or joint sales.

**FIG. 12 COMPETITION AMONG COMPANIES AND OTHER VALUE CHAIN ACTORS**

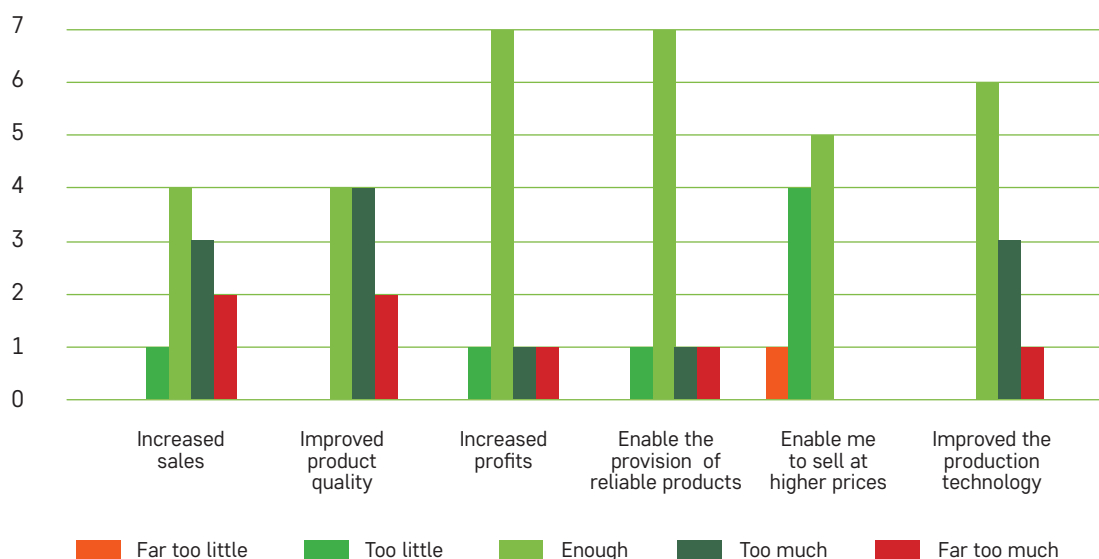


About 40% of the companies included in the study agree that collective sales are economically beneficial, while a higher share (60%) thinks that input provision is economically beneficial. The personal connections with other actors in the value chain are considered an important component for processing companies. About 50% of the companies have invested in equipment/machinery/buildings in 2018; whereas, the average value of the investment was 320,000 Euros. Government grants were the main source of investment. Developing new products and modernizing production lines was deemed as the

main target plan for the next five years, and about 50% of the companies see improvements towards the access to capital in the past 12 months.

The company performance of the relationship with other mediators had significantly improved the sales of the company, increased profit, and improved product quality and production technology. The relationship of the company with other mediators did not appear to be important in terms of yielding higher sale prices.

**FIG. 13 PERFORMANCE OF THE COMPANY RELATIONSHIP WITH OTHER MEDIATORS**



About 60% of the companies appear to be satisfied with the level of information exchange about the market of the main product and the sales level. The level of satisfaction is much lower for the prices offered from buyers and the payment correctness. This was also shown in the payment delays regardless of contractual agreements. In regard to the question of how flexible the relationship with the main buyers with the respect to the changes in the initial terms of agreement is for the sales prices and standard of products, the majority (80%) does not consider it flexible.

Elements like decision what to produce, sales prices, conditions regarding payments, time when product should be delivered to the buyers were considered as very important factors for the company performance. In addition, the impact of the main buyers on such elements (what to produce, sales prices, conditions regarding payments, time when product should be delivered to the buyers) appeared to have a high influence.

## 4.4 RELATIONS OF VALUE CHAIN

The relation mechanism regulates the distribution across the value chain of processed fruits and vegetables. It considers both vertical and horizontal coordination of the value chain. The horizontal coordination mechanism consists of written contracts, verbal agreements, and lack of agreements. For processed fruits and vegetables, the dominant transaction arrangement is a contractual agreement (for 8 out of 10 interviewed companies), followed by one company with a verbal agreement and one with no agreement whatsoever. When considering the time-dimension of the relations between the producers and buyers, study results show that relations span from a daily basis to several years. Relations spanning on daily bases are reported in four cases and several weeks are reported in three cases; whereas, relations lasting several months to more than a year are reported in two of the cases. This form of vertical coordination is more widely spread between farmers and other actors in the value chain. Written contracts are currently becoming increasingly present, especially in relations between wholesalers and processors. However, the form of coordination is determined also by the type of the product, whether it is perishable or durable. Besides the contracts with the wholesalers, retailers and supermarkets, the companies also use contracts with the farmers to adopt market coordination mechanisms. They usually meet farmers before the start of the season, where they discuss and determine the price, as well as the quality and quantity of fruits and vegetables demanded. With regard to trusting the judicial system for contract enforcement, the survey results show that there is lack of trust in the system. Some of the interviewees stated that they should first think of stopping cooperation before reporting the case to respective institutions.

Bank transfer payments are mostly performed between wholesalers and processing companies, and buyers in the European markets. Since the payments are mostly done via bank transfers, the time of receiving the money is mostly done after 90 days. The products sold in the domestic market

are assessed before and during the purchase. The laboratory analyses of product quality are reported very frequently. As the frequency of market exchange is not very high, this results in an increase of the transaction costs for processing companies.

The agri-food sector is currently facing problems related to marketing and distribution channels, as well as problems with regard to meeting EU quality standards. The share of supermarkets in the retail sector has increased significantly in recent years making it even more difficult for local processors to access the market due to higher demand towards the quantity, quality, and consistency. Therefore, local processors of fruits and vegetables should improve horizontal coordination through enhancing cooperation/collective action that may be via producer groups and marketing associations like PePeKo that are focused on joint local and international action. Collective action may improve the profits of processors, reduce marketing costs, and reduce competition between them which may also increase negotiating power with the buyers. Therefore, it is very important to increase awareness about the benefits of collective action among the processors of fruits and vegetables. The interviewed companies' representatives expressed their readiness to engage in cooperation because it provides more benefits and strengthens their position as producers. The willingness to participate in collective forms of organizations is reflected mainly for joint sales. However, in order to better understand incentives and willingness of producers to enhance cooperation over different activities besides joint sales, it is important to also investigate producers' perception over the competition for product sale in each sector. Knowing that the competition in processed fruits and vegetables is high, a relevant step forward could be an examination of producers' personal connections with other actors of value chain, as sometimes personal informal connections are not only important for market access but also in receiving advices and information on new technology.



## 5. CONCLUSIONS AND RECOMMENDATIONS

According to the study results, the recent development of the fruits and vegetables processing sector has gone through several problems, such as lack of consistency, lack of local raw material, high production cost due to imported raw materials, liquidity concerns in the wholesale and retail chain, and high costs of electricity and water used in the processing activities. The majority of the interviewees favor enhancement of other joint activities; however, there are limited positive examples of cooperation in practice. They do not have access to production insurance services. If production of raw material substantially increases in the future, Kosovo operators would face problems in scaling up the operations with relevant need of processing capacity, increasingly complex logistics and harsh competition from lead players, such as North Macedonia and Serbia.

The fruit and vegetable processing sector is largely dominated by wholesalers and retailers and formal contracts in relation between processors and buyers. Regional producers of the processed fruits and vegetables are quite competitive making the business environment highly challenging for domestic producers. Increasing awareness for food quality and safety should be perceived as a strong signal for locally-produced food companies to adapt; otherwise, imports will keep increasing, which will adversely impact the viability of the agricultural sector.

The market information is especially essential to connect the processors and their products with appropriate market segments. Using market informa-

tion to make production decisions and develop new products is novel to processors and other supply chain actors. Obviously, private businesses must capitalize on the market information to capture relevant opportunities; however, it is not sufficient for success as policymakers have the responsibility to create the conditions to make agribusiness environment sustainable, thus allowing consumers and producers to converge on a well-balanced solution for both parties. In Kosovo, the direct relationship of consumers with producers exist due to the historical trust built through generations; however, with the presence of modern retail stores and supermarkets, this trust has inevitably been affected. Therefore, there is a need for other mechanisms to create the trust of new generation of consumers.

The key factor to developing a competitive and innovative fruit and vegetable processing sector capable to produce high quality products is building human capacity that generates science-based knowledge on the food supply determinants. The government plays a key role in funding institutions and providing public goods and services, such as extension services to help domestic processors become exporters and compete with importers.

There is a need to develop institutional coordination and inter-organizational communication which can provide useful information and effective support to processors. The extension services play a key role in explaining standards to processors and helping them meet those obligations and requirements as found in legislation. If otherwise, local producers will face difficulties in selling their products as they

fail to meet market quality and safety standards. Parallel to raising the awareness of producers and consumers, there should be scaled-up financial support towards investments that enable improvement of safety standards. Referring to the EU rural development policy, several initiatives have taken place to develop synergies among local processors, which could be further enhanced towards collaborative new product/service development.

Information about consumer preferences for processed fruits and vegetables is essential to making rational production decisions. In addition, creating an enabling environment, such as promoting the use of Information and Communication Technology are indispensable. The quality standards are expected to increase the reliability and credibility of both producers and traders, and this has immediate positive effects on consumer confidence that their needs will be met and on consumer trust in the food system as a whole.

The creation of sustained public-private partnerships linking different stakeholders (farmers and consumer associations, retail and food service companies, processors and university research and extension) is a necessity, not only for production but also for beyond-farm activities. One partnership that is essential for the efficiency of supply chains

is the management of information flow. Information management is well established in large retail businesses; however, it needs to be adapted and implemented particularly for marketing at a smaller scale and with a higher variety of operators. The specific activities – including the flow of information exchange, quality assurance, and inventory management — need careful evaluation.

Another important challenge is the availability of sufficiently-developed human capital, which calls for investments in education and training specially addressed to women and youth. The pivotal investment, therefore, should be made in human capital and organization skills. In other words, it is necessary to create the expertise necessary among local food practitioners to manage single businesses, networks and whole supply chains using a quality-oriented continuous improvement approach. The regulatory framework on food safety, supported by accurate and up-to-date statistics about diseases and food frauds and by a continued effort to increase the availability of information about food safety hazards and risk level, still needs improvement. The competitiveness and innovation are strongly linked with research capacity. Therefore, it is crucial that adequate and consistent effort in research and development of new products to be foreseen in the company strategic planning.



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