SECTORIAL STUDY
RASPBERRY INDUSTRY IN KOSOVO

MJEDRA E KOSOVËS

PRISTINA 2023

Prepared by: Bioks for National Raspberry Association ‘Mjedra e Kosovës’

Supervised by: Lindita Ibishi and Kujtim Lepaja

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TABLE OF CONTENTS

List of tables

List of figures

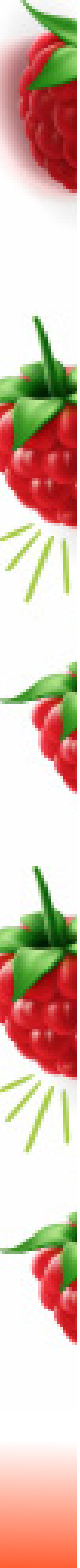
List of abbreviations

ARDP - Agriculture and Rural Development Program

KAS - Kosovo Agency of Statistics

MAFRD - Ministry of Agriculture, Forestry and Rural Development

SPSS - Statistical Package for the Social Sciences



About the National Association “Mjedra e Kosovës”

The raspberry industry in Kosovo has emerged as a vital component of the country’s agricultural landscape, with significant economic implications. At the heart of this industry stands the national association known as “Mjedra e Kosovës”, which plays a pivotal role in fostering and advancing the growth and prosperity of this sector.

¨Mjedra e Kosovës¨ was initially established as a unique and dynamic organization, representing a convergence of small regional associations, essentially acting as producer organizations. This distinctive structure positions “Mjedra e Kosovës” as an “inter-professional” association, bridging various segments of the soft fruit industry in Kosovo. Specifically, the association boasts a diverse membership that includes primary stakeholders encompassing not only producers but also collectors, processors, and exporters, particularly in the realms of raspberry, blueberry, and strawberry production.

Crucially, this dual-pronged membership approach has granted ¨Mjedra e Kosovës¨ the status of a hybrid association, which can aptly be described as both a commodity and a value chain association. By representing the entire spectrum of industry players, from local farmers to international exporters, “Mjedra e Kosovës” mission extends far beyond simply promoting the interests of raspberry growers. It encompasses the broader soft fruit sector in Kosovo, fostering collaboration and synergy among all industry stakeholders.

With its ability to act as a central platform connecting the entire soft fruit value chain, ¨Mjedra e Kosovës¨ plays a vital role in promoting the growth, sustainability, and competitiveness of the raspberry industry in Kosovo. Through its hybrid nature, it serves as a vital link that has the potential to extend its influence even further, facilitating cooperation with tangential industries and contributing to the overall development of Kosovo’s agricultural sector.

About the Raspberry sectorial study

The sectorial study focused on assessing the condition of the raspberry sector in the preceding two years, specifically 2022 and 2023. These two years exhibited notable disparities that may not align with the typical trends in the sector. In 2022, the industry experienced its pinnacle in terms of prices, representing a significant achievement considering the cultivation of raspberries in the Balkans and our country. Conversely, 2023 was characterized by exceptionally low prices. As a result, this report aims to provide a comparative analysis of these contrasting years within the raspberry industry in our country.

Emphasizing its significance, this report serves as valuable information for all stakeholders. Readers are encouraged to complement their understanding by consulting the past reports of the Association ¨Mjedra e Kosoves¨, specifically focusing on the sector's averages over the last 10 years.

Notably, based on the decade-long averages, raspberry cultivation in our country emerges as the agricultural crop yielding the highest profit per farmer.

1. INTRODUCTION

Kosovo, a landlocked country situated in the heart of the Balkans, boasts a rich agricultural heritage that is deeply intertwined with its history, culture, and economic development. The agricultural sector has played a pivotal role in Kosovo's socio-economic landscape, providing livelihoods for a substantial portion of the population and contributing significantly to the nation's GDP. Among the various agricultural endeavors, the raspberry industry has emerged as a notable sector, marked by its growth, quality produce, and export potential.

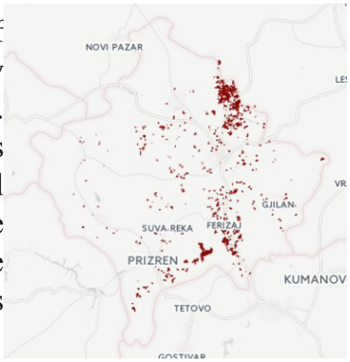


Figure 1: Kosovo raspberry map
Source: Mjedra e Kosovës

1.1 Geographical Position

Kosovo is strategically located in southeastern Europe, with its borders touching Albania to the southwest, North Macedonia to the southeast, Serbia to the north and northeast, and Montenegro to the northwest. Kosovo is positioned in the central part of the Balkan Peninsula (Lat. 42° 34' 59.88" Nand Long. 21° 00' 0.36 " E) and has a surface area of 10,908 km^2. Kosovo is ranked among the top European countries for floristic assets due to its favorable physical and geographical conditions.

This geographical position endows Kosovo with a unique blend of climatic conditions, including a continental climate in the interior and a Mediterranean climate in the southern regions. Such diversity facilitates the cultivation of a wide range of crops and makes it particularly favorable for the production of raspberries.

1.2 Historical Perspective of Agriculture

Agriculture has been at the core of Kosovo's economy and culture for centuries. The region's fertile soil, favorable climate, and a strong tradition of agriculture have historically made it a significant agricultural producer. In the early 20th century, Kosovo was known as the "breadbasket of the Balkans" due to its rich agricultural output. Traditional crops like wheat, corn, barley, and a variety of fruits and vegetables were cultivated by local farmers.

The Kosovo War in the late 1990s had a devastating impact on the agriculture sector. The conflict resulted in the displacement of people, damage to infrastructure, and destruction of farmlands. Many farmers were forced to abandon their fields and livestock. The war disrupted the continuity of farming and left a lasting impact on the sector. Rebuilding the agricultural infrastructure and revitalizing farming practices became a significant challenge in the post-war period. In the post-war period, Kosovo's agriculture sector has made significant strides towards recovery and growth. The country has diversified its agricultural production, not only focusing on staple crops but also investing in high-value horticultural crops like raspberries, which have gained prominence in recent years.

Dairy and livestock farming, as well as viticulture, have also seen growth. Additionally, there is an increasing emphasis on organic and sustainable agriculture practices.

One of the success stories within Kosovo's agricultural sector is the raspberry industry. Raspberry cultivation has gained prominence and is now a leading horticultural activity in the country. Kosovo's unique geographical position and climate, combined with the dedication of local farmers, have paved the way for raspberry production to flourish. In recent years, the raspberry sector has proven to be one of the economically significant fruits. Despite being cultivated on a small scale, it has the potential for significant expansion, considering the favorable natural conditions, and it can provide ample quantities for both the local market and export. According to data from the Kosovo Agency of Statistics the cultivated area of raspberries has significantly increased over the years. The raspberry industry in Kosovo is marked by several key features:

Quality Produce: Kosovo is known for producing high-quality raspberries, which are favored in international markets for their flavor, size, and freshness.

Export Potential: The raspberry industry in Kosovo has increasingly become export-oriented, with a growing share of its produce being sold in foreign markets, particularly in European countries.

Economic Contribution: The raspberry industry contributes significantly to Kosovo's economy, creating employment opportunities and boosting rural incomes.

Challenges and Opportunities: While the raspberry industry has seen remarkable growth, it faces challenges related to infrastructure, technological adoption, and market access. Nonetheless, it presents substantial opportunities for expansion and further integration into global supply chains.

Since the 1970s, raspberries, as a crop, have been present in Kosovo; which were cultivated in very small areas (plots) that resembled family gardens. Since 2012, it is cultivated commercially and it is an agricultural crop that is almost exclusively dedicated to export, mainly to EU countries. Such a rapid spread (dissemination) for a short period of time in Kosovo, have been enabled by several factors: the prevalence proper agro-ecological conditions for raspberry cultivation, a very high demand in world markets, contracted (safe) sales opportunities, very high profitability, rapid return on investment, cheap labor force, increase of freezing capacities, etc.

Berry industry in Kosovo has experienced a rapid growth in the last 6 -7 years. The cultivated area, storage capacities and the export are increasing, which is leading to a higher raspberry production. Great interest from municipalities, MAFRD (Ministry of Agriculture, Forestry and

Rural development) and other donors to invest and support these value chains, which has resulted in great success for farmers as well as for the collection centers. Newly introduced varieties have been very encouraging for farmers due to high yields ranging from 8-12 t per ha, during the extra harvesting years.

New production technology and new packages were introduced by the international donors' in the field of agriculture. They supported the development of the sector on the all-value chain aspects, with special emphasis on supporting on export promotion to the exporters and building of the capacities to the national berry association "Mjedra e Kosovës" staff.

In 2018, raspberries cultivation covered 1,537 hectares, which is an increase of 306 hectares compared to 2017. In 2011, in Kosovo there were cultivated about 20 ha with raspberries, while, in 2020 the surface increased significantly, and reached up to 1500 ha. In Kosovo from 2014 – 2020, around 30,000 metric tons of raspberries are produced, and the average production for these 7 years, showed to be 4200 metric tons annually. Almost all of this amount is dedicated for export markets, to the EU countries, especially to Germany. In 2020, around 4000 tons of raspberries were produced locally (1.8 €/kg was farm gate price, while, export price was 2.7 €/kg).

Kosovo has a raspberry industry oriented 90 % with primo cane cultivars, comparing with the other Balkan countries which mainly cultivate floricane cultivars. Currently the dominant raspberry cultivar in Kosovo is Polka with a tendency to replace with the new cultivar called Delniwa, but to be mentioned that in the mountainous areas, are cultivated mainly the floricane cultivars (Miker and Willamette). It is worth mentioning that except the cultivars mentioned which are grown in Kosovo, several other cultivars were also tested to see if they are suitable for our agro-climatic conditions.

1.3 The general economic environment

Taking into account the global increase in food demand, agriculture represents a highly strategic sector of Kosovo's economy, contributing 6.9 % to the GDP. Despite the significant importance of agricultural development for food security and rural area growth, numerous obstacles hinder the sustainable growth of this sector. These obstacles include underdeveloped infrastructure, inadequate market access, insufficient technology adoption, and the quality of education and social services. Rural development is the process of improving the quality of life and economic well-being of people living in rural areas through the utilization of natural resources, such as agriculture and forestry, and other activities. Agriculture in Kosovo is characterized by small to medium-sized farms, where approximately 90 % of farms have an area of less than 5 hectares. This is a critical factor directly influencing low productivity and increasing production costs. In total, the cultivated agricultural land area in 2021 was 420,327 hectares.

In terms of land use categories, arable land, which includes open-field crops and vegetables, accounts for 44.8 % of the total agricultural land. Tree plantations make up

2.4 %, vineyards 0.8 %, meadows and pastures (including common land) cover 51.7 %, and gardens represent 0.3 %. The sustainable development of the agriculture sector in Kosovo is vital not only for ensuring food security but also for enhancing the economic well-being of rural communities and addressing the challenges and obstacles currently impeding its progress. The economy of Kosovo experienced significant growth in 2021, rebounding from the contraction it faced in 2020 due to the impact of the COVID-19 pandemic. Preliminary assessments by the Kosovo Agency of Statistics (ASK) indicate that Kosovo's economy grew by 10.5 % in 2021. This robust economic activity was attributed to the improvement in the health crisis and supportive financial and fiscal policies.

The components that contributed to the high economic growth in 2021 included a 7.8 % increase in consumption, a 10.2 % growth in investments, and a relatively slower growth in the net export deficit (1.9 %). The overall demand growth resulting from economic recovery, as well as dynamics in the prices of key commodities in international markets, led to inflationary pressures in Kosovo. The average annual inflation rate in 2021, expressed through the Consumer Price Index, was 3.4 %, with transportation costs and food prices playing a significant role. As a result of the high economic activity, the fiscal sector saw a higher increase in budget revenues compared to expenditures. Budget revenues in 2021 reached a net value of 2.20 billion euros, representing a yearly growth of 27.1 %, while budget expenditures amounted to 2.27 billion euros, indicating a yearly growth of 2.3 %.

This sectoral analysis delves into the various facets of the raspberry industry in Kosovo, providing a comprehensive overview of its current state, challenges, opportunities, and the strategies that can be employed to ensure its continued success and growth in the future. In the subsequent sections of this analysis, we will explore the historical development of the raspberry industry in Kosovo, the current production trends, market dynamics, and the policy environment that shapes this vital sector. Additionally, we will examine the potential for sustainable growth, technological advancements, and the competitive positioning of Kosovo's raspberry industry on the international stage.

The primary objective of this study was to assess the existing collection and processing facilities provided by collection centers concerning the raspberry production capacities of farmers. After conducting an on-site evaluation, the study aims to offer recommendations for areas requiring intervention and delineate the responsibilities of key stakeholders within this sector. This delineation takes into account the present condition of the sector, which has witnessed rapid expansion in raspberry cultivation across Kosovo.

Initially, the study compiles data regarding the leading processing companies by utilizing questionnaires prepared by the National Raspberry Association "Mjedra e Kosovës". These questionnaires encompass all the parameters pivotal to understanding the sector's development and challenges. This study adopts a developmental perspective that emphasizes the significance of the soft fruits sector's growth and its repercussions on the broader agricultural landscape and economic progress. Special attention is dedicated to its impact on rural areas, reduction of unemployment, and containment of urban migration. Additionally, the study underscores the government's support initiatives for berry sector producers, drawing comparisons with other sectors as well.

2. METHODOLOGY

A sectoral analysis is a comprehensive study aimed at understanding and assessing a specific industry or sector, in this case, the agricultural sector in Kosovo, with a particular focus on farmers and collection centers. To conduct this analysis effectively, a well-structured methodology is crucial. The research primarily centered on the evaluation of farmers and collection centers' infrastructure, market dynamics, and the operational and market access challenges that were prevalent in this sector during the period of 2022-2023. The data were analyzed in SPSS version 21.

The following is an outline of the methodology for the sectoral analysis, which is divided into two parts: one focusing on farmers and the other on collection centers.

Part 1: Farmer Survey

Research Objectives

- To assess the current state of raspberry farming in Kosovo.
- To identify the main challenges and opportunities faced by raspberry farmers.
- To understand the economic and environmental sustainability of raspberry farming practices.
- To provide recommendations for the improvement and growth of the raspberry farming sector in Kosovo.

Sample Selection

- Identify and select a representative sample of 25 farmers from different regions in Kosovo.

Data Collection

- Conducted interviews with the selected farmers to gather primary data.
- Collected information on farm size, crops, production practices, market trends, prices, challenges, government support and access to resources.

Data Analysis

- Analyze the collected data to identify trends, patterns, and common challenges among farmers.
- Assess the economic impact and sustainability of their agricultural practices.

Recommendations

- Formulate recommendations for policy changes or support mechanisms to address the challenges faced by farmers.

Part 2: Collection centers Survey

Research Objectives

- To assess the current state of raspberry industry in Kosovo.
- To identify the main challenges and opportunities faced by raspberry collection centers.
- To understand the economic and environmental sustainability of raspberry industry practices.
- To provide recommendations for the improvement and growth of the raspberry industry sector in Kosovo.

Sample Selection

- Identify and select a representative sample of 16 collection centers from different regions in Kosovo.

Data Collection

- Conducted interviews with the selected collection centers to gather primary data.
- Collected information on export, market trends, prices, challenges, government support and access to resources.

Data Analysis

- Analyze the collected data to identify trends, patterns, and common challenges.
- Assess the economic impact and sustainability of their industrial practices.

Recommendations

- Formulate recommendations for policy changes or support mechanisms to address the challenges faced by collection centers.

Synthesis and Report

- Synthesized the findings from both parts of the analysis, highlighting key findings and recommendations.
- Prepared a comprehensive report that presents the results, insights, and actionable recommendations for policymakers, stakeholders, and the broader community.

The success of this sectoral analysis relies on a rigorous methodology that ensures data accuracy, meaningful analysis, and practical recommendations for the agricultural sector in Kosovo. It is essential to involve stakeholders, including farmers, collection center operators, and policymakers, throughout the research process to gain valuable insights and support for the proposed recommendations.

3. RESULTS FROM FARMERS

3.1 Descriptive statistics for farmers

Raspberry sector is one of the agricultural crops that fall under the category of minor crops and has recently emerged as a highly profitable crop in Kosovo. As such, it represents one of the strategically important crops with the potential for expanding cultivated areas, increasing productivity, and simultaneously exporting this product to different countries. The cultivation of this crop significantly contributes to reducing unemployment in rural areas, boosting individual farm incomes, and, in turn, can positively impact social well-being and revitalize economic development in rural regions. In this section, we delve into descriptive statistics to gain a comprehensive understanding of the demographic, operational, and production characteristics of the farmers involved in raspberry cultivation in Kosovo for period 2022 - 2023. By analyzing the data gathered from our farmer surveys, we aimed to paint a detailed and insightful picture of the farmers driving this vital sector of Kosovo's agricultural. The table below provides a summary of key sample characteristics for a dataset comprising 25 farmers. The variables analyzed in the dataset are as follows:

Age: The average age of the sample is approximately 43.04 years, with a standard deviation of 11.055. **Experience**: On average, individuals in the sample have 6.92 years of experience, with a standard deviation of 2.886, reflecting the variability in years of professional experience.

Education: The sample exhibits an average education level of 2.56, with a standard deviation of 0.768. This demonstrates the diversity in educational backgrounds within the sample.

Table 1: Descriptive Statistics

	N	Sum	Mean	Std. Deviation
Age	25	1076	43.04	11.055
Experience	25	173	6.92	2.886
Education	25	64	2.56	.768

The data collection locations in the sample were diverse, with significant representation from various regions. Specifically:

Podujeve/Podujevo: Approximately 40 % of the interviewed farmers were from the Podujeve/Podujevo region, signifying the largest geographical contributor to the sample. The Prishtine/Pristina region accounted for 24 % of the sample, demonstrating a substantial presence within the dataset.

Shterpce/Strpce, Kamenice/Kosovska Kamenica, and Istog/Istok, each of these regions, Shterpce/Strpce, Kamenice/Kosovska Kamenica, and Istog/Istok, contributed approximately 8 % to the sample, showcasing notable representation.

Ferizaj/Urosevac, Dragash/Dragas and Kline/Klina, each had 4 % representation in the dataset, reflecting their role in the data collection. This distribution provides valuable insights into the geographic diversity of the interviewed farmers and their respective regional affiliations, with the majority hailing from Podujeve/Podujevo and Prishtine/Pristina, and other regions making significant contributions as well (Figure 2).

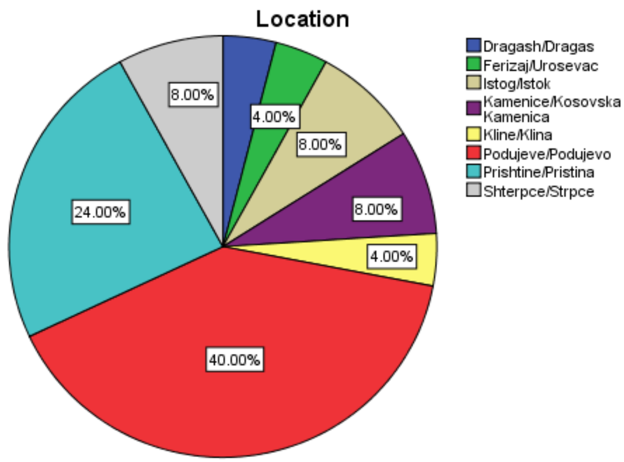


Figure 2: Data collection locations

3.2 Workforce (permanent and seasonal)

According to the Labor Force Survey results, two-thirds of the population in Kosovo are in the working-age population. Within the working-age population, the labor force participation rate is 39.5 %. The employment rate for the first quarter (Q1) of 2021 is 29.3 %. The highest employment rate is among males at 42.8 %, while the employment rate for females is 15.9 %.

Females are mainly employed in the education, trade, and healthcare sectors, accounting for 53.0 % of them, while males are primarily employed in the construction, trade, and production sectors, making up 43.1 % of them. The leading economic sectors in terms of employment continue to be trade with 16.8 %, production with 12.4 %, education with 11.1 %, and construction with 9.4 %. Other sectors have a smaller share of employment. Regarding those employed with contracts, it is revealed that 44.0 % of employed individuals have permanent contracts in their primary jobs, while 56.0 % have temporary contracts.

According to the results of the Labor Force Survey, in Q1 2021, the unemployment rate is 25.8 %. Female unemployment is more pronounced at 29.7 % compared to males at 24.2 %. The highest rate of unemployment is among the age group of 15-24 years, with 48.6 %.

This section of the study focuses on the workforce engaged in the raspberry farming sector, encompassing both permanent and seasonal labor. Understanding the composition, roles, and dynamics of the workforce is essential for comprehending the human resources driving this agricultural domain. Raspberry farming, like many other agricultural activities, relies heavily on a workforce that includes both permanent and seasonal labor.

The permanent workforce typically comprises individuals who are engaged in year-round tasks related to raspberry cultivation, including maintenance, infrastructure development, and management. On the other hand, the seasonal workforce is essential for activities that demand intensive labor during specific periods of the agricultural cycle, such as planting, harvesting, and processing.

The year 2023 for the raspberry sector has been accompanied by many problems regarding the climatic conditions, the market and constant price fluctuations. This has also reflected in the decline of the workforce in this sector. The following table provides a comparison of the number of workers in different categories between the years 2022 and 2023.

Table 2: Workforce (permanent and seasonal)

2022		2023		Differences
Number of workers* Full Time	43	Number of workers* Full Time	39	- 3.90
Number of workers* Part Time	156	Number of workers* Part Time	127	- 18.59
Number of workers* Female	201	Number of workers* Female	96	- 52.74
Number of workers* Male	98	Number of workers* Male	70	- 28.57
Number of workers* Minority	16	Number of workers* Minority	14	- 12.50

In 2023, the number of full-time workers decreased by approximately 3.90 % compared to 2022. This reduction suggests a slight decrease in the need for full-time workers within the specified timeframe. The year 2023 witnessed a significant decrease of approximately 18.59 % in the number of part-time workers when compared to 2022. This reduction indicates a substantial shift in the workforce structure, and it is essential to explore the reasons behind this change and its potential impact on operations.

The most noteworthy change occurred in the number of female workers, which decreased by about 52.74 % in 2023 compared to 2022. In 2023, the number of male workers decreased by approximately 28.57 % compared to 2022. The number of minority workers also experienced a reduction of about 12.50 % in 2023 compared to the previous year.

The majority, accounting for approximately 74.5 % of the workforce, falls within the age range of 18 to 45 years. This suggests that a significant proportion of the workforce is composed of younger individuals. In contrast, the remaining employees, roughly a quarter of the total, fall within the age group of 45 to 65 years.

The results highlight the average duration of commitment from seasonal workers in the two consecutive years, 2022 and 2023. In 2022, seasonal workers were committed for an average of 2.92 months per year, indicating the typical length of their employment during that period. However, in 2023, there was a slight decrease in this commitment period, with seasonal workers being employed for approximately 2.64 months per year on average.

3.3 Raspberry cultivation

Raspberry cultivation, serving as a cornerstone within Kosovo's agricultural sector, occupies a central position in the nation's economic and food security framework. Within this section, we offer a thorough analysis of critical aspects, including the geographical regions where cultivation occurs, the yield per hectare, adherence to good agricultural practices, the diversity of raspberry varieties and the cost of production.

Currently there are 1300 hectares of cultivated raspberry and 150 hectares with blueberries throughout Kosovo. Considering the biological and agro ecological aspects, technical and technological requirements, utilization diversity, and marketing potential, raspberries is a crop with significant development possibilities in the conditions of Kosovo. Raspberries production in Kosovo is currently experiencing a rapid growth period. Raspberries are being cultivated throughout Kosovo, with the highest production areas being Podujeve/Podujevo, Ferizaj/Urosevac, Shterpce/Strpce and other regions in Kosovo.

Unfavorable weather conditions, such as droughts, excessive rainfall or extreme temperatures, have negatively affected the yields of raspberries in 2023. This has affected the increase in farmers' dissatisfaction and the failure to harvest the product. But despite this, from the table below it can be seen that in 2023 there was a slight increase in the cultivated area. The table compares the cultivated area and the quantity of production for the years 2022 and 2023. In 2022, the cultivated area was 28.13 hectares, which increased to 29.88 hectares in 2023. Conversely, the quantity of production decreased from 170.5 tons in 2022 to 95.31 tons in 2023.

Table 3: Raspberry cultivation

2022		2023	
Cultivated Area * Ha	28.13	Cultivated Area * Ha	29.88
Quantity of production * T	170.5	Quantity of production * T	95.31

Based on this study the predominant cultivated variety is Delniwa, which is the primary choice of 40 % of the interviewed farmers. Additionally, 24 % of farmers have opted to cultivate both Delniwa and Polka, while 16 % have chosen to grow both Delniwa and Mapema.

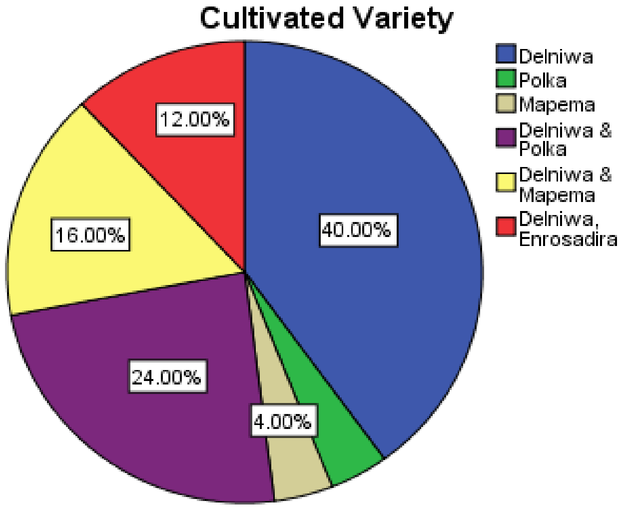


Figure 3: Cultivated Variety

There are also several other varieties, such as Endrosadira, Mapema, Miker, and Tulamen, though they have a smaller representation in terms of cultivated participation. Above is the graph for the cultivated varieties.

Raspberry farming is a vital component of the agriculture sector, contributing to the fresh produce market and the production of processed goods like jams and desserts. To secure the prosperity and sustainability of raspberry cultivation, adopting best agricultural practices is essential. These practices encompass various techniques and guidelines aiming to optimize yield, quality, and environmental responsibility.

However, in Kosovo, there exists a notable challenge where farmers have not given sufficient attention to adopting best agricultural practices and adhering to safety standards, such as Global G.A.P. certification. In our survey directed at farmers, when asked about their adherence to food safety standards, 84 % responded negatively, indicating a lack of compliance, while a mere 16 % confirmed their commitment. All 4 farmers, who reported, that they are implementing agricultural standards chose to adopt the Global G.A.P. standard.

Furthermore, due to ongoing training and field consultations, farmers have recognized the significance of conducting soil and water analyses. Among the interviewed farmers, 80 % have attested to conducting soil and water analyses in the past 2 years, while 20 % have admitted to not carrying out such assessments. The results are provided in two graphs: Figure 4 & Figure 5 (see below).

In addition to enhancing raspberry yield and quality, best agricultural practices are pivotal in mitigating environmental impact and ensuring the long-term sustainability of raspberry farming in Kosovo. By fostering a culture of continuous learning and improvement, farmers can harness the benefits of these practices, not only increasing their crop's profitability, but also contributing to a greener and more responsible agricultural landscape.

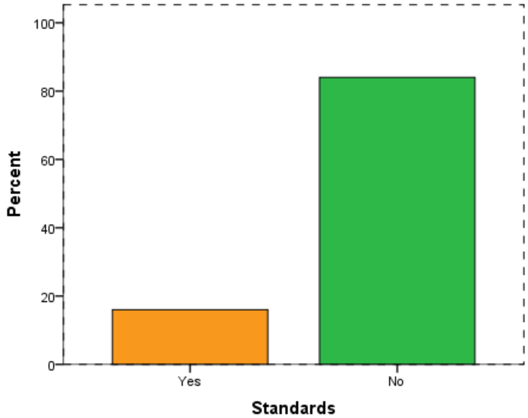


Figure 4: Food safety Standards

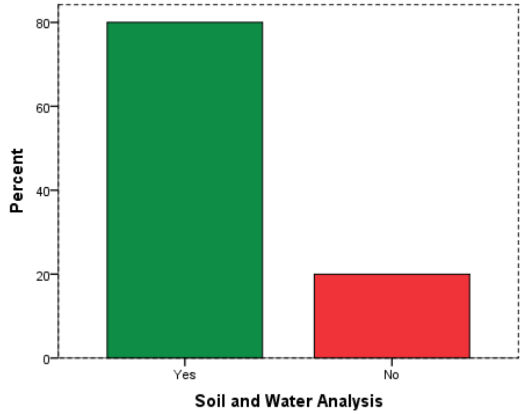


Figure 5: Soil and water analysis

The inputs related to the upkeep of a raspberry plantation play a pivotal role in ensuring both the safety and the prosperity of this agricultural sector. These encompass a multitude of activities and factors that require regular attention to guarantee that raspberry cultivation remains productive, of high quality, and environmentally sustainable. In terms of maintaining the raspberry plantation, we have compiled data regarding labor expenses, the management of undesirable vegetation, fertilization, irrigation, and land rent.

The total maintenance costs for agricultural of the raspberry plantation's operations amounted to 72,930 Euros. Considering that the total area cultivated with raspberries in 2023 amounted to 29.88 hectares, the average maintenance cost for one hectare of raspberry cultivation is approximately 2,442.69 Euros.

In the context of the agricultural operations of the raspberry plantations for the year 2023, a summary of the total costs is presented in the following table.

Table 4: Average cost of maintenance of raspberry plantation

	Sum	Std. Deviation
Total Area cultivated in 2023 * Ha	29.88	1.74353
Total maintenance costs * €	72930	5497.911

The automated equipment section encompasses a crucial aspect of modern agricultural practices, where advanced technology and machinery play a significant role in optimizing efficiency and precision within the agricultural process. In the context of automated equipment in agriculture, the data shows that 40 % of respondents have adopted automated equipment, while the remaining 60 % have not. This shows that a significant proportion of the individuals surveyed have integrated automation into their agricultural practices, demonstrating an increasing trend in the adoption of advanced technology and machinery within the agricultural sector. The equipment that is used the most in the raspberry sector is the cultivator, scythe, sprinkler, and automated irrigation system.

3.4 Market Trends

Market trends within the raspberry industry are shaped by a multitude of factors, encompassing price fluctuations, global occurrences, and the evolving landscape of product sales. During the local raspberry production period, Kosovo can meet the local consumption needs, as indicated by local expert assessments. According to these experts, approximately 96 % of the gathered raspberries production is destined for export through collection points, while only 4 % is available as fresh produce for local consumption and processing.

The chapter "3.4. Market Trends" provides an extensive exploration of the significant components characterizing market trends and sectoral transformations. These encompass:

- **Price Fluctuations**
- **Selling Products Form**
- **Sales Destinations**
- **Market Changes Following the Ukrainian Conflict**
- **Demand from the EU**

3.4.1 Price Fluctuations

Raspberry market prices are subject to constant variations driven by supply and demand forces, seasonal oscillations, and external influences. This segment scrutinizes the fluctuation patterns, identifies the primary factors governing these shifts, and evaluates their repercussions on raspberry farming profitability. The impact of the the Russia's war on Ukraine has had an unfavorable effect on farmers in the raspberry sector, as they have faced a significant drop in the price of raspberries in the international market this year. Based on the data in the table, it can be observed that in 2022, the prices for Extra Class and First Class raspberries were 3.20 Euros and 2.50 Euros, respectively. However, in 2023, these prices have declined to 1.30 Euros for Extra Class and 1.10 Euros for First Class. In 2022, the price of Extra Class raspberries was 3.20 Euros, which decreased to 1.30 Euros in 2023. Similarly, the price of First Class raspberries dropped from 2.50 Euros in 2022 to 1.10 Euros in 2023.

Table 5: The prices in Euros for Extra and First Class of Raspberries in 2022 and 2023

2022		2023		Differences	
Extra Class	First Class	Extra Class	First Class	Extra Class	First Class
3.20	2.50	1.30	1.10	- 59.37 %	56 %

3.4.2 Sales Destinations

The destinations where raspberries are sold play an instrumental role in shaping market trends. This section investigates the regional and international markets where raspberries from Kosovo are distributed, analyzing the significance of various marketplaces and their influence on the sector's profitability. Regarding the sales destinations for the raspberry production, the data collected from interviewed farmers reveals the following distribution: 11.08 % of the farmers sell their produce in the local market, 83.72 % deliver their products to collection points, a single farmer (1.20 %) processes their products, and approximately 4 % of the produce is used for family consumption.

Selling raspberry produce in the local market as a fresh product is profitable for farmers. However, the price for fresh raspberries has experienced a decline. From approximately 4 Euros in the previous year, this year the price has been 3 Euros. For more details, please refer to the table below.

Table 6: Price for fresh raspberries

2022		2023	
Price for the fresh raspberries * €	3.95	Price for the fresh raspberries * €	3.00

3.4.3 Market Changes Following the Russia´s War on Ukraine and Demand from the EU

The global agricultural milieu, including raspberry markets, can be profoundly reshaped by geopolitical happenings. The Russia's war on Ukraine has disrupted regional trade networks and supply chains, influencing market dynamics. The war has drastically reduced grain exports from Ukraine and fertilizer exports from Russia, severely affecting countries dependent on these imports, The conflict has also led to shortages and increased prices in natural gas and key metals, impacting Europe and the U.S.

Overall, the Russia's war on Ukraine impact on the raspberry sector in Kosovo is part of a larger, multifaceted issue that influences the agricultural market dynamics, trade relationships, and the overall economic landscape. It underscores the interconnectivity of the glob- al market and the need for adaptability and resilience in the face of unforeseen

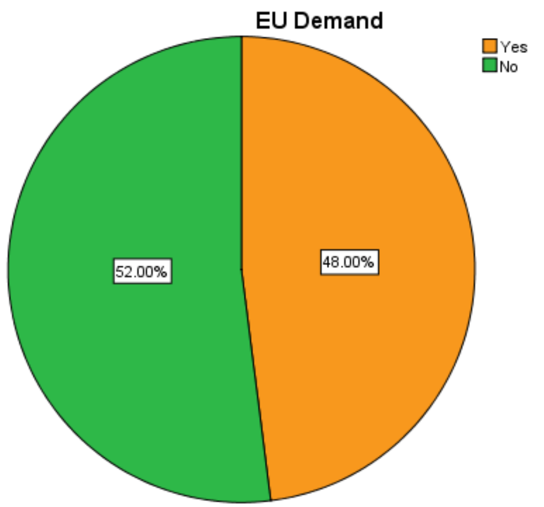


Figure 6: Increase the demand from EU countries

external factors. All interviewed farmers have stated that the Russia's war on Ukraine has had a negative impact on the development of the raspberry sector in Kosovo for the year 2023, thereby influencing the decline in prices and reduced demand for Kosovo's raspberries.

The European Union (EU) represents a significant market for raspberry products. This portion scrutinizes the demand for raspberries from EU member states, evaluating the market dynamics, preferences, and potential growth prospects within this important trading bloc. In response to our inquiry regarding the impact of the Russia's war on Ukraine on raspberry demand from European Union (EU) countries, 48 % of farmers reported an increase in demand from these countries, while 52 % indicated that there was no discernible increase.

3.5 Government support

Government support is of paramount importance to raspberry farmers and the broader agricultural sector. Raspberry farming, like many agricultural endeavors, requires a conducive environment to thrive and realize its full potential. Government support plays a vital role in creating this enabling environment. It encompasses various forms of assistance, including financial incentives, infrastructure development, research and extension services, and policy formulation. Compared to the regional countries, Kosovo has already developed an advanced structure for supporting agriculture development through the grant support, provided by Agency for Agriculture Development.

Initially the Agricultural and Rural Development Program (ARDP) was approved by the Kosovo Parliament in 2007 for the period 2007-2013, which was later updated for the period 2009-2013. Taking into account the extension coverage of the ARDP in respect to the direct payments, involvement and the follow-up objectives in the sector of sustainable agricultural and rural development, MAFRD supported by a twinning project compiled the new ARDP updated program 2010-2013. Since 2014, the Agriculture and Rural Development Program is based annually on Agriculture and Rural Development Strategy for the period 2014-2020. Since 2007 there has been a significant improvement of financial support from the Government of Kosovo and the international donor community for the agriculture sector.

In terms of subsidy recipients among the surveyed farmers, the data reveals that 84 % of the respondents have received subsidies, while the remaining 16 % have not received subsidies. This signifies that a substantial majority of the surveyed farmers have benefited from government or financial support in the form of subsidies. These subsidies can be pivotal in sustaining and promoting agricultural activities, contributing to the sector's overall stability and development.

In terms of assessing the impact of subsidy schemes on key indicators such as "Increasing Farm Income," "Employee Growth," and "Boosting Exports," the data can be summarized as follows: A noteworthy 75 % of the respondents (18 out of 24) reported

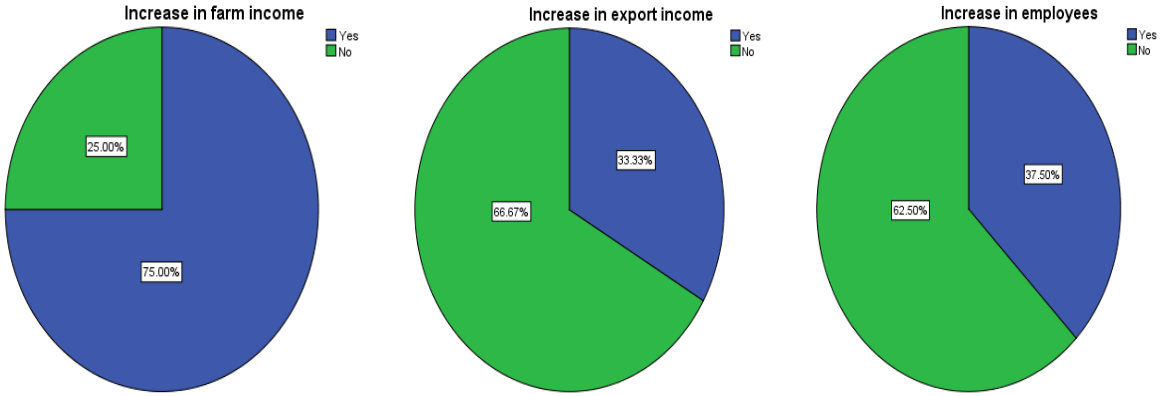


Figure 7: Impact of subsidies schemes on key indicators

a positive increase in their farm income, demonstrating a substantial impact of subsidies in boosting financial outcomes for farmers. Conversely, 25 % (6 out of 24) did not observe such an increase, indicating that there is room for further improvement. In terms of employment, 37.5 % of respondents (9 out of 24) noted an increase in the number of employees on their farms, signifying that subsidies have played a role in job creation.

Figure 7 illustrates the impact of subsidies schemes on the key indicators. In contrast, 62.5 % (15 out of 24) did not experience such employment growth, highlighting potential areas for enhanced impact. Regarding export income, 33.3 % of respondents (8 out of 24) saw an increase in their export earnings due to subsidies. This suggests that subsidies have positively influenced international trade. However, 66.7 % (16 out of 24) did not observe a boost in export income, indicating the need for strategies to further enhance the impact of subsidies on exports.

To visually represent these findings, the results are graphically illustrated (Figure 8) as follows: Regarding the level of satisfaction with institutional support, 24 % of respondents have expressed a "Very good" level of appreciation for the subsidization schemes, 52 % have rated it as "Good," and 24 % have remained "Neutral" regarding the impact of this support.

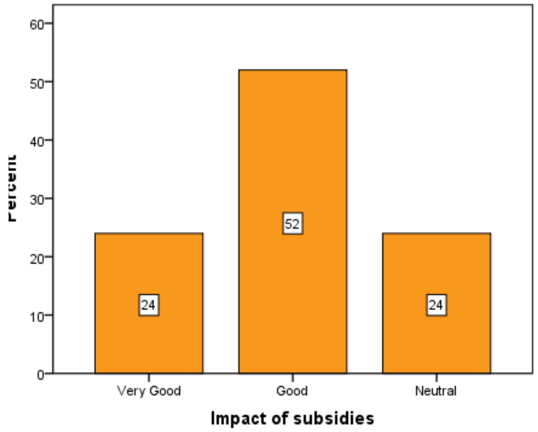


Figure 8. Impact of subsidies

When farmers were asked about the changes they would like to see in terms of institutional support, they provided several suggestions:

- Establishing a reserve fund for the raspberry sector to address crises and provide support when needed;
- Increasing the subsidy rate per kilogram from 0.15 Euros to 0.50 Euros;
- Implementing training programs to enhance farmers' knowledge and skills in raspberry cultivation and post-harvest practices;
- Facilitating access to affordable and advanced agricultural technologies to improve productivity;
- Creating a platform for knowledge sharing and collaboration among raspberry farmers to foster innovation and best practice exchange;
- Enhancing marketing and distribution channels to expand market access for raspberry products, both domestically and internationally;
- Improving access to credit and financial services to support investments in raspberry farming;
- Implementing measures to address climate change impacts, such as drought-resistant varieties or water management strategies.

3.6 Climate changes

Climate change is an ever-growing concern with far-reaching consequences for various sectors, and the raspberry industry is no exception. Here's a description of the effects of climate change on the raspberry sector. Climate change poses multifaceted challenges to the raspberry sector, impacting temperature, rainfall, pests, diseases, and frost events. Adaptation and resilience strategies are essential to ensure the continued productivity and sustainability of raspberry farming in a changing climate.

In the year 2023, in addition to challenges related to prices and market fluctuations, adverse climatic conditions have also had a significant negative impact. Excessive rainfall and exceptionally high temperatures have inflicted substantial damage on farmers' yields. The extent of damage to plantations due to these climatic conditions varies from 15 % to 100 %.

Farmers have acknowledged the impact of climate change in Kosovo, particularly within the raspberry sector. They have suggested that to mitigate the effects of these changes, addressing several issues is crucial. Of the surveyed farmers, 52 % have recommended that these changes can be reduced by implementing hail protection systems and cultivating resistant varieties.

28 % have emphasized the importance of installing rainwater harvesting systems, and a smaller percentage have considered other possibilities such as digital weather stations and hail protection systems. This reflects a recognition among farmers that proactive measures are needed to adapt to and mitigate the impacts of climate change, with a focus on both technology-based and crop-related solutions.

3.7 Challenges of the sector

The raspberry sector in Kosovo encounters a multitude of complex challenges that impact its overall sustainability and growth. These challenges encompass various dimensions, including economic, labor, knowledge, and environmental factors.

- Financial Resources: One of the primary challenges lies in the availability and accessibility of financial resources. Many raspberry farmers struggle to secure the necessary funding for investments, equipment, and operational expenses. This financial constraint can limit their ability to expand and optimize their operations.
- Workforce Issues: The sector faces workforce-related challenges, including the availability of skilled labor and seasonal workers. Ensuring an adequate workforce during peak seasons and addressing labor shortages are vital concerns for raspberry growers.
- Training and Expertise: The need for continuous training and expertise is evident. Raspberry farmers require access to knowledge and technical know-how to improve cultivation practices, post-harvest handling, and pest and disease management. Enhancing expertise in the sector is crucial for increasing productivity and quality.
- Climate Change Impacts: Climate change poses a significant threat to the raspberry sector. Increasing temperatures, irregular rainfall patterns, and extreme weather events can affect crop yields and quality. Adapting to these changes and implementing strategies to mitigate their impact are pressing challenges.
- Market Volatility: The sector is susceptible to market fluctuations, affecting prices and demand. Market access, distribution, and market diversification are critical aspects that require attention to stabilize and expand the sector’s income potential.
- Resource Management: Effective resource management, particularly in terms of water and soil, is essential for sustainable raspberry cultivation. Efficient irrigation practices and soil conservation methods are integral to long-term success.
- Pest and Disease Control: Raspberry plants are susceptible to various pests and diseases. Implementing integrated pest management strategies and disease prevention measures are vital for maintaining healthy crops.
- Access to Technology: Keeping up with advancements in agricultural technology is a challenge. Access to modern equipment, digital tools, and precision farming technologies can significantly enhance productivity and efficiency.

- Market Access: Accessing markets, both domestic and international, and complying with quality and safety standards can be complex. Ensuring that raspberries meet market requirements is essential for market competitiveness.
- Regulatory and Institutional Support: Aligning regulatory frameworks and accessing institutional support, such as subsidies and grants, can be challenging but essential for the sector's development.

Some of the key challenges identified by the interviewed farmers are ***Access to Finance***, ***Labor Shortages*****,** and ***Lack of Agricultural Insurance***, accounting for 24 % of responses. ***Labor Shortages*** and ***Climate Changes*** make up 20 %, while ***Climate Changes*** and ***Lack of Agricultural Insurance*** constitute 16 %. Other percentages can be observed in the table below.

Table 7: Challenges of the sector

Challenges	Percentage of Responses
Access to finances, Labor shortage, Lack of agriculture insurance	24 %
Labor shortage & Climate changes	20 %
Climate change & Lack of agriculture insurance	16 %
Labor shortage, Climate changes, Lack of agricultural insurance	12 %
Access to finances	12 %
Access to markets	8 %
Labor shortage	4 %
Expertise and training	4 %

4. RESULTS FROM COLLECTION CENTERS

4.1 Descriptive statistics for collection centers

In this section, we provide an overview of general collection centers information, covering various aspects that pertain to the business environment. This section typically includes information on the location of the companies, the education of the representatives of the companies, and the experiences in the raspberry industry. In total, 16 collection centers were visited during the data gathering process.

The visits conducted at the collection points have this geographic distribution, and the data is organized for each city. The data indicates that 6.3 % of the visits were conducted in Prishtine/Pristina.

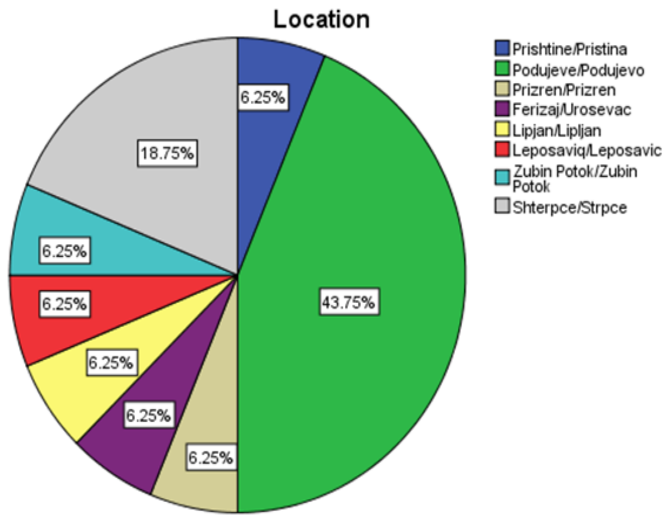


Figure 9. Data collection locations

The majority, comprising 43.8 % of the visits, took place in Podujeve/Podujevo 6.3 % of the visits were carried out in Prizren/Prizren. Another

6.3 % of the visits were in Ferizaj/Urosevac.

Collection center was observed in Lipjan/Lipljan during 6.3 % of the visits. The data reflects that 6.3 % of the visits were made in Leposaviq/Leposavic and 6.3 % of the visits were conducted in Zubin Potok/Zubin Potok. The around percentage, constituting 18.8 % of the visits, occurred in Shterpce/Strpce.

In terms of education, the respondents exhibit diverse educational backgrounds, as outlined in the following distribution: 37.5 % of the participants hold secondary education qualifications. 50 % of the respondents have completed university education, 12.5 % of the participants have pursued postgraduate studies. This distribution provides an overview of the educational attainment of the surveyed individuals, illustrating a mix of secondary, university, and postgraduate qualifications within the sample.

Table 8: Education of the representatives of the collection centers

	Percent	Valid Percent	Cumulative Percent
Secondary Education	37.5	37.5	37.5
University	50.0	50.0	87.5
Postgraduate	12.5	12.5	100.0
Total	100.0	100.0	

The results below provide insights into the range, central tendency, and variability of the participants' experiences. The minimum value of 4 suggests that there are respondents with a relatively lower level of experience, while the maximum value of 30 indicates that some respondents have a more extensive experience. The mean experience is 11.94, representing the average experience level within the sample (Table 9). Regarding the business status of the surveyed participants, 93.8 % indicated that their business is registered as a Limited Liability Company (L.L.C.), while 6.3 % reported being part of a Cooperative.

Table 9: The experience in raspberry industry

	N	Minimum	Maximum	Mean	Std.
Experience * years	16	4	30	11.94	9.015

4.2 Workforce (permanent and seasonal)

This section of the report delves into the crucial aspect of workforce composition within the raspberry farming sector. It examines the roles and contributions of both permanent and seasonal labor in the industry, shedding light on the dynamics and challenges associated with managing this workforce. The condition of the raspberry sector in 2023 has posed challenges, primarily due to adverse climatic conditions affecting production, market volatility induced by the repercussions of the conflict in Ukraine, and concurrent issues related to the labor force. In the following table, you can observe the comparisons of active workforce in the raspberry sector for the year 2023 in comparison to 2022.

Table 10: Workforce (permanent and seasonal)

2022		2023		Differences
Number of workers* Full Time	168	Number of workers* Full Time	153	- 8.93
Number of workers* Part Time	425	Number of workers* Part Time	422	- 0.71
Number of workers* Female	447	Number of workers* Female	459	- 2.68
Number of workers* Male	146	Number of workers* Male	116	- 20.55
Number of workers* Minority	158	Number of workers* Minority	181	+ 14.56

The workforce composition underwent a notable shift in 2023, witnessing a decline of 8.93 % in the number of full-time workers compared to the previous year (2022). This change suggests a potential restructuring in labor utilization. Although there was a marginal 0.71 % reduction in part-time workers in 2023, the impact appears minimal, indicating relative stability in this category of employment. A moderate decrease of 2.68 % was observed in the number of female workers in 2023.

This shift may prompt further investigation into potential factors influencing female workforce participation. The most notable change occurred in the male workforce, experiencing a significant 20.55 % decrease in 2023. This substantial drop necessitates a thorough examination of contributing factors and potential repercussions. Conversely, there was a noteworthy 14.56 % increase in the number of minority workers in 2023. This positive trend suggests a diversification of the workforce, which could have implications for inclusivity and cultural representation.

Approximately 82.2 % of the employed workforce falls within the age group of 18 to 45 years, while around 17.8 % belong to the age group of 46 to 65 years. The engagement of seasonal workers for the year 2022 was around 4.25 months, while for the year 2023, we observe a decrease in their engagement to 3.56 months.

4.3 Collected products

This section of the report focuses on the harvested products for the years 2022 and 2023 within the raspberry farming sector. It provides a detailed overview of the collected products, the yield, food safety standards implemented by the collection centers related to raspberry industry during these two years and the form of the cooperation between the collection centers and the farmers.

The collection centers within the soft fruits sector gather various products, including blueberries, blackberries, wild raspberries, and wild blueberries. However, as our study specifically targets the analysis of the raspberry sector, the following data presents the quantity of raspberries collected by the collection centers for the years 2022 and 2023.

In 2022, the total collected quantity of raspberries was 2541 tons, while in 2023, it was 1592 tons. The difference between the two years is 949 tons. This significant decrease in the collected amount from 2022 to 2023 may indicate various factors such as adverse climatic conditions, market fluctuations, or other challenges affecting raspberry production.

Local companies, having adopted food safety standards, have successfully built a reputation in both regional and international markets as providers of safe and high-quality products. This commitment to safety standards not only ensures consumer confidence but also positions these companies as reliable contributors to the broader food industry. Adherence to these standards is integral to their success, emphasizing the significance of food safety in their operational ethos.

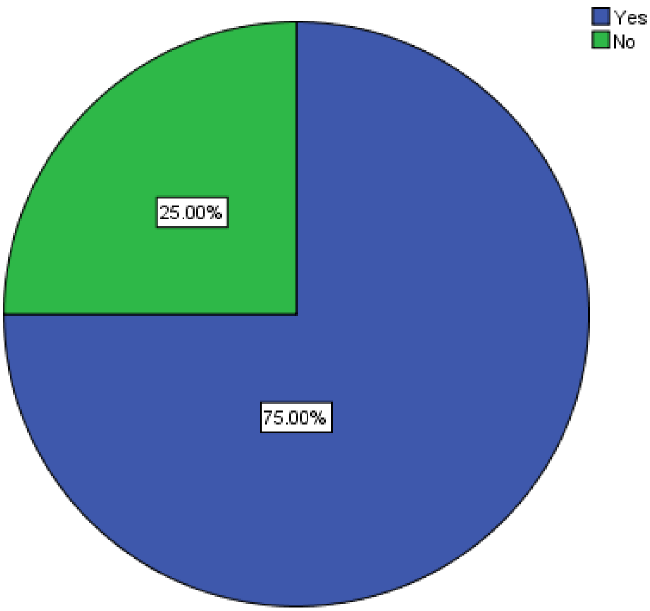


Figure 10: Food Safety Standards

A total of 75 % of the visited companies have implemented at least one standard, while the remaining 25 % have declared the absence of implemented standards.

This indicates a noteworthy commitment to quality and safety standards within the majority of the companies surveyed, contributing to the overall positive perception of the sector. The standards implemented by these companies are listed in the following table.

Table 11: Food Safety Standards

Company	Standard (s)
Agro Frut	ISO 22000
As Promet	ISO 22000
Berry Land (ex Besiana G)	ISO 9001, ISO 22000, IFFCS & BRCS
Euro Fruti	ISO 22000, IFC & Global GAP
Fresh Fruit	Organic
Joni Sh.	IFC, HACCP & Global GAP
Kastrati V.T.	HACCP
Laberioni	ISO 22000 & IFC
Red Gold	Organic
Scardus	HACCP
Sharry Bio	Organic
Zubin Potok	ISO 22000 & HACCP

In 2022, there were 1,139 contracts with farmers, while in 2023 this number dropped to 730 contracts. This represents a decrease of about 35.98 %. In 2022, the total cultivated area was 864.50 hectares, while in 2023 it decreased to 440.50 hectares. The contracted production amount in 2022 was 2230 tons and in 2023 it was significantly reduced to 760 tons. This means a significant drop of about 65.85 %.

The number of farmers without contracts was 728 in 2022, which decreased to 478 in 2023, marking a decrease of about 34.07 %. In 2022, the area cultivated by farmers without contracts was 302.50 hectares, and in 2023, it increased slightly to 421 hectares. The amount of production received from collection centers without contracts in 2022 was 311 tons, while in 2023 it increased to 832 tons. These results show significant changes in cooperation with farmers, cultivated areas and production quantities between 2022 and 2023. The reductions in contracted quantities and cultivated areas are particularly significant, while there is a significant increase in the amount of production without the contract.

Table 12: Cooperation with farmers

2022		2023	
Cooperation with farmers * Contracts	1139	Cooperation with farmers * Contracts	730
Area * Ha	864.50	Area * Ha	440.50
Quantity * T	2230	Quantity * T	760
Cooperation with farmers * (No) Contracts	728	Cooperation with farmers * (No) Contracts	478
Area * Ha	302.50	Area * Ha	421
Quantity * T	311	Quantity * T	832

4.4 Price Fluctuations

This section of the report offers an in-depth analysis of the prevailing market trends within the raspberry industry. It encompasses a wide range of factors and dynamics that influence the industry, including price fluctuations, evolving product sales strategies, sales destinations, and the demand from the European Union and the local market.

The examination of buying prices for raspberries directly from farmers in both 2022 and 2023 provides crucial insights into the economic dynamics of the raspberry market. Assessing the average costs paid per quality grade ('Extra' and 'First') illuminates the market fluctuations and the financial trends in the trade between buyers and local raspberry producers. The average prices for buying raspberries from farmers are as follows:

The average price of purchasing "Extra" quality raspberries in 2022 was approximately 3.50 Euros. The average price of purchasing "First" quality raspberries in 2022 was about 2.85 Euros. In 2023, the average price for "Extra" quality raspberries decreased to roughly 1.35 Euros. For "First" quality raspberries in 2023, the average price was around 1.00 Euros.

Table 13: Buying price of raspberries 2022 and 2023 in €

2022		2023		Differences
The price of buying raspberries from farmers *Extra Class	3.50	The price of buying raspberries from farmers *Extra Class	1.35	- 61.43
The price of buying raspberries from farmers *First Class	2.85	The price of buying raspberries from farmers *First Class	1.00	- 64.91

The percentage differences between 2022 and 2023 in terms of the prices for buying raspberries from farmers reflect a significant decline. The cost of Extra Class raspberries reduced by approximately 61.43 %, while the price of First Class raspberries decreased by around 64.91 %.

The observed differences in prices between 2022 and 2023 for the specified raspberry categories are notable. The selling price for Classified 95/5 raspberries dropped by 35 %, while Original and crumble raspberry prices saw a significant decrease of 57 % and 40 %, respectively. These substantial reductions reflect a considerable devaluation in these specific raspberry product categories within the market.

Table 14: Selling price of raspberry 2022 and 2023

2022		2023		Difference
Selling price *Classified 95/5	4.00	Selling price * Classified95/5	2.60	- 35
Selling price *Original	4.50	Selling price *Original	1.90	- 57
Selling price *Crumble	3.00	Selling price *Crumble	1.80	- 40

4.4.1 Selling Products Form

This component explores the various forms in which raspberry products are sold in the market from the collection centers no and in which form will be sold in the future. The configuration in which raspberry products are presented for sale significantly impacts market access and financial returns. This section assesses the array of forms in which raspberries are marketed, such as fresh, frozen or processed. It explores buyer and consumer inclinations, examining their consequences on market prospects and pricing strategies.

Approximately 62 % of the raspberry collection points sell raspberries as Classified (95/5 or 90/10), while around 32 % sell raspberries as Original products, and roughly 6 % sell raspberries as crumble. This distribution highlights a considerable dominance of Classified raspberry across the collection points, potentially indicating the market's preference for these higher-grade classifications. When surveyed about their future sales plans, 74 % of the farmers declared their intention to sell raspberries as Classified (95/5 or 90/10), approximately 20 % planned to sell them as Original, and roughly 6 % considered selling them as crumble.

4.4.2 Sales Destinations

This section sheds light on the primary sales destinations for raspberries. It identifies whether raspberries are primarily sold in local markets, exported to international buyers. Due to the exceptional quality of raspberries in Kosovo and the meticulous storage standards, local companies have successfully ventured into exporting these raspberries, extending beyond regional markets to European countries. The data gathered highlights that approximately 59 % of the total raspberry yield is exported to European nations like Germany, France, Italy, and more. Around 28.19 % finds its way to neighboring countries like Serbia and Albania. Meanwhile, about 12.81 % of the produce is directed to local sales, providing fresh raspberries to the domestic market.

Yet, there remains a need for greater involvement of Kosovar companies in regional and international trade fairs, essential to foster heightened engagement. It's imperative to fashion impactful marketing strategies that underscore Kosovo's potential in this domain for global recognition. According to the collected data, 62.50 % of companies have acknowledged an upsurge in raspberry demand from EU nations, while 37.50 % express no consistent demand from these countries.

Locally, the situation differs; the sales might be affected by Kosovo's prevailing economic conditions and the insufficient awareness about the significance of raspberry consumption, leading to unsatisfactory local sales. Among local companies, 43.75 % have noted a demand from local consumers for raspberries, whereas 56.25 % report no such demand.

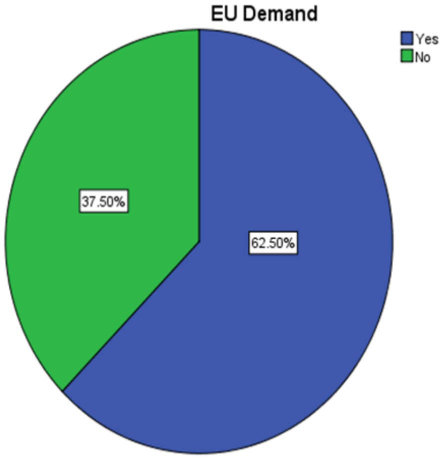


Figure 12: EU Demand for raspberries

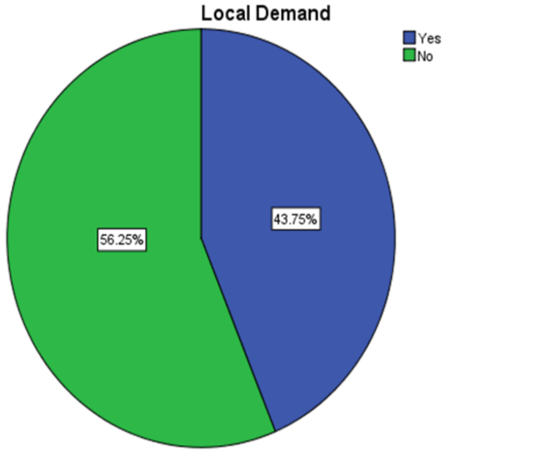


Figure 12: Local Demand for raspberries

4.4.3 Partnership, Exports and Profits

The analysis of the raspberry industry's performance from 2022 to 2023 highlights a remarkable downturn in crucial facets of the sector. There has been a substantial decrease in the number of contracts with EU countries, a significant reduction in the exported quantity, and a drastic decline in the overall economic value of raspberry exports.

These notable changes signify a challenging period for the industry, indicating a considerable decrease in trade engagements, exported volume, and economic worth within the global market.

There was a notable reduction of approximately 40.48 % in the number of contracts with European Union nations. The quantity of raspberry exports experienced a drastic decline, plummeting by about 69.20 %. There has been a sharp decline in the monetary value of exports, diminishing by approximately 69.56 %. This indicates a significant reduction in the trade partnerships volume, and overall economic value of raspberry exports.

Table 15: Partnership, Exports and Profits

2022		2023		Difference
Contracts with EU countries	42	Contracts with EU countries	25	- 40.48
Quantity of export * T	2219	Quantity of export * T	685	- 69.20*
Value * Million €	10 058 500	Value * Million €	3 062 000	- 69.56

* Exported up to October 2023, while the remaining part is currently in stock.

For the upcoming two years, 81.2 % of respondents have indicated their intent to increase their export volume, while 18.8 % have no plans for such an expansion. Those intending to boost their exports aim to achieve this by enhancing their presence in international fairs, marketing strategy development, and product diversification.

According to responses, the anticipated increase in exports ranges from 10% to as high as 100%, with an average anticipated growth of 55 %. This proactive approach toward expanding export activities highlights the strategies being pursued by these entities to bolster their international trade presence.

Fairs serve as vital platforms for companies to showcase their products, network, and explore potential business opportunities. These global events facilitate industry connections and offer exposure to international markets, contributing significantly to companies' growth and success.

Regarding participation in fairs, 50 % of companies have indicated their absence from fairs during the years 2022 and 2023. Meanwhile, the remaining 50 % have reported engagement in various capacities, including exhibiting and attending large-scale international fairs like Anuga, Sial, Expo Food, and others.

From the participation in these fairs during these two years, 12 contracts have been secured between companies in Kosovo and regional as well as European countries, and an additional 5 contracts are currently in the negotiation process. These fairs serve as a catalyst for fostering business relations and establishing trade agreements.

4.5 Investments in the sector and exciting capacities

Investments in the raspberry sector have played a pivotal role in its growth and development. As the sector continues to expand, both local and international investors have recognized the potential and profitability of raspberry cultivation in Kosovo. These investments encompass a range of aspects, from expanding cultivation areas to improving infrastructure, implementing modern technology, and enhancing the overall quality and quantity of raspberry production.

Furthermore, these investments have not only benefited the companies and farmers directly involved in raspberry cultivation but have also positively impacted the local economy, creating employment opportunities and contributing to the country's export potential. In the following sections, we will explore the details of these investments and their influence on the sector's performance.

The total investments in the 16 participating collection centers in this report amount to 17,549,000 Euros. The distribution of investments according to categories is as follows:

Table 16: Investments in the sector in €

Investments * Machinery	Investments * Objects	Investments * Human Rescource	Investments * Other (Land)
6 335 000	11 080 0000	34 000	100 000

Future investments in the sector involve financial commitments or initiatives directed towards the enhancement, development, or expansion of various aspects of the industry.

This encompasses potential funding into infrastructure, technology, innovation, sustainability practices, and human resources, aimed at fostering growth and improvements in productivity, efficiency, and quality within the sector.

The Table 17 denote the total financial 923,000 Euros allocations within each sector in the corresponding year, indicating the distribution and focus of financial resources across machinery, objects, and human resources, with a null investment in land for that year.

Table 17: Future investments in the sector in €

Investments * Machinery	Investments * Objects	Investments * Human Rescource	Investments * Other (Land)
720 000	1 700 0000	33 000	0

The capacities in the raspberry sector typically refer to various aspects that contribute to its operational potential. Storage and cooling facilities play a crucial role in the raspberry sector, ensuring the preservation of quality and extending the shelf life of the harvested produce. Here are the key elements of this aspect:

Storage Facilities: These encompass various spaces designed for both short-term and long-term storage of harvested raspberries. This includes refrigerated areas, cold storage, and controlled atmosphere storage, ensuring that raspberries remain fresh, preventing spoilage, and preserving quality until they reach the market or undergo processing.

Cooling Infrastructure: It involves cooling mechanisms designed to maintain ideal temperatures for the stored raspberries, preventing decay and maintaining their freshness. The use of temperature-controlled units, cooling systems, and refrigeration technology helps in sustaining the quality and extends the shelf life of the berries, crucial for their sale and distribution.

Table 18: Installed capacities

2022		2023	
Storage capacities * T	7575	Contracts with EU countries	7602
Deep freeze * T	2039	Quantity of export * T	2192

In 2022 the storage capacities was 7575 (measured in tons) and deep freeze capacity 2039 (measured in tons). In 2023 the storage capacities was 7602 (measured in tons) and the deep freeze capacity was 2192 (measured in tons). Storage capacities from 2022 to 2023 saw a minimal increase of 27 tons. Deep freeze capacity from 2022 to 2023 increased by 153 tons.

Regarding the utilization of existing installed capacities in 2022, these capacities were utilized at approximately 80.63 %, and in 2023, they were utilized at around 68.44 %.

4.6 Government support

Governmental aid plays a pivotal role in supporting raspberry collection centers and the wider agricultural sector. The success of raspberry farming relies on an environment conducive to its growth and realization of potential. Government aid takes various forms, from financial incentives to infrastructure development, research, and policy formulation, significantly contributing to the country's agricultural advancement.

In comparison to regional counterparts, Kosovo has established an advanced framework supporting agricultural development, notably through the Agency for Agriculture Development. The Agricultural and Rural Development Program (ARDP) initially approved by the Kosovo Parliament in 2007 was further extended and revised to enhance its coverage and objectives in sustainable agricultural and rural development.

Since 2014, the annual Agriculture and Rural Development Program has been based on the Agriculture and Rural Development Strategy for 2014-2020. Over the years, the Government of Kosovo and international donors have significantly increased financial support to the agricultural sector.

Within the surveyed collection centers, data highlights that 31.2 % have been grant recipients, indicating that a substantial portion of the centers have benefitted from financial support. Moreover, when assessing the impact of these grants on crucial indicators like

“Increasing Income”, “Employee Growth”, and “Boosting Exports”, all recipients have acknowledged the positive influence of the grants on these aspects. Suggestions for improving the raspberry industry from the collection centers are:

- Strengthen the sector’s international presence by emphasizing promotional activities that highlight the quality and potential of Kosovo’s raspberries on the global stage;
- Increase institutional assistance for farmers by extending subsidies and facilitating capital investments through grants, aiding in modernizing infrastructure and practices;
- Streamline bureaucratic processes, particularly in acquiring phytosanitary certificates, to expedite and ease the documentation requirements for smoother trade;
- Address the callus issue;
- Implementation of stringent quality control standards to ensure compliance with international norms and regulations, thereby fostering trust in the quality of Kosovo’s raspberries in global markets.
- Governmental Support for Certifications: Advocating for smoother processes to acquire certifications and permits, streamlining the bureaucratic steps required for phytosanitary certificates, which would expedite the export processes.
- Collaborative International Presence: Collaborative efforts between the collection centers and the government to bolster international promotional campaigns, representing Kosovo raspberries in leading global trade fairs and exhibitions.

4.7 Challenges of the sector

The challenges in the raspberry sector pose notable obstacles to its growth and efficiency. These challenges involve limitations in processing and storage capacities, inadequate technology adoption, unorganized marketing approaches, labor force shortages, and restricted access to financial resources.

Addressing these issues is critical for the sector to optimize production, enhance technology utilization, strengthen marketing strategies, secure skilled labor, and secure adequate financial backing for sustained growth and development. The data collected from representatives of the collection centers indicate various challenges within the raspberry industry. There’s a lack of processing and storage capacities, reported by 56.3 % of respondents, along with a scarcity in adequate technology, mentioned by 75 % of the representatives.

Additionally, 68.8 % of them highlighted the absence of organized marketing strategies, while 50 % highlighted the issue of labor force shortages. Moreover, the lack of access to finance was mentioned by 68.8 % of the respondents. It’s evident that these challenges, as reported by the representatives, significantly impact the efficiency and development of the raspberry industry.

Table 19: Challenges of the raspberry industry

	Lack of processing/ storage capacities	Lack of adequate technology	Lack of organized marketing	Lack of labor force	Lack of access to finance
YES	56.3 %	75 %	68.8%	50 %	68.8 %
NO	43. 7 %	25 %	31.2 %	50%	31.2 %

The challenges identified within the raspberry industry, such as the lack of processing and storage capacities, inadequate technology, insufficient marketing structures, labor force shortages, and financial constraints, significantly hinder the industry's growth and competitiveness. Insufficient storage capacity restricts the quantity of produce that can be held, impacting the potential to meet demand and respond to market fluctuations effectively.

The absence of proper technology limits efficiency and quality standards in production processes. Inadequate marketing frameworks constrain the ability to reach and engage broader consumer bases, affecting product visibility and market penetration. Labor shortages impede the scalability and timely processing of the fruit, impacting overall productivity. The challenge of restricted access to finance further impedes growth opportunities, as investments in infrastructure, technology, and workforce development become constrained. Together, these obstacles pose significant hurdles in the industry's expansion and its ability to maximize its potential.

5. DISCUSSION

The exploration of the raspberry sector in Kosovo has uncovered multiple dimensions affecting its growth and market sustainability. The data retrieved from the farmers and collection centers indicates both promising strides and significant challenges in the sector. A primary positive aspect revolves around the quality of raspberries produced, allowing Kosovo to venture into international markets, primarily within Europe.

However, despite this potential, the sector faces multiple challenges. These encompass a lack of necessary infrastructure, storage, and technology, hindering the efficiency of the collection centers. Marketing disorganization and access to finance also pose significant hurdles. Additionally, labor shortages and the callus problem directly impact productivity. The collected data highlights the necessity of institutional and governmental support. Suggestions from the collection centers underscore the need for increased subsidization, capital investments, and simplified bureaucratic procedures, all of which are crucial for the sector's development.

Moreover, the findings illuminate the need for more strategic involvement in international fairs, stressing the importance of promotional activities to elevate Kosovo's raspberries on the global stage. Addressing these challenges requires collaborative and proactive measures, streamlining administrative processes, technological advancements, and innovative solutions to tackle recurring issues. Overall, this analysis reflects both the immense potential of the raspberry sector and the critical areas requiring immediate attention and strategic intervention. Efforts directed towards resolving the identified issues can substantially elevate the sector's standing in the regional and international markets.

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