

SWOT analysis of Serbia's raspberry sector in the competitive marketplace

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Contents

| | |
|-----------------------------------------------------------------------------|-----------|
| Acknowledgement..... | 3 |
| Summary..... | 4 |
| | |
| 1 Introduction..... | 5 |
| 1.1 General introduction | 5 |
| 1.2 The objectives of the thesis | 7 |
| 1.3 The structure of the thesis | 8 |
| | |
| 2 Background into Serbia's economic transition..... | 10 |
| 2.1 Serbia's recent history | 10 |
| 2.2 Serbia's agriculture and the fruit industry | 11 |
| 2.3 Raspberry production and processing: global context | 15 |
| 2.4 Raspberry production..... | 20 |
| 2.4.1 World raspberry production | 20 |
| 2.4.2 Raspberry production in Serbia | 23 |
| 2.5 Raspberry trade | 29 |
| 2.5.1 World raspberry trade and major exporters of frozen raspberries | 29 |
| 2.5.1.1 World raspberry trade | 29 |
| 2.5.1.2 Major exporters of frozen raspberries in the world | 33 |
| 2.5.2 Serbia's raspberry export | 36 |
| 2.5.2.1 Serbia's export of frozen raspberries | 37 |
| 2.5.2.2 Serbia's export of fresh raspberries | 39 |
| | |
| 3 Theoretical background | 42 |
| 3.1 Comparative advantage | 43 |
| 3.2 Competitive advantage | 47 |
| 3.3 Literature review on SWOT analysis | 53 |
| | |
| 4 Methodology | 59 |
| 4.1 SWOT analysis..... | 59 |
| 4.1.1 Internal strengths | 61 |
| 4.1.2 Internal weaknesses | 66 |
| 4.1.3 External opportunities | 71 |
| 4.1.4 External threats | 75 |
| | |
| 5 Results of the SWOT analysis | 81 |
| 5.1 SWOT analysis applied in Serbia's raspberry sector..... | 81 |
| 5.1.1 Internal strengths..... | 81 |
| 5.1.2 Internal weaknesses..... | 86 |
| 5.1.3 External opportunities..... | 95 |

| | |
|-----------------------------------------------------------------------------------|------------|
| 5.1.4 External threats..... | 102 |
| 5.2 Conclusion from the SWOT analysis and suggestions for sector's improvement... | 105 |
| 6 Concluding remarks | 109 |
| 6.1 Summary of the thesis | 109 |
| 6.2 Limitations of the study | 114 |
| 6.3 Perspectives of Serbian raspberry exports and further suggestions | 115 |
| References | 116 |

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Summary

This study investigates the raspberry sector in Serbia over the period 1992 to 2009 with the main purpose to reveal how the sector has been affected by relevant factors focusing on the comparative and competitive advantages and challenges confronting the world raspberry market. Raspberry, as an export oriented product and one of the most important single commodity in Serbia's agriculture was selected for this analysis considering its crucial role for agricultural production and trade. The main objective of the study is to identify internal and external factors that create competitive advantage of the Serbia's raspberry sector against its major competitors and explore ways to increase the competitiveness of the industry.

SWOT analysis has been used as a framework to identify the strengths, weaknesses, opportunities and threats of the raspberry sector in Serbia with respect to its main competitors, Poland and Chile. The research showed that the basic strengths of the sector are the existence of favourable factor conditions and low labor costs and that the roots from the sector's weaknesses comes from the fragmented raspberry production, poorly organized marketing channel and insufficient government support. Increased exports to the new markets, Russia and Japan is the opportunity of the sector to achieve higher level of the competitiveness. The main threat comes from the Serbia's main competitors Poland and Chile, especially in the frozen raspberry market.

In order to maintain leading position in raspberry production and export worldwide and increase the competitiveness on the global market, Serbia's raspberry sector need to ensure horizontal and vertical integration within marketing channel, by intensifying cooperation between all participants of the value chain. Looking at the competitors' strengths and weaknesses will allow Serbia to work out where they can pose threats and will help Serbia's sector determine how and where its product should be placed in the market.

1 Introduction

1.1 General introduction

According to the demographic and economic indicators, agriculture is one of the most significant economic activities in Serbia and the foundation for the development of rural areas. Agriculture employs a large part of the total population as 44% of the country's population lives in rural areas and their income is generated from agribusiness. In 2009, the share of the agricultural sector in the total employment of labor in the country was 19%, higher than any of the industries. As the country's largest employer, Serbia's agricultural sector greatly contributes to the overall value of society, it contributed 11% to total GDP and has a potential for poverty reduction (SORS, 2010).

Agriculture is the only sector in Serbia with a positive foreign trade balance and it represents the core of foreign export development for the country. According to Serbian Agriculture Ministry data, in 2009, the agricultural-food industry accounted for 23% of the total value of exports and a recorded surplus in foreign trade exchange valued at 635 million USD.

Serbia's agriculture sector is based on high quality arable land, abundant labor and favorable continental climate. The sector also offers significant crop and food processing capacities as well as favorable trade conditions, with preferential access to key regional markets (CEFTA¹, EFTA², EU, Russia, Belarus, Turkey and the USA) (Miljkovic, 2010).

The favourable climate conditions and fertile soils in Serbia provide great opportunities for successful and varied fruit production. The Serbia's territory is rich in microclimates which are perfectly suited for organic fruit production. The share of fruit production in the total value of agricultural production is 16% (Miljkovic, 2010). Most of the fruit is grown under favorable climatic conditions, it is hand-picked, requires careful storage and packaging making the

¹ Central European Free Trade Agreement was signed in 1999 by Poland, Hungary and Czech and Slovak republics with the aim of integrating Western European Institutions and joining European political, legal and economic systems. Until 2006, five other countries joined CEFTA: Slovenia, Romania, Bulgaria, Croatia and Macedonia. All of the country members left CEFTA after the joined EU. In 2006, a joint declaration on expansion of CEFTA to Albania, Bosnia and Herzegovina, Serbia and Montenegro, Kosovo and Moldova, was adopted.

² European Free Trade Association is a free trade organization between Liechtenstein, Iceland, Norway and Switzerland, that operates parallel to and that is linked to the EU.

development of fruit sector extremely promising due to its links to other value-added activities. Serbian fruit cultivation is based on small, family-owned farms which stand in contrast to large industrialized farms of the Western Europe.

The most prevalent fruits in Serbia are apples, plums and various berries. Berry fruit is the most important export commodity, with an established presence in the markets of Western Europe due to its high quality and competitive price. There is also significant potential to increase export earnings from berry fruits, particularly as it is exempted from import duties under the current EU trade agreement.

Raspberries provide the greatest export value among fruit exports. The share of raspberries in the total value of fruit exports is 62%. Serbia is one of the biggest producers and exporters of raspberries in the world, ranked second in the world production behind Russia. During the observed period of this study, 1992-2009, Serbia maintained its position as a leading raspberry producer in the world. In 2009, Serbia's share of European raspberry production was 21%, while its share in the world production was 18%.

Ninety five percent of the total Serbian raspberry exports are frozen raspberries, while the remaining part is exported fresh. Serbia is the world leader in export of frozen raspberries with its market share of 28% in the world market in 2009. During the observed period, Serbia managed to remain the world leader in frozen raspberry export. Serbia mostly exports to the EU (e.g. Germany, France, Belgium and Austria).

In recent years world production and trade of raspberries significantly improved. Serbia's raspberry sector has been facing increasing competition on the world market primarily from Poland and Chile. In 2009, the market share of these three countries in the world raspberry trade was 66%.

Changes in the market conditions and increasing competition on the world raspberry market from other producing countries make the cost of entering the new markets increase and investment necessary. Such changes require responses by producers and traders in this sector. Although Serbia has a significant success in trade of raspberries it is primarily oriented to the small number of markets (frozen raspberries in the EU market) and from these markets do not draw the highest benefits (no raspberries in supermarkets in the EU under Serbian brand names). This is why this sector needs a new marketing strategy oriented toward satisfying consumers needs.

To respond to the challenges confronting the raspberries sector and defend its market position, the Serbian sector needs to strengthen primary production, processing industry and market competitiveness. The main objective is to improve the entire value chain of raspberries from production to final destinations. The impacts will include an increased export of high quality of fresh and processed raspberries from Serbia, which will lead to increase of export income, generate employment and improve the overall trade balance.

1.2 The objectives of the thesis

This thesis provides a qualitative analysis of the raspberry sector in Serbia. The main focus of the study is an in-depth analysis of relevant factors of business, economic and marketing environment that determine Serbia's raspberry export. The main research questions of the study are: Which internal and external factors that are favorable and unfavorable have influenced export flows of Serbian raspberry the most? How are they connected and what are the directions and effects on volume of raspberry trade, trade patterns, production and prices of the sector? What are the driving forces behind the successful international competition in a Serbian raspberry sector? How has the raspberry sector been able to create and sustain a competitive advantage against the best competitors? The answers to these questions are of central concern to Serbian producers and exporters that must compete in the international markets.

The main objective of the study is to identify and analyze the potential of this sector given the country's strengths and the market opportunities in the context of comparative and competitive advantages. Conducting an analysis of all major Serbia's competitors' strengths and weaknesses will allow Serbia to work out where they will pose threats and to determine how and where its product should be placed in the market to create and sustain a competitive advantage against the best competitors.

The qualitative analysis of the economic, political and geographical data will incorporate 1992-2009. The observation period is divided into three periods:

- (1) 1992-1999: the period that coincides with Socialist Federal Republic of Yugoslavia's (SFRY) disintegration. This was the period of economic isolation of the Federal Republic of Yugoslavia, of which Serbia was a part together with Kosovo and Montenegro, from Europe and the rest of the world due to the sanctions (1992-1996) and NATO bombing (1999). At the end of the 1980s, raspberry sector in Serbia increased significantly, making raspberry the most important berry crop in the country;
- (2) 2000-2005: the period where Serbia began its international re-integration into the world economy, the formal implementation of its economic reforms and trade liberalization, that had an impact on the raspberry sector; and
- (3) 2006-2009: the representative period for the SWOT analysis; and the period where Serbia consolidated its position on the world market as the greatest exporter of frozen raspberries and second largest producer.

These periods are specified to analyze the changes in the production, trade volume and value, geographical patterns of Serbia's trade and to provide the basis for the comparison between the periods and among the competitors. During the period of the study, Serbia managed to keep its leading position on the world raspberry market, although there were some unfavourable conditions in the country (conflict, sanctions, NATO bombing) that had affected the whole economy.

1.3 The structure of the thesis

The paper is organized in six chapters. Chapter one provides brief introduction of importance of the agricultural sector for the country with respect to raspberry industry. The chapter also specifies the objectives and the structure of the thesis.

Chapter two describes Serbia's agricultural sector in general, and the fruit industry and berry sector with the main focus on the raspberry sector. This chapter describes the world and Serbia's

raspberry market and its two segments, fresh and frozen raspberries, with respect to production, prices and trade, for the three periods of study. It also analyzes the raspberry market situation of the Serbia's main competitors.

Chapter three presents the theory section, focusing on the international trade theories and theories that explain comparative and competitive advantage of the certain nation/industry. The literature review on the SWOT analysis presented in the thesis is a theoretical background for better understanding of the model applied.

Chapter four provides the theory of the SWOT analysis as the main model used in this thesis and describes the possible indicators that can affect agricultural sector of the particular country with respect to internal and external factors.

Chapter five presents and discusses the results and main findings of the SWOT model applied on the Serbia's raspberry sector focusing on the comparative and competitive advantages and challenges confronting the world raspberry market. The chapter provides conclusion from the SWOT model applied and provide recommendations to increase the sector's competitiveness. Finally, in chapter six the summary of the thesis is provided and its limitations and suggestions for further study.

2 Background

2.1 Serbia's recent history

The Republic of Serbia is located in the central part of Balkan peninsula, in South Eastern Europe. Serbia is bordered by Bulgaria, Hungary, Romania, Albania and ex-Yugoslav republics: Bosnia and Herzegovina, Croatia, Macedonia and Montenegro covering the total land area of 88 361 square kilometres. According to the results of the latest Census (2002) Serbia has 7,5 million inhabitants (SORS, 2012).

Serbia was a part of multi-ethnic Socialist Federal Republic of Yugoslavia (SFRY) which broke apart in the early 1990s. The former Yugoslav republics: Slovenia, Croatia, Macedonia and Bosnia and Herzegovina declared their independence in 1991 and 1992. Serbia, together with the remaining republic Montenegro declared a "Federal Republic of Yugoslavia" in April 1992, but the newly formed state had trade sanctions imposed by the international community related to the war conflict in Bosnia and Herzegovina. The sanctions lasted from June 1992 to the end of 1995 and produced a total isolation of the country (Crnobrnja and Savic, 2007).

Due to the conflict in Kosovo, a Serbian autonomous province, during the 1998-1999, the "Federal Republic of Yugoslavia" faced one more sanction imposed by international organizations, which was followed by NATO bombing in spring 1999. All these events: conflicts in Bosnia and Kosovo, international sanctions, bombing, hyperinflation and trade shocks as a result of breaking up of the SFRY led to a devastation of the Serbian economy. In 2003, the "Federal Republic of Yugoslavia" was replaced by new state union of the two remaining countries named "Serbia and Montenegro" which lasted until 2006, when Montenegro declared its independence (Crnobrnja and Savic, 2007).

The transition process from the centrally planned economy which Yugoslavia/Serbia enjoyed as a communist country towards the market-oriented economy was followed by changes in political structure in the country and implementation of a new, democratic government. During 2000, after the period of economic isolation, lifting the larger part of sanctions and political changes in

the country, Serbia was re-integrated into the international community through membership in many international organisations and institutions. The process of re-integration into the world economy required the formal implementation of economic reforms and trade liberalization.

In 2000, the European Union launched the Stabilization and Association Process (SAP), aimed at preparing Western Balkan countries for future EU membership. Serbia signed the Stabilisation and Association Agreement (SAA) and the Interim Agreement on Trade and Trade-related matters with the EU in 2008. In 2005, Serbia submitted the Memorandum on the Foreign Trade Regime and Association with the World Trade Organization (WTO) and negotiations on membership in the WTO are at an advanced stage (EC, 2012).

2.2 Serbia's agriculture and fruit industry

Serbian agricultural sector is the largest export earner, the country's largest employer and the second largest contributor to country's GDP. The sector employed a large share of the labor force (around 20%), contributed to the total value (9-29% of GDP) created in the society and played a significant role in the external sector of the country (13-30% of total export). The share of Serbia's agriculture in GDP, total employment and total goods' export of the country is presented in Table 1.

Table 1. Share of agriculture in the Serbia's economy in comparison with EU (in %)

| | Share of agriculture ¹ in GDP (current prices) | Share of agriculture ¹ in total employment | Share of agro-food exports ² in total goods' exports | Share of agro-food imports ² in total goods' imports |
|--------------------|-----------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| 1992 | : | : | 19.7 | 11 |
| 1993 | : | : | : | : |
| 1994 | : | : | : | : |
| 1995 | : | : | : | : |
| 1996 | : | : | 29.6 | 16.3 |
| 1997 | 29.4 | : | 17.9 | 16.0 |
| 1998 | 19.0 | : | 15.0 | 12.5 |
| 1999 | 20.0 | : | 23.0 | 12.2 |
| 2000 | 19.0 | : | 19.0 | 8.6 |
| 2001 | 19.3 | : | 18.3 | 10.7 |
| 2002 | 14.4 | : | 25.3 | 9.8 |
| 2003 | 12.7 | : | 20.9 | 8.8 |
| 2004 | 13.2 | 23.9 | 22.2 | 8.0 |
| 2005 | 11.5 | 23.2 | 20.3 | 7.4 |
| 2006 | 10.6 | 20.5 | 19.4 | 6.9 |
| 2007 | 8.7 | 20.8 | 18.9 | 6.1 |
| 2008 | 9.1 | 21.4 | 18.0 | 6.5 |
| 2009* | 13.1 | 19 | 23.3 | 8.4 |
| EU 27 ³ | 1.8 | 5.4 | 5.7 | 6.3 |

Notes: * Provisional data; ¹ Agriculture together with forestry, hunting and fishery.

² Agro-food trade according to Combine Nomenclature of Custom Tariffs (CNCT)

³ Data for EU for share in gross value added (GVA), and for other share values are from 2008.

Source: *Statistical Office of the Republic of Serbia, EC Statistics, Eurostat Database*

Thanks to the relief and climate conditions in the territory it covers, Serbia has favourable natural conditions for diversified agricultural production. Serbia disposes 5,1 million hectares of agricultural land (0,69 ha per capita) and 4,2 million hectares of arable land (0,44 ha per capita), which is twice that of the average in the EU which disposes 0,33 ha of agricultural and 0,2 ha of arable land per capita (Sevarlic and Veljkovic, 2010).

Despite the importance of agriculture in the Serbian economy, agricultural production in many areas is weak and uncompetitive as a result of low productivity in agricultural production and unfavourable property structure of family holdings. Low productivity in the agricultural production is the result of poor intensity of production that is reflected in a small share of animal farming in Serbian agriculture. In 2009, crop production accounted for 70% while animal farming contributed to 30% of the value of country's agriculture (Sevarlic and Veljkovic, 2010). Ninety percent of agricultural land is privately owned while the rest belongs to the government.

There are about 780.000 private farms in Serbia. The average size of individual farms varies between 3 ha and 5 ha (Jelocnik et al., 2011). Characteristics of Serbian private farms, since they are small in size, are that they are mostly producing for their own consumption, where only small part of the production finds its purpose on the market.

Agriculture in Serbia reached its peak during the 1980s (Bogdanov and Vasiljevic, 2009). During the 1990s, there was a decline in sector's development due to the internal wars, NATO bombing, international economic sanctions and loss of markets for agricultural and food products in the former Yugoslav republics. Since 2000, agriculture has recovered slowly from the collapse in its development in the 1990s. In 2000-2009, the fluctuation in the growth rate of Serbian agriculture was high, indicating the unpredictability in the sector's development. At the same time, average annual growth rate of agricultural production was 3,5%. The agricultural growth rate of 2,2% in 2009 was achieved by the production of corn, wheat, sugar beet and fruit (Volk, 2010).

Since the mid-1990s, the trade balance of the agricultural and food sector was mostly negative as a result of economic distortions and political problems and loss of the privileged status in export markets. The EU removed Serbia from its preferential status, Serbia lost its status of most favoured nation imposed by WTO and numerous bilateral and multilateral agreements were terminated (Miljkovic, 2011). From 2001, after the liberalization of foreign trade, agriculture in Serbia recorded a constant rise in both exports and imports. Since 2005, the food and agriculture sector recorded a positive trade balance as a result of the favourable trade conditions, with preferential access to foreign markets (CEFTA, EFTA, EU, Russia, Turkey and USA). It is the only sector in Serbia which has continuously had a positive ratio between export and import value (Bogdanov and Vasiljevic). The main export commodities were corn, frozen raspberries, sugar and sunflower oil (MAFWM, 2011).

The European Union is Serbia's most important trade partner. Serbia was given the preferential status from the EU in 2001 in the export of agricultural products. Duty-free market access was provided on EU import of agricultural products from Serbia, except for certain products, e.g., sugar, baby beef and wines (MAFWM, 2011).

In 2007, Serbia became a member of Central European Free Trade Agreement (CEFTA) together with Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Albania, Moldova and

Kosovo providing trade liberalization between member countries and taking a one step closer to the acceptance in EU and WTO. In 2000 Serbia signed a Free Trade Agreement with Russian Federation and as of 2005 was granted preferential treatment by the USA under the General System of Preferences, enabling free market access of agricultural products from Serbia to the United States (MAFWM, 2011).

In 2009 and 2010, Serbia signed Free Trade Agreements with Belarus, Kazakhstan and Turkey, and in 2010 and 2011, with European Free Trade Association (EFTA) countries (i.e., Switzerland, Lichtenstein, Norway and Iceland) providing preferential market access to Serbian agricultural products (MAFWM, 2011). All these agreements led to an increase of Serbian exports of agricultural and food products.

Serbia is characterized by the highest fruit production in the West Balkan region, meaning that the fruit production has a significant role in its agricultural economy (Savic, 2011). Five percent of agricultural and 6% of arable land in Serbia is covered by orchards. The total fruit production in Serbia is 1.403 thousand tons contributing to around 1% of the world and 7% of European fruit production (Milatovic, 2009). The value of fruit production comprises 16% of total agricultural value of production. The most produced fruits in 2009 were: plums, apples, raspberries, peaches, nectarines and pears (UN FAO, 2009).

Most of the produced fruit in Serbia is processed and exported as such making a solid basis for fruit processing industry. Nowadays, industry exports juices, concentrated juices, jams, marmalades, jellies, candied fruits, syrups, frozen and dried fruits (soft fruits). The share of export of fruits and processed fruits in the total export value of agricultural and food products is 16%. As a result of free trade agreements, the biggest export markets for Serbia are EU, CEFTA and Russia. Among the different kinds of exported fruits, raspberries are the most important accounting for 62% of the total value of exported fruits (MAFWM, 2011).

2.3 Raspberry production and processing: global context

Commercially cultivated raspberry requires specific climatic and environmental conditions which need to be met for successful cultivation and for achieving high yields of the crop. Raspberries are cultivated worldwide as a mid-summer crop in temperate zones. The health benefits of the fruit play an important role in the expansion of consumer demand since raspberries are rich in ellagic acid, the compound known to have anti-carcinogenic properties and vitamin B (Farmer service, 2012).

Commercially grown raspberry is divided into two varieties, summer-bearing and autumn-bearing (fall-bearing). The majority of the worldwide raspberry crop is of summer-bearing varieties and they are mainly grown in north-western part of North America and Serbia. Harvest season for summer-bearing raspberries takes place in the summer, in the short period of time. It lasts four to six weeks. Summer-bearing raspberries are mainly grown for processing, since they are more delicate and sensitive to damage, and more suited to machine harvesting. Willamette, Meeker, Tulameen and Glen Ample are the most common summer-bearing raspberry cultivars (EC Commission, 2006). The main US raspberry variety is Meeker and is harvested from mid-June to late August (USAID, 2008).

Autumn-bearing raspberries have the advantage of extending the harvest season since they produce a crop over the longer period, usually from late July until the end of October. Besides, they can be managed so as to produce a crop twice a year. The other advantage compared to summer-bearing cultivars is in minimising production costs because of the less pests and diseases and no need to support bushes. These are new varieties, suited both for processing and fresh markets. Common autumn-bearing raspberry varieties include Polana and Polka (mostly grown in Poland), Heritage and Autumn Bliss (Challies, 2010).

Heritage raspberry variety, grown in Chile, is harvested twice, with the harvest period from November to May. Harvest in Chile occurs during the winter season in USA, so the Chilean exports of raspberries are considered complementary to production in USA. The Chilean harvest ends at the time when the harvest in USA is about to begin (USAID, 2008).

Raspberries are grown in warm, frost-free climates. As a shallow-rooted plant, raspberry plant requires irrigation in dry periods, which is achieved either by traditional channel irrigation methods or by drip or trickle systems. Raspberry plants require well-drained soils to avoid pathogenic parasites which can lead to root diseases. The use of fertilizers (nitrogen, phosphorus and potassium) and pesticides (insecticides and herbicides) are also required to replace soil nutrients removed at harvest and to control diseases and pests (Challies, 2010).

Fresh raspberries are delicate fruit, sensitive to physical damage and bruising and vulnerable to temperature induced denaturation. Because of that, harvesting and post-harvesting grading and packing are mainly labor-intensive activities. Machine harvesting for fresh raspberry barely exists, it is more used for processing crop in some regions. The advantage of the machine harvesting over hand picking is in its labor saving potential. On the other hand, the initial capital and maintenance costs required for the machine harvesting equipment are substantial, so their usage is only economical on larger farms which exists in USA (Challies, 2010).

In general, raspberries are marketed through two main channels, either as fresh fruit or for freezing and industrial processing into the diverse range of value-added products and food ingredients, such as ice cream, yoghurt, jams, baked products, cakes, cereals, snacks, puree and juices. Further on, raspberries are distributed, via either channel for domestic consumption or export (Buric, 2003). Processed raspberries are primarily sold worldwide as frozen fruit.

Because of the delicate variety, raspberries need to be frozen the same the day as they are picked or carefully boxed and chilled to maximize fruit quality and shelf life. Raspberries are frozen in cold storage plants at a temperature of -40 C and stored at temperatures between -18 and -20 C (Buric, 2003). Cooling (chilling) of the raspberries, ideally to around 10 C, is required to remove field heat, which slows berry respiration, inhibits the moulding and delays the deterioration of the fruit (Challies, 2010). After cleaning, preparation and storing, chilled raspberries need to be delivered to the final destination within three days (Buric, 2003).

The proximity to the market is a very important factor for trade of fresh raspberries, because of its perishability and has a short shelf life. Transport of the fruit can be done by refrigerated trucks if it is done by land or rail, by refrigerated containers if it is done by sea by or by air-freight for longer distances. Markets for fresh and frozen raspberries have specific characteristics,

organization and requirements which affect creating production systems and supply chains. Fresh raspberries have higher quality standards and higher prices, while frozen raspberries have lower quality and lower prices (Challies and Murray, 2011).

The raspberries are classified in four different groups when traded. The first group is the individual quick frozen (IQF) raspberries which are top quality products used in cake production. Each berry needs to be whole, with a maximum of 5% of broken berries, without any damage and with a minimum foreign matter. The second group are fresh broken raspberries, chopped or ground, used mainly for fruit yogurt production. Third group are raspberry mixtures used for jam and bakery production. They consist of 40-50% IQF raspberries, 20-30% of chopped raspberries and 20% of broken raspberries. The fourth group is made of low quality raspberries, usually remaining parts of individual quick frozen raspberries and is used for fruit juices production (Buric, 2003).

Individual quick frozen (IQF) raspberries have the highest quality and thus the highest price on the world market. IQF raspberries are usually further graded on the international market and packaged into different formats for retail or for further processing. IQF raspberries can be packaged into branded bags (usually 225-200g) or can be mixed with another frozen berry fruits making frozen berry mix and offered at supermarkets. In addition, IQF raspberries can be packaged into bulk bags (usually 5kg) and sold to another packer or processor. The other three categories of traded raspberries are distributed for industrial processing and are of lower quality and value compared to IQF fruit (Challies, 2010).

Fresh raspberries are mostly sold through supermarkets by the punnet (250g net). If the fresh berry is of a high quality, well-packaged, distributed and presented it can command premium prices, especially in supermarkets of North America and Western Europe (Challies, 2010).

Figure 1 presents the world raspberry marketing channel. It summarizes both markets, fresh and frozen. The value chain is comprised of input suppliers, raspberry producers, intermediaries and traders, cold storage and processing facilities, wholesalers and retailers and final consumers, domestic or international. Input suppliers provide raspberry producers with plants, materials, fertilizers, chemicals, packaging materials, extension services and credit. In general, raspberry producers are small-scale growers with an average size of their plantations less than 1 ha. They

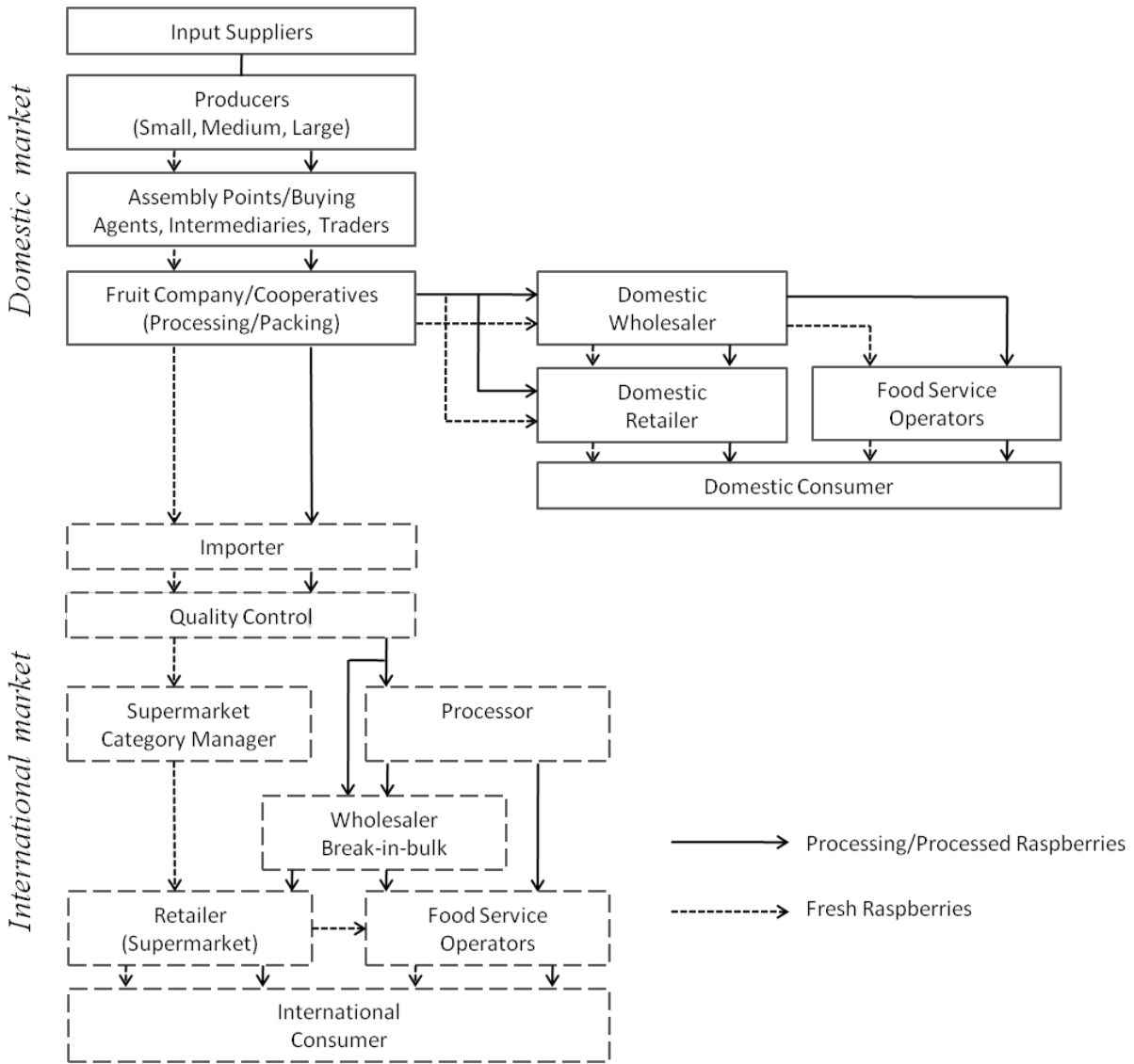
take their products to the collection centres located nearby which are organized by intermediaries. Some large and medium-sized producers distribute their crop directly to the processing companies or exporters (USAID, 2008).

The connection between small farmers and cold storages and processing facilities are buyers and traders who group fresh raspberries and organize transport to the fruit factories. As intermediaries, traders charge for their services by taking commission from owners of cold storages.

Cold storages and processing facilities (cooperatives) clean, cool, sort, grade, pre-pack in larger packaging, freeze and store the raspberries. Fruit processing activities such as selection, packing and canning of the fruit is done to create an economically desired product by saving nutritional value of the product and creating the product with specific characteristics, such as taste, colour and texture (Radosavljevic, 2008).

The bulk of products are then allocated to export markets, wholesale terminal markets and retail-wholesale distribution points. The fruit is delivered to the customer either through retail food stores, such as green markets and supermarkets or through food service firms, e.g. restaurants, hotels and catering companies. Fruits sold in the retail stores need to be packaged and designed so as to satisfy relevant standards and regulations regarding food safety (Radosavljevic, 2008). Foreign importers buy the fruits, sort and sell them either to supermarkets or foreign processors depending on quality of the product. The goal of the chain is to satisfy consumers' needs through adequate quality, safety, presentation and price of the product.

Figure 1. The raspberry marketing channel



Source: Adapted from Challies and Murray, 2011

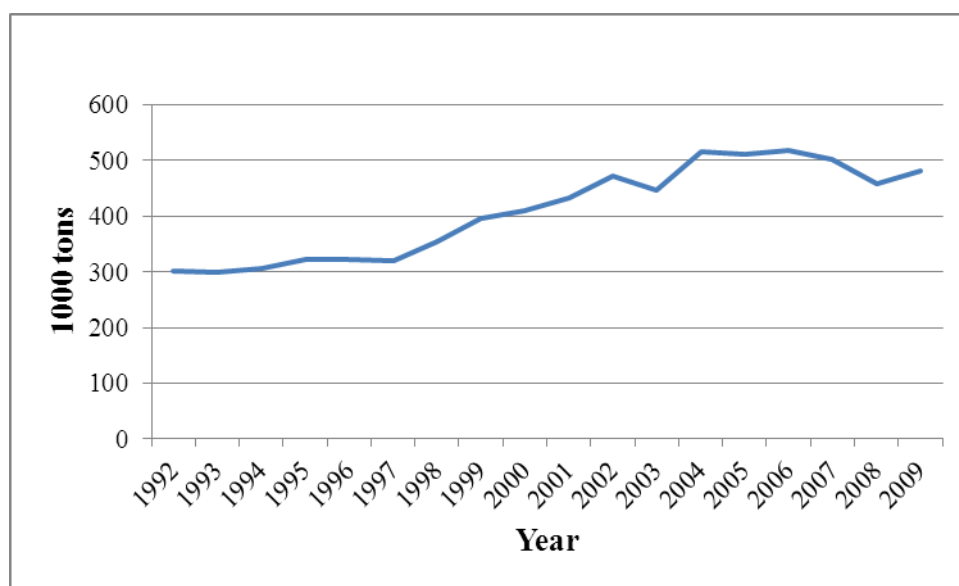
2.4 Raspberry production

Two following sub-sections, 2.4.1 and 2.4.2 analyze and present data regarding raspberry production in the world and Serbia, respectively.

2.4.1 World raspberry production

According to the UN FAO statistical on-line database, worldwide raspberry production is growing. The development of the world raspberry production over the period is presented in Figure 2. In 2009, total world production of raspberries was 480.000 tons. Raspberries are produced in 42 countries worldwide on about 93.000 hectares. Raspberry production is concentrated in Europe and North and South America amounting to 85% and 13%, respectively. Compared to the other fruits produced worldwide, raspberry production is not that big because raspberries require specific climate and natural conditions (Kljajic, 2011).

Figure 2. World raspberry production, 1992-2009



Source: UN FAOSTAT

Table 2 presents the trend development of the production and share of the main producing countries in the world during three periods. While worldwide production has continued to grow to meet expanding demand, the growth has not been uniform across all producing countries. During the 1990s, the raspberry production in Germany and the United Kingdom declined gradually, while production in Russian Federation, Serbia, USA and Poland significantly increased, making them the top four producers in the world. Almost all of Russia's production is offered and consumed in the domestic market. Similar case is with the USA, where majority of the production is consumed domestically, while the rest is traded with Canada.

Table 2. Raspberry production in the main producing countries and its share in the world production, 1992-2009

| Country | 1992-1999 | | 2000-2005 | | 2006-2009 | |
|----------------|--------------------|-----------|--------------------|-----------|--------------------|-----------|
| | Production (000 t) | Share (%) | Production (000 t) | Share (%) | Production (000 t) | Share (%) |
| Russia | 89,89 | 26 | 155 | 31 | 157 | 29 |
| Serbia | 52,03 | 15 | 80,47 | 16 | 81,99 | 15 |
| Poland | 36,43 | 10 | 48,19 | 10 | 68,07 | 12 |
| USA | 32,94 | 9 | 61,98 | 12 | 50,53 | 9 |
| Chile | 24,25 | 7 | 41,24 | 8 | 52,65 | 10 |
| Ukraine | 10,48 | 3 | 20,41 | 4 | 26,40 | 5 |
| Germany | 29,22 | 8 | 23,37 | 5 | 5,95 | 1 |
| Canada | 16,68 | 5 | 14,17 | 3 | 12,10 | 2 |
| United Kingdom | 13,90 | 4 | 9,25 | 2 | 14,45 | 3 |
| Other | 49,05 | 14 | 45,49 | 9 | 75,98 | 14 |
| World | 351,16 | 100 | 505,46 | 100 | 542,69 | 100 |

Source: UN FAOSTAT

Compared to the first and second period, the world raspberry production in the third period increased by 35% and 7%, respectively. Russia is the biggest raspberry producer in the world with the share of 29%, on average, of the world production during 2006-2009. Together with the next three producing countries, the average share of these four producers in the world raspberry production was 65%.

From the Table 3, we can see that all indicators, area harvested, total production and average yield increased during the periods. Average share of the world area harvested in the third period

increased by 31% compared to the first and by 5% compared to the second period. More than 30% of the world raspberry harvested area is grown in Russia. Poland's share in the world harvested area is 20%. Poland had the biggest increase of harvested area compared with the other countries; its average share in the world harvested area in the third period increased by 40% compared to the first and by 28% compared to the second period.

Table 3. Raspberry production, area harvested and average yield of the main producing countries, 1992-1999

| Country | Area harvested (000 ha) | | | Production (000 t) | | | Yield per unit (t/ha) | | |
|---------|-------------------------|-------|-------|--------------------|--------|--------|-----------------------|-------|-------|
| | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 |
| Russia | 12,48 | 30,5 | 30,15 | 89,89 | 155 | 157 | 7,20 | 5,17 | 5,21 |
| Serbia | 11,35 | 15,22 | 14,80 | 52,03 | 80,47 | 81,99 | 4,58 | 5,27 | 5,54 |
| USA | 4,82 | 6,37 | 5,86 | 32,94 | 61,98 | 50,53 | 6,83 | 9,66 | 8,27 |
| Poland | 11,64 | 13,93 | 19,40 | 36,43 | 48,19 | 68,07 | 3,13 | 3,45 | 3,49 |
| Chile | 3,81 | 5,27 | - | 27,98 | 41,24 | 52,65 | 7,34 | 7,82 | - |
| Ukraine | 3,01 | 4,6 | 6,35 | 10,48 | 20,41 | 26,40 | 3,48 | 4,75 | 4,16 |
| World | 66,09 | 91,10 | 96,25 | 326,91 | 505,46 | 542,69 | 4,95 | 5,55 | 5,64 |

Source: UN FAOSTAT, USDA

USA has the biggest average yields. Even though the yields of Serbian raspberry are below those achieved in USA, Serbia is more productive than its main European competitor, Poland.

The development within the producer prices level of the world biggest raspberry producers is presented in Table 4. There are significant differences between producer prices in Serbia, Poland and Ukraine on the one side and Germany, USA and United Kingdom on the other. The first group of countries are characterized by lower labor costs, non-existing machine harvesting which requires costly equipment and farmers' knowledge regarding their usage and non-existence of costly irrigation systems required for raspberry production. In comparison to the other large producing countries, raspberry producers from Germany and UK get the highest price for their production, with average price 5,44 USD/kg and 5,21 USD/kg, respectively. The average price of Serbia's raspberry producers is slightly lower than the average price of its main competitor, Poland.

Table 4. Producer prices of the main raspberry producing countries, 1992-2009

| Year | Serbia | Russia | Poland | USA | Ukraine | Germany | Canada | UK |
|-------------------|--------|--------|--------|------|---------|---------|--------|------|
| 1992 | - | 0,09 | 0,69 | 1,18 | 0,12 | 3,45 | 1,38 | 2,81 |
| 1993 | - | 0,37 | 0,82 | 1,48 | 0,19 | 4,13 | 1,59 | 3,43 |
| 1994 | 0,98 | 0,33 | 1,61 | 1,90 | 0,28 | 4,16 | 1,62 | 3,54 |
| 1995 | 1,54 | 0,38 | 1,42 | 1,53 | 0,32 | 5,07 | 1,63 | 4,64 |
| 1996 | 0,79 | 0,85 | 0,49 | 1,70 | 0,42 | 4,62 | 1,76 | 4,53 |
| 1997 | 0,61 | 0,80 | 0,37 | 3,02 | 0,43 | 3,99 | 1,19 | 4,91 |
| 1998 | 0,88 | 0,47 | 0,83 | 4,23 | 0,36 | 3,34 | 0,94 | 5,08 |
| 1999 | 1,16 | 0,44 | 0,50 | 3,24 | 0,24 | 2,38 | 1,39 | 4,72 |
| 2000 | 0,59 | 0,45 | 0,65 | 4,19 | 0,28 | 2,19 | 0,95 | 4,09 |
| 2001 | 0,63 | 0,46 | 0,56 | 3,66 | 0,30 | 3,00 | 1,17 | 4,72 |
| 2002 | 0,72 | 0,47 | 0,81 | 3,09 | 0,49 | 3,25 | 1,28 | 4,95 |
| 2003 | 1,02 | 0,57 | 0,92 | 4,59 | 0,81 | 6,63 | 1,35 | 5,60 |
| 2004 | 0,95 | 0,66 | 0,45 | 4,61 | 0,55 | 7,57 | 1,80 | 5,73 |
| 2005 | 0,54 | 0,79 | 0,71 | 4,39 | 0,55 | 6,63 | 1,73 | 5,94 |
| 2006 | - | 1,11 | 0,79 | 4,74 | 0,68 | 8,02 | 1,84 | 6,13 |
| 2007 | - | 1,92 | 1,60 | 6,35 | 1,20 | 8,39 | 1,78 | 6,96 |
| 2008 | - | 2,01 | 1,73 | 6,61 | 1,50 | 10,59 | 2,64 | 8,63 |
| 2009 | - | 1,68 | 1,07 | 6,39 | 1,20 | 10,54 | 2,14 | 7,42 |
| Average USD/kg | 0,87 | 0,77 | 0,89 | 3,72 | 0,55 | 5,44 | 1,57 | 5,21 |

Source: UN FAOSTAT

2.4.2 Raspberry production in Serbia

In 2009, production of berry crops was around 11% of the total fruit production in Serbia (soft fruit). The principal commercial fruits in the berry category in Serbia are raspberries, blackberries, blueberries, strawberries and currants. The cultivated berry sector, especially raspberries and blackberries, has been a source of steady income for Serbian producers and for the processing industry, making the sector a driving force in agricultural growth for two decades (USAID, 2008).

Raspberries are the most commonly grown berries in Serbia, occupying 65% of the total land planted to berries in the country. With an average raspberry production of 80.000 tons and an average blackberry production of 30.000 tons during the period 2006-2009, Serbia is ranked second in the world raspberry and blackberry production, following Russia and USA for each of the sector respectively. Strawberry occupies the third position according to the extent of production, with an average production of 30.000 tons, while production of blueberries (with only 20 ha under cultivation) and currants is barely significant.

During the period 1980-1988, raspberry ranked second in importance amongst the berry fruits, following strawberry. However, in 1988 raspberry surpassed strawberry both in harvested area and in production and became the most important berry crop in the country, maintaining its' leading position till nowadays (Stanisavljevic et al., 1989).

Commercial raspberry production in Serbia started after World War I mainly for local consumption. During the 1950s, raspberries have been grown on a larger scale, with an expansion both in the area and in production, as a result of increased world demand and higher prices (Stanisavljevic et al., 1989). For the past 20 years, Serbia reached a large volume in commercial raspberry production.

Table 5 presents the raspberry production; area harvested and average yields within three periods and producer prices over the observed period. In the first period, 1992-1999, average raspberry production in Serbia was 52.000 tons while in the second period, 2000-2006, it was almost 81.000 tons; it increased for almost 40% between the periods. Also, the harvested area in the second period increased by 25% compared with the first. The political situation in the country, sanctions, higher import prices of fertilizers as a result of hyperinflation and unfavourable weather conditions, particularly in 1993 is the reasons for the lower level of production and harvested area compared to the second period. The third period recorded small changes in the level of raspberry production and harvested area. The raspberry production increased by 2% and harvested area decreased by 3% in the third compared to the second period. Average yields recorded constant increase over the periods.

Table 5. Raspberry production in Serbia and producer prices, 1992-2009

| Year | Area harvested (000 ha) | Production (000 t) | Yield per unit (t/ha) | Producer price \$/kg |
|-----------------|-------------------------|--------------------|-----------------------|----------------------|
| 1992 | 9,83 | 44,08 | 4,48 | - |
| 1993 | 9,73 | 38,50 | 3,90 | - |
| 1994 | 9,87 | 44,48 | 4,51 | 0,98 |
| 1995 | 10,82 | 53,07 | 4,91 | 1,54 |
| 1996 | 12,14 | 62,65 | 5,16 | 0,79 |
| 1997 | 12,61 | 45,01 | 3,57 | 0,61 |
| 1998 | 12,81 | 63,80 | 4,98 | 0,88 |
| 1999 | 13,00 | 64,68 | 4,98 | 1,16 |
| Average 1992-99 | 11,35 | 52,03 | 4,58 | - |
| 2000 | 13,52 | 56,00 | 4,14 | 0,59 |
| 2001 | 14,75 | 77,78 | 5,27 | 0,63 |
| 2002 | 15,29 | 93,98 | 6,15 | 0,72 |
| 2003 | 16,35 | 78,97 | 4,83 | 1,02 |
| 2004 | 16,00 | 91,73 | 5,73 | 0,95 |
| 2005 | 15,41 | 84,33 | 5,47 | 0,54 |
| Average 2000-05 | 15,22 | 80,47 | 5,27 | - |
| 2006 | 15,02 | 79,68 | 5,30 | - |
| 2007 | 14,50 | 77,00 | 5,31 | - |
| 2008 | 14,68 | 84,30 | 5,74 | - |
| 2009 | 14,96 | 86,96 | 5,81 | - |
| Average 2006-09 | 14,80 | 81,99 | 5,54 | - |

Source: Statistical Office of the Republic of Serbia, UN FAO

The highest raspberry production in Serbia for the whole observed period was recorded in 2002 amounted almost 94.000 tons. Policy measures implemented in the country were the main reason for such high level of production. To support raspberry production, the government introduced tax-free inputs (farm chemicals) required for raspberry growing. Beside, in that period government was supporting raspberry export by paying 1% export subsidy per exported invoice value to the raspberry exporters (Buric, 2003).

Serbian raspberry farms are small, usually family owned, with average raspberry plots between 0,5 and 1 ha (Buric, 2003). Raspberry harvesting is labor intensive and is done by hand.

The assortment of cultivars is rather modest with the dominance of ‘Willamette’, an old raspberry cultivar which represents around 90-95% of total production mainly grown for

processing. Other cultivars used in Serbia's raspberry production are 'Meeker', 'Promise' and 'Gradina'. Due to the predominance of a single cultivar, the harvesting takes place over a short period of time, it lasts only four to six weeks in the summer, starting in late June and ending in July. This increases the risks of crop damage by the weather and shift prices downwards (EC Commission, 2006).

The raspberries in Serbia are grown in the following regions:

- West Serbia (Arilje, Cacak, Pozega, Uzice, Ljubovija), which produces 55% of the total raspberry production;
- Central Serbia (Valjevo, Sabac, Osecina), where 35% of the total raspberry output is produced;
- South-West Serbia (Brus, Aleksandrovac, and Kursumlija) produces the remaining 10% (MAFWM, 2011).

The best lands for raspberry growing are valleys at 400-800 m above sea level. West and Central Serbia provide the best geographical and optimal weather conditions for raspberry growing with its moderate temperature zones, maximum temperatures between 28 and 30 C, medium amount of rainfall and high quality soils.

The region Arilje in West Serbia is considered as a strategic area of the country which provides 1/3 of national and 1/20 of world production of fresh raspberry. Raspberry is grown on the small private plantations, average size 0,4 ha and on the total area of 2.000-4.000 ha. The region is provided with a central cold storage for raspberries freezing with a capacity of 8.000 tons (the biggest one in the world) and 62 smaller local storages with a capacity of 20-2.000 tons.

The high quality of the Arilje raspberry is the result of specific climate conditions, quality soil and production technology. Yields as high as 24 tons/ha have been achieved in Arilje under ideal growing conditions (USAID 1, 2008). The majority of the population in the municipality of Arilje is engaged in raspberry production. The region has around 5.000 farms that produce around 20.000 tons of raspberries by year and the biggest concentration of nursery plants in the world.

The Serbian berry sector involves around 80.000 farms, 250 cold storages and 100 processing factories. More than 90% of Serbian raspberry production is frozen in cold storages and exported later one, while the rest is used in the fruit processing industry or sold on the domestic market, weather in stores or open green markets. Until recently, fresh raspberries could be bought only in bulk on the green markets, but nowadays more farmers and traders sell the fruit packed in the punnets (250 g and 500 g net) at the green markets and supermarkets (USAID 2, 2008). Fresh raspberries are usually consumed and sold during the summer period. Due to the lack of new technologies, Serbia does not have developed commercial production of cakes, ice creams, puddings, yogurt, and puree. Instead, European companies with highly developed processing industries buy Serbian frozen raspberries to produce and later, export processed products.

Individual quick frozen (IQF) raspberries or roland raspberries are the main type of the frozen raspberries exported from Serbia. Standard packaging for export of IQF raspberries is five layer carton box containing four plastic bags weighted 2, 5 kg net each. Ninety percent of all exported raspberries are packed this way, while the remaining 10% of exported raspberries, sold as fresh products, are packed in small cartons in boxes of 500, 600 or 800 grams. This packaging is done mainly at the request of foreign importers or buyers. The buyers provide the firms from Serbia with the small retail boxes. Packaging material must meet EU recycling and environmental standards. Packaging material must meet EU recycling and environmental regulations. Due to the lack of technology and machinery, Serbian companies are not able to meet strict EU requirements and produce packaging material of adequate quality. Foreign firms also provide pre-printed labels for use in their supermarkets. (Buric, 2003).

In the past, some EU companies were making contracts with Serbian freezers who were selling them frozen or processed raspberries. Once in the EU market, Serbian raspberries would be repackaged with other origin label and then re-exported as a fresh, chilled raspberry to USA, Australia and Japan, usually by air.

Due to the large influence of weather conditions on raspberry production, the quantities produced can vary significantly from year to year, which directly affects the producer prices. Raspberry prices in Serbia are freely established on the market, as a result of negotiations between producers and repurchases (owners of the cold storages). During the negotiations, there is always a conflict between farmers who are asking for bigger price of their products and freezing

companies who are trying to achieve higher margins. In recent years, farmers were looking for help from the government to get higher prices and resolve the conflicts, but they did not get any. The government response was that they do not want to interfere in pricing policy and that the prices should be established freely on the domestic market.

When selling their products to processors, cold store plants and brokers, farmers face problems because of the lack of official standardization and classification of fresh raspberries and berries in general. In the 1990s, Serbian raspberries were classified into grading systems (grade A and B) based on the quality of the produced raspberry which helped in differentiation of the raspberry prices. Later on, when the preoccupations of the raspberry sector turned more to the quantity rather than the quality of the products, the grading system was abandoned. Recently, processors are trying to re-introduce the grading system (EC Commission, 2006).

Although the producer prices are negotiated and agreed before every harvest season, usually the prices, dictated by owners of cold storages, are formed and paid to producers on a daily basis depending on the quality of raspberries and market situation. The producer prices are lower in the cases where there are the reserves of the raspberries from the previous year.

In order to stimulate raspberry production, Serbian Ministry of Agriculture introduced export subsidy which applies to raspberry juices; 10% of the export price. The government provides support for setting up new raspberry plantations and improvement of the old ones (planting of new producing and primary nurseries, and abolishing the old, infected raspberry plantations) (MAFWM, 2011). As the credit support, the state provides: (1) long-term credits for new plantations establishment, machinery for raspberry production and for building new and renovation existing processing and storage facilities; and (2) short-term credits for working capital used in the raspberry production (inputs and packaging material) (MAFWM, 2011).

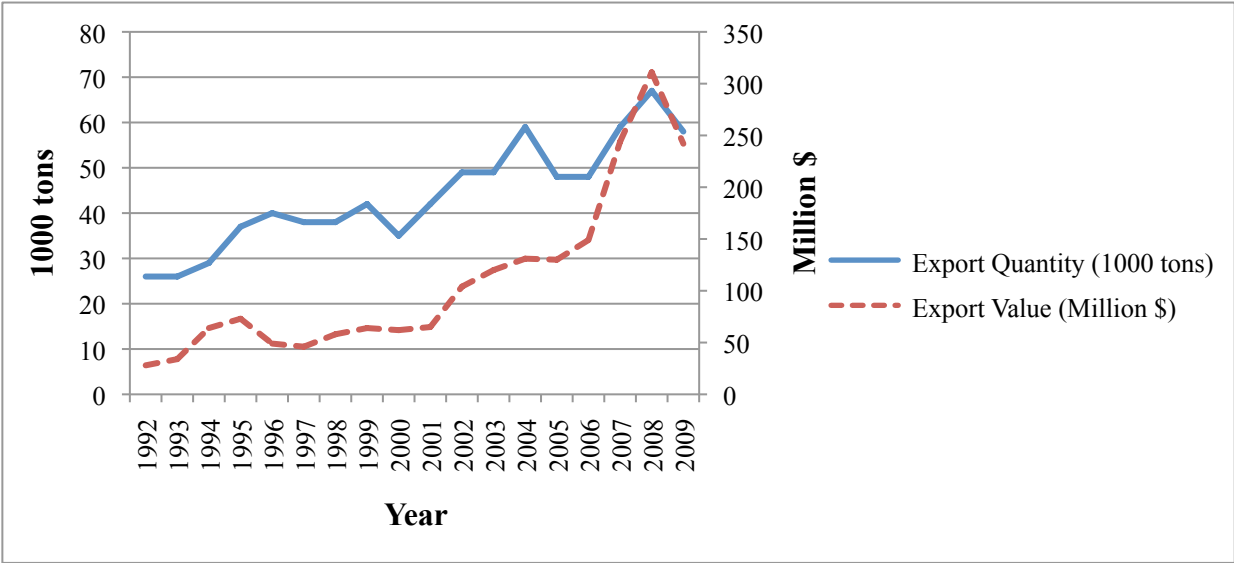
2.5 Raspberry trade

2.5.1 World raspberry trade and major exporters of frozen raspberries

2.5.1.1 World raspberry trade

In 2009, fresh raspberries accounted for 22% and frozen raspberries for 78% of the global raspberry trade by value. Figure 3 presents the world trade of fresh raspberries for the observed period. From 1992 to 2009, world trade of fresh raspberries by quantity has doubled. The biggest exported trade, both by volume (67.000 tons) and value (311 million USD) was recorded in 2008, while in 2009 both of the values slightly decreased.

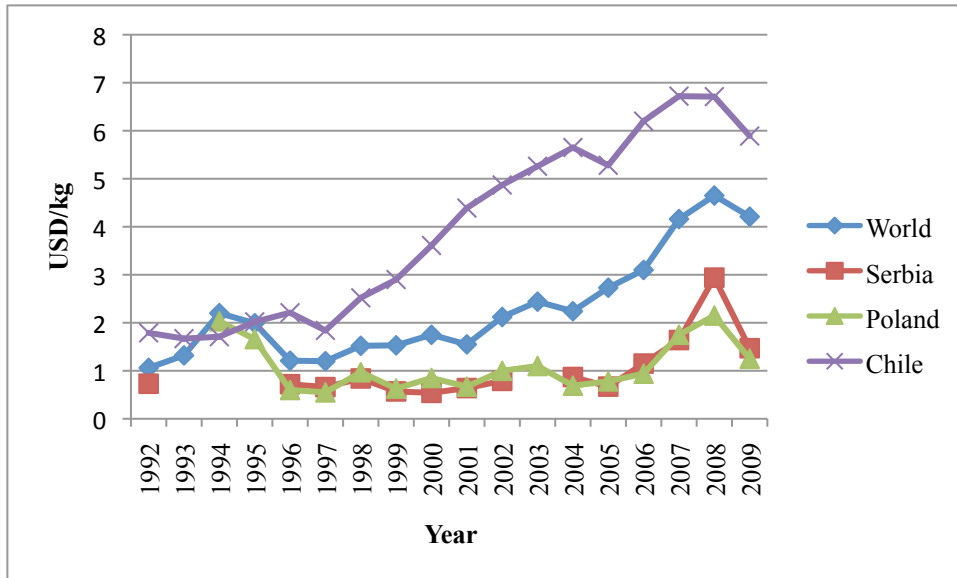
Figure 3. World trade of fresh raspberries by volume and value, 1992-2009



Source: UN FAOSTAT

The development within the world average export price of fresh raspberries as well as the export prices of Chile, Poland and Serbia are presented in Figure 4.

Figure 4. The average export price of fresh raspberries in the world, Chile, Poland and Serbia, 1992-2009



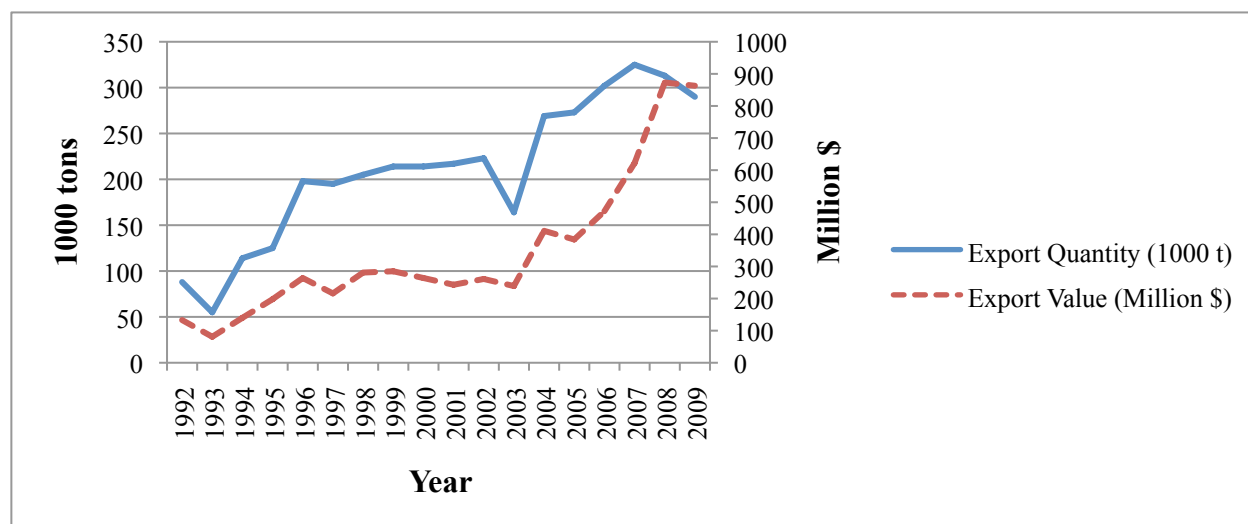
Source: UN FAOSTAT

In 2004, world export price of fresh raspberries was 2,2 USD/kg, while in 2009, the export price almost doubled; it was 4,2 USD/kg. The reason for this increase of export price is increased demand for fresh fruits, particularly on the markets of USA and EU, from the consumers, processing industry and bakery industry. The changes in consumer taste for higher quality, better flavour and appearance of the raspberry fruit have considerably affected total demand for raspberry.

Chile's export prices of fresh raspberries are among the highest ones in the world. Chile receives higher prices through the export of fresh raspberries in the northern hemisphere, i.e., in the USA and EU during their off-season. Export prices of Poland and Serbia are very similar and beyond Chile's and world average export prices. While Chile's raspberries are exported and sold in the foreign supermarkets and consumed fresh, Serbia's fresh raspberries are mainly exported for further processing.

World trade of frozen raspberry export is presented in Figure 5. In 2009, the exported quantity of frozen raspberries was 290.000 tons amounted to 863 million USD. Frozen raspberries are more widely traded geographically than the fresh one since they can be surface-freighted over long distances.

Figure 5. World trade of frozen raspberries by volume and value, 1992-2009



Source: UN Comtrade

The structure of the world trade in raspberries, presented in Tables 6 and 7, shows that some of the largest raspberry producers have a significant role when it comes to raspberry trade. Serbia, the United States and Poland, ranked as a world biggest raspberry producers, following Russia, are also the largest exporters of raspberries, contributing between them more than 33% of total raspberry trade by value. Chile, Spain and Mexico, although not ranked as biggest producers, play a significant role in raspberry export, contributing around 30% of total raspberry trade. Mexico and Spain, which are concentrated on fresh raspberry export supply their neighbouring countries. Mexico exports its fresh crop mainly to the USA, while Spain distributes its fresh product to UK and France. The majority of Chilean exports are frozen raspberries to the North American and the EU market. Chile exports a certain amount of fresh raspberries to the North

America (USA and Canada) due to the proximity of the market. The other raspberry exporting countries are Belgium, Netherlands, Austria, Germany and Canada.

Table 6. Total raspberry exports by value in selected countries, 1992-2009

| | 1992-1999 | | | | 2000-2005 | | | | 2006-2009 | | | |
|--------|---------------|-----------|-----------|------------|----------------|-----------|-----------|------------|---------------|-----------|-----------|------------|
| | Value (mil\$) | Share (%) | Fresh (%) | Frozen (%) | Value (mil \$) | Share (%) | Fresh (%) | Frozen (%) | Value (mil\$) | Share (%) | Fresh (%) | Frozen (%) |
| Serbia | 64 | 25 | 2 | 98 | 92 | 23 | 5 | 95 | 190 | 20 | 7 | 93 |
| Poland | 68 | 27 | 26 | 72 | 73 | 18 | 24 | 76 | 170 | 18 | 24 | 76 |
| Chile | 46 | 18 | 12 | 88 | 75 | 19 | 26 | 74 | 145 | 15 | 13 | 87 |
| USA | 10 | 4 | 64 | 36 | 33 | 8 | 79 | 21 | 136 | 15 | 89 | 11 |
| Spain | 5 | 2 | 79 | 21 | 42 | 10 | 98 | 2 | 113 | 12 | 99 | 1 |
| Mexico | 4 | 2 | 80 | 20 | 41 | 10 | 96 | 4 | 130 | 14 | 97 | 3 |
| Other | 81 | 22 | - | - | 47 | 12 | - | - | 61 | 6 | - | - |
| World | 252 | 100 | 21 | 79 | 407 | 100 | 25 | 75 | 944 | 100 | 25 | 75 |

Source: UN FAOSTAT, UN Comtrade

The average share of Serbia, Poland and Chile as three biggest exporters of frozen raspberries in the world decreased over the periods. The average share of these three countries was 70% in the first, 60% in the second and 53% in the third period. On the other side, the share of USA, Spain and Mexico as three largest exporters of fresh raspberries in the world increased significantly, from 8% in the first, 28% in the second and 44% in the third period. In 2006-2009, the average share of these six countries of the total value exported was 96%.

In Table 7 the main importing countries of raspberries are presented. The biggest importers of raspberries in the world are the countries of North America (USA and Canada) and EU (Germany, France, United Kingdom and Belgium). The major importers of fresh raspberries are USA, Canada and UK. During three periods, the average share of these three countries in the world raspberry import increased from 19% in the first and 32% in the second to 40% in the third period.

Germany, France and Belgium are the biggest importers of frozen raspberries. The average share of these three major importers in the world raspberry import decreased over the periods, it was

47% in the first, 39% in the second and 32% in the third period. The other raspberry importing countries are Netherlands, Italy, Austria and Switzerland.

Table 7. Total raspberry imports by value in selected countries, 1992-2009

| | 1992-1999 | | | | 2000-2005 | | | | 2006-2009 | | | |
|---------|----------------|-----------|-----------|------------|----------------|-----------|-----------|------------|---------------|-----------|-----------|------------|
| | Value (mil \$) | Share (%) | Fresh (%) | Frozen (%) | Value (mil \$) | Share (%) | Fresh (%) | Frozen (%) | Value (mil\$) | Share (%) | Fresh (%) | Frozen (%) |
| Germany | 106 | 33 | 15 | 85 | 115 | 21 | 15 | 85 | 206 | 16 | 21 | 79 |
| USA | 29 | 9 | 58 | 42 | 86 | 16 | 65 | 35 | 242 | 19 | 71 | 29 |
| France | 37 | 11 | 18 | 82 | 64 | 12 | 29 | 71 | 140 | 11 | 33 | 67 |
| UK | 24 | 7 | 23 | 77 | 55 | 10 | 57 | 43 | 145 | 11 | 71 | 29 |
| Canada | 10 | 3 | 58 | 42 | 30 | 6 | 65 | 35 | 132 | 10 | 82 | 18 |
| Belgium | 11 | 3 | 18 | 82 | 32 | 6 | 28 | 72 | 66 | 5 | 25 | 75 |
| Other | 111 | 34 | - | - | 160 | 29 | - | - | 373 | 28 | - | - |
| World | 326 | 100 | 24 | 76 | 542 | 100 | 37 | 63 | 1305 | 100 | 47 | 53 |

Source: UN FAOSTAT, UN Comtrade

2.5.1.2 Major exporters of frozen raspberries in the world

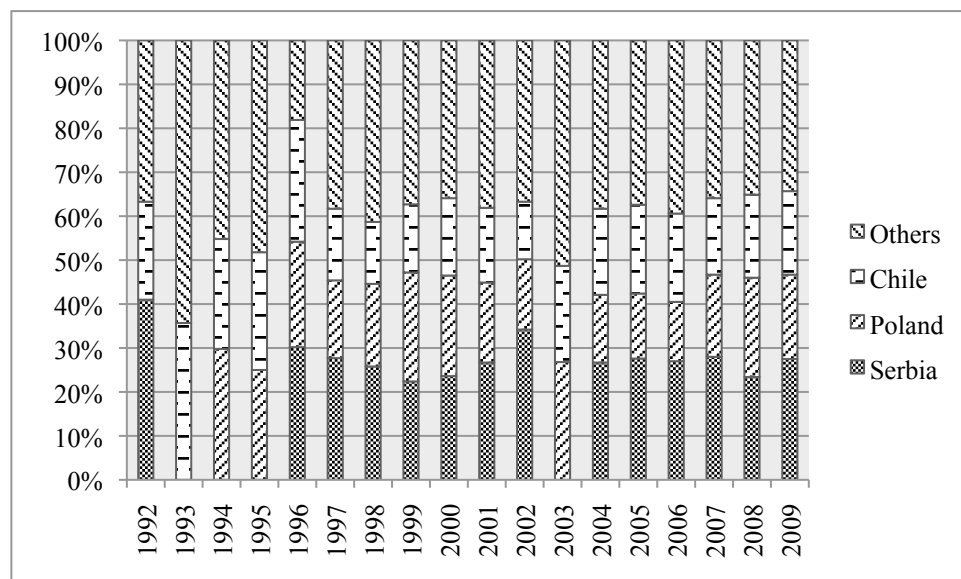
Serbia, Poland and Chile are the main exporters of the frozen raspberries in the world. During 1992-2009, these three countries contributed the most in the world raspberry trade, with its share of around 65%. In 2009, world trade value of frozen raspberries was 753 million USD. Serbia exported 207 million USD, Poland contributed 144 million USD and Chile contributed 142 million USD in the total world trade. Market share of Serbia, Poland and Chile in raspberry trade by value was 66%. Belgium and Netherlands are following contributing to around 7% and 5% respectively of the market share. All five of these countries contribute to around 78% of the total raspberry trade. The market shares of three biggest raspberry exporters are presented in Figure 6.

In 2009, Serbia had the largest share in the world trade of frozen raspberries (28%). It was followed by Poland and Chile, which had the same market share (19%). During 1992-2009, Serbia had a leading position in world raspberry trade, except for the year 1999, when it was ranked second, behind Poland due to the unfavourable political situation in the country. The data

for 2003 for Serbia's and for 1992 and 1993 for Poland's trade are missing in UN Comtrade database.

In 1992, Serbia had a largest share of world trade over the whole observed period accounting for 41% of the total. During 1992-1995, Serbia was not allowed to trade due to the sanctions. Serbia's main competitors, Poland and Chile took advantage of the loss of Serbia's exports and since then their exports started to grow. In 1996, these three countries had a highest recorded share during the observed period, accounting for 82% of the whole world raspberry trade. One of the main reasons for such a high share was the return of Serbia in the world raspberry trade after the lifting of sanctions in 1995 and three years of isolation.

Figure 6. Share of Serbia, Poland and Chile in the world trade of frozen raspberries, 1992-2009



Source: UN comtrade

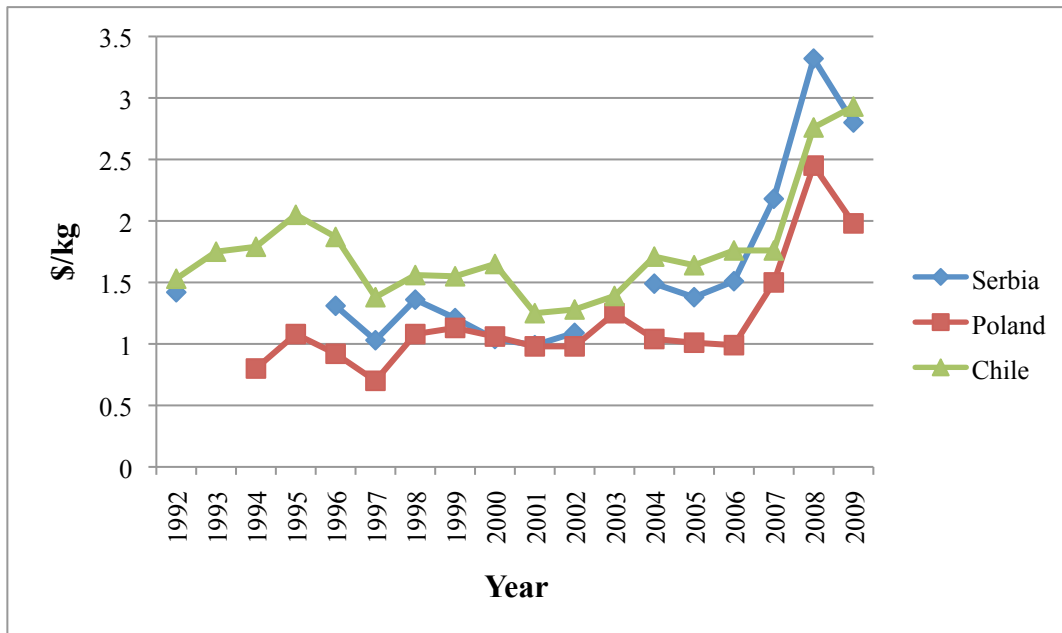
Poland is a main Serbia's competitor in Europe. Since it is a member of the European Union, Poland benefits from the many economic advantages which members enjoy. The structure of the Poland's frozen raspberry export is very similar to the Serbia's. The main export destination for the Poland's raspberries is the EU (Germany, Belgium, Netherlands, UK and France).

Chile is the biggest raspberry producer in the Southern Hemisphere. Until the mid-1980s, Chile was mainly concentrated on fresh rather than frozen raspberry trade. From 1989, the production and export of frozen raspberries increased due to the investments in freezing and processing facilities. This expansion of frozen fruit trade was mostly driven by the war conflict and trade sanctions imposed on Serbia, which stopped fruit export from the country thereby creating an opportunity for Chilean companies to consolidate market share in Europe (Challies, 2010). Most Chilean exports go to the USA, which together with Canada absorbs 50% of their raspberry exports. The European countries absorb around 30%, with France being the biggest customer. Australia, New Zealand, Brazil, Japan and Mexico are also destinations of Chilean frozen raspberries absorbing around 11% of country's export (UN Comtrade).

Raspberry prices are different every year. Supply and demand on domestic and world market, raspberry quality, logistics, drying and packaging, weather conditions, import duties and exchange rates between dollar and euro are influencing the raspberry prices. The world average export price is 1,5 USD/kg (Kljajic, 2011). So far, the highest export prices were attained by Italy, UK, Chile, Canada, Austria, Germany and Serbia except that Serbia had the lowest export prices (Kljajic, 2011). The price of fresh raspberries is much higher than those of frozen raspberries. For instance, the price of fresh raspberries exported from Spain, the biggest European fresh raspberry exporter in 2009 was 8, 51 USD/kg, while the price of frozen raspberries exported from Serbia was 2, 8 USD/kg.

Export prices of Serbia, Poland and Chile, as three main exporters of frozen raspberries are presented in Figure 7. The export prices are calculated by dividing export value of the country by its exports volume for each of the year from the period.

Figure 7. Export prices of frozen raspberries in Serbia, Poland and Chile, 1992-2009



Source: UN Comtrade

The advantage of Poland is that it is closer to the EU consumers, which means that raspberry prices from Poland are slightly lower than those from Serbia. In 2008, the international price of frozen raspberries recorded the highest level as a result of poor harvest in Poland, Serbia and Chile in the previous year. Frozen raspberry export prices from Serbia, Chile and Poland were 3,3 USD/kg; 2,8 USD/kg; and 2,5 USD/kg respectively. Chile's export prices are higher due to the higher transportation costs. During almost the entire observation period, Chile received the highest export prices, except in 2007 and 2008 when export prices from Serbia were higher.

2.5.2 Serbia's raspberry export

In 2009, the total value of Serbian raspberry export was 216 million USD. Frozen raspberry export accounted for 96% (207 million USD) out of the total exported value while the fresh raspberry exported value accounted for remaining 4% (9 million USD). This section is divided into two sub-sections which analyse fresh and frozen raspberry market in Serbia separately.

2.5.2.1 Serbia's export of frozen raspberries

In 2009, Serbia's share in the world trade of frozen raspberry by value was 28%. As a world leading raspberry exporter, Serbia barely import this commodity. The small quantity imported is used as a fertilizer in fruit production and processing and is not going to be analyzed.

Serbia's export of frozen raspberries is presented in table 8. Due to the trade sanction imposed by UN from 1992-1995, Serbia was not allowed to trade and thus had not recorded export within this period. During 1992-1999, Serbia had a leading position in the world raspberry trade, except in 1999, when it was ranked second, behind Poland, due to the unfavourable political situation in the country and the conflict in Kosovo. One of the biggest quantities exported was recorded in 2002 as a result of lifting sanction the year before, where EU countries bought majority of the Serbia's raspberries.

Table 8. Serbia's export of frozen raspberries by quantity and value, 1992-2009

| Year | Quantity (000 t) | Value (million \$) |
|-----------------|---------------------|-----------------------|
| 1992 | 38 | 54 |
| 1993 | 0 | 0 |
| 1994 | 0 | 0 |
| 1995 | 0 | 0 |
| 1996 | 54 | 62 |
| 1997 | 58 | 60 |
| 1998 | 53 | 72 |
| 1999 | 53 | 64 |
| Average 1992-99 | 51 | 62 |
| 2000 | 60 | 62 |
| 2001 | 66 | 65 |
| 2002 | 81 | 89 |
| 2003 | - ^a | - ^a |
| 2004 | 73 | 109 |
| 2005 | 79 | 109 |
| Average 2000-05 | 72 | 87 |
| 2006 | 82 | 124 |
| 2007 | 78 | 170 |
| 2008 | 62 | 204 |
| 2009 | 74 | 207 |
| Average 2006-09 | 74 | 176 |

Source: UN Comtrade

Note: ^a The data for 2003 are missing in UN comtrade database

The trade over the periods increased, both by quantity and value. The average export by quantity in the second period increased by 30% compared to the first period. An average export in the third period recorded slightly increase by 3% compared to the second period. The largest exported quantity of frozen raspberries of 82.000 tons was recorded in 2006.

Serbia's frozen raspberries are mainly exported to the EU countries. The main importers of Serbia's frozen raspberries are shown in Table 9. More than 70% of the total Serbia's export by value in the period 2006-2009 went to the four countries: Germany, France, Austria and Belgium. Germany is the leading raspberry importer, both by volume and value. It had the biggest share in Serbia's raspberry export during the whole observed period. In the third period, the share of Germany in the total Serbia's raspberry export by value was 30%. It decreased over the periods in the favour of France, Austria and Belgium which average shares increased during the periods. Between these three counties, France recorded the highest increase in the average share in import of Serbia's frozen raspberry. The average share in the third period increased by 32% compared to the first period.

Table 9. Importers of Serbia's frozen raspberries by volume and value

| Country | Imports by value (million \$) | | | Share (%) | | | Imports by volume (000 t) | | | Share (%) | | |
|----------|----------------------------------|-------|-------|-----------|-------|-------|------------------------------|-------|-------|-----------|-------|-------|
| | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 |
| Germany | 27 | 29 | 53 | 44 | 33 | 30 | 22 | 26 | 22 | 43 | 36 | 30 |
| France | 9 | 14 | 38 | 15 | 16 | 22 | 7 | 11 | 15 | 14 | 15 | 20 |
| Austria | 6 | 9 | 19 | 10 | 10 | 11 | 5 | 8 | 9 | 10 | 11 | 12 |
| Belgium | 4 | 9 | 17 | 6 | 10 | 10 | 3 | 7 | 6 | 6 | 10 | 8 |
| Other EU | 12 | 23 | 39 | 19 | 26 | 22 | 11 | 17 | 17 | 22 | 24 | 23 |
| Other | 4 | 3 | 10 | 6 | 3 | 6 | 3 | 3 | 5 | 6 | 4 | 7 |
| World | 62 | 87 | 176 | 100 | 100 | 100 | 51 | 72 | 74 | 100 | 100 | 100 |

Source: UN Comtrade

Ninety four percent of Serbia's frozen raspberries are exported to the EU. The other EU countries importing Serbia's raspberry are Sweden, United Kingdom, Netherlands, Italy, Poland and Denmark with the average share of 22% of total Serbian export by value in the period, 2006-2009. The remaining amount of Serbia's export (6%) is destined to the Switzerland, Russia, USA, Japan and Canada.

The average share by value of the countries under category 'other' increased from 3% to 6% over the last two periods. The main importers of Serbian frozen raspberries from the category

‘other’ in the third period were Japan and USA contributing about 1% of the total Serbian export each. The share of these two countries during the first two periods was insignificant, but starting from the last few years the share is constantly increasing. In 2009, Serbia was the world leader in export of frozen raspberries to Japan. Serbia’s share in the frozen raspberry export by value was 24%; it was followed by Chile (21%), USA (18%) and France (18%).

2.5.2.2 Serbia’s export of fresh raspberries

Although ranked first in frozen raspberry trade, Serbia’s share in fresh raspberry export is much smaller. In 2009, its market share in world export trade of fresh raspberries by value was less than 2%. Serbia’s fresh raspberry export is presented in Table 10.

Table 10. Serbia’s export of fresh raspberries by volume and value, 1992-2009

| Year | Quantity (t) | Value (000 \$) |
|-----------------|-----------------|-------------------|
| 1992 | 182 | 132 |
| 1993 | 0 | 0 |
| 1994 | 0 | 0 |
| 1995 | 0 | 0 |
| 1996 | 2322 | 1662 |
| 1997 | 803 | 532 |
| 1998 | 1734 | 1458 |
| 1999 | 2941 | 1677 |
| Average 1992-99 | 1596 | 1092 |
| 2000 | 1135 | 616 |
| 2001 | 2622 | 1682 |
| 2002 | 14654 | 11562 |
| 2003 | - | - |
| 2004 | 5560 | 4815 |
| 2005 | 9439 | 6291 |
| Average 2000-05 | 6682 | 4993 |
| 2006 | 8322 | 9547 |
| 2007 | 9471 | 15513 |
| 2008 | 6560 | 19278 |
| 2009 | 5798 | 8517 |
| Average 2006-09 | 7538 | 13214 |

Source: UN Comtrade

Serbia's fresh raspberry export increased over the periods. The average fresh raspberry export by volume in the third period increased by 80% compared with the first and by 11% compared with the second period. The biggest quantity exported was recorded in 2002 at 15 000 tons as a result of lifting sanction the year before.

Due to the preferential status given by EU in 2001, Serbia benefited from open access to the EU market. In 2009, more than 98% of fresh raspberries are exported to the EU, while remaining quantity is exported to Russia and neighbouring Bosnia and Herzegovina. The average shares of the countries that were the main markets for Serbia's fresh raspberry export and for the rest of the world are presented in Table 11.

Table 11. Importers of Serbia's fresh raspberry by volume and value

| Country | Imports by value (1000 \$) | | | Share (%) | | | Imports by volume (t) | | | Share (%) | | |
|-------------|-------------------------------|-------|-------|-----------|-------|-------|--------------------------|-------|-------|-----------|-------|-------|
| | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 | 92-99 | 00-05 | 06-09 |
| Austria | 448 | 2478 | 6193 | 41 | 50 | 47 | 682 | 3275 | 3468 | 43 | 49 | 46 |
| Germany | 302 | 1032 | 1961 | 28 | 21 | 15 | 467 | 1412 | 1137 | 29 | 21 | 15 |
| Italy | - | 594 | 3352 | - | 12 | 25 | - | 742 | 1522 | - | 11 | 20 |
| Netherlands | - | 218 | 1170 | - | 4 | 9 | - | 321 | 994 | - | 5 | 13 |
| Other EU | 127 | 300 | 396 | 11 | 6 | 3 | 153 | 499 | 295 | 10 | 7 | 4 |
| Other | 215 | 371 | 142 | 20 | 7 | 2 | 294 | 433 | 122 | 18 | 6 | 2 |
| World | 1092 | 4993 | 13214 | 100 | 100 | 100 | 1596 | 6682 | 7538 | 100 | 100 | 100 |

Source: UN comtrade

With an average share of 98% in the period 2006-2009 EU countries were the biggest importers of Serbia's fresh raspberries by value. Their share in the Serbia's export increased by 18% compared with the first and 5% compared with the second period. Austria was the biggest importer of Serbia's fresh raspberries during the whole observed period, with average shares of 41%, 50% and 47% during three periods. The average share of four EU countries, Austria, Germany, Italy and Netherlands was 95% in the third period. Three percent belonged to the other EU countries, Belgium, Spain, Slovenia and France.

During the first period, Serbia did not export to Italy and Netherlands. Serbia started exporting its fresh raspberries in 1999 to the Italy and in 2002 to the Netherlands. The average share of these two countries in Serbia's export was 34% in 2006-2009. The average share of Serbia's

export to Germany decreased over the periods. The average share in the third period decreased by 46% compared with the first and by 25% compared with the second period (although the share of Serbia's export to Germany in 2009 was 25%). Nowadays, Germany mainly imports from Poland and Spain.

The obtained analysis is the combination of the qualitative and the quantitative findings that contribute to explaining the conditions prevailing in the raspberry sector in Serbia. Raspberry sector is analysed with respect to production, trade and prices in the world market, domestic market and the markets of two main competitors, Poland and Chile. Data sources provided in this chapter will serve as a basis to the analysis of the competitive position of the Serbia's raspberry sector in relation to main competitors.

3 Theoretical background

This chapter introduces some of the main methods and concepts of international economics and trade theories. The main concepts of trade theory are the principles of comparative and competitive advantage. The question of competitiveness is of great importance for every industry, nation and government since it helps in understanding “why some nations succeed and other fail in the international competition” (Porter, 1990).

The difference between the principle of competitive advantage and comparative advantage is the concept of a one-time advantage versus sustainable advantage in dynamic competitive markets. An industry of the certain country has a comparative advantage in the specific product if it is a subject to a lower relative autarky price to that product compared to the foreign country. This advantage exists at one point of time and can be competed away by the strategic actions of rivals. A country’s industry has a competitive advantage if it is able to utilize its resources to create more value than the competitors and if it can develop and maintain better performance over time (Caves et al., 1990). While the concept of comparative advantage relies on nationally endowed factor advantages, the concept of competitive advantage emphasises the importance of continuous efforts, learning and innovation in the continuously changing environment (Porter, 1990).

This chapter is divided into three sections. Sections 3.1 and 3.2 present the concepts of comparative and competitive advantage, respectively and the models that illustrate these concepts. Section 3.3 presents the review of the existing literature on the SWOT analysis, the model which is used for analysing Serbia’s raspberry sector.

3.1 Comparative advantage

According to the economic theory, a country has a comparative advantage in producing goods if the opportunity cost of producing that good in terms of other goods is lower compared to the opportunity costs of the other countries. Therefore, trade between two countries can benefit both countries if each country exports the goods in which it has a comparative advantage and import goods that their labor produces relatively inefficiently (Krugman and Obstfeld, 2003).

The partial equilibrium model is a useful tool to understand the reasons why trade happens between countries and the effects of international trade on national welfare. The partial equilibrium modelling is a simple framework and a useful tool for highlighting the special features of the various policy measures used in international trade. The model is static, sector or commodity specific, only concentrating on the price of that specific good. These assumptions simplify the modelling but diminish its use to capture interactions between sectors or commodities assuming that the prices of all other goods remain constant.

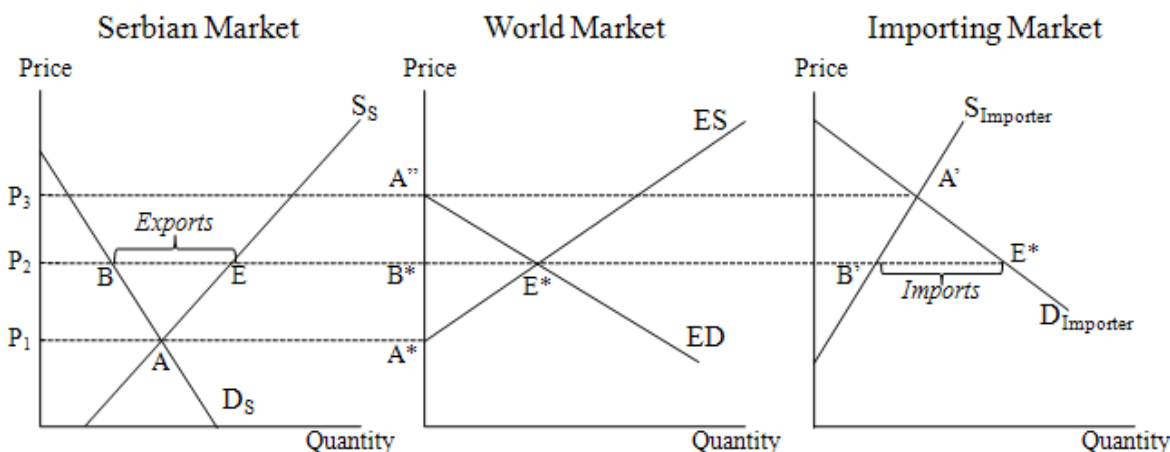
The partial equilibrium model presented in Figure 8 depicts a two-nation regime where the three panels of figure present price-quantity graphs based on supply and demand interactions in the domestic markets of the exporting country (Serbia), the rest of the world (importers), as well as the world market as a whole.

A country, which has a comparative advantage in the production of the commodity considered, is presented in the left panel of figure 8. In a closed economy, under an autarky situation, this country will be in equilibrium with quantity supplied and demanded corresponding with point A. The domestic equilibrium price will be p_1 . The right panel of figure 8 represents the countries that have a relative disadvantage in the production of this specific commodity. The initial production, consumption and demand equilibrium for this country is depicted as point A' and the prevailing domestic price is p_3 .

With the opening of trade, these two countries will adjust production, consumption and prices to the aggregate supply and aggregate demand of the commodity in question. At any price level above p_1 , the supply on the exporting market exceeds the demand. Correspondingly there will be

an excess demand on the importing market at prices below p_3 . The world-price will lie between the initial domestic prices and will initiate trade between two countries (Salvatore, 1998; Houck, 1986; Tweeten, 1982).

Figure 8. Partial equilibrium framework



Source: Salvatore, 2010

S_s and D_s in the left panel represent initial supply and demand functions in the Serbian market and $S_{importer}$ and $D_{importer}$ in the right panel represent initial supply and demand functions in importing markets. ES and ED functions in the center panel represent initial excess supply and excess demand in the world market (Pan et al., 2005).

The excess supply curve (ES) illustrates how the excess supply from Serbia varies according to the changes in the relevant prices, and the excess demand curve (ED) illustrates how the size of the excess demand on the importing market varies according to the price levels. Trade will expand until the price of specific commodity is equal in both, exporting and importing markets and there are no advantage or arbitrage possibilities in further trade, still excluding transportation costs, other transfer costs and governmental intervention. When the commodity market is in such equilibrium, the commodity price is decided by the interaction between the ED and ES curve in

the world market. On the world market, the ED curve represents the horizontal difference between the demand and supply curve for the importer, while the ES curve shows the horizontal difference between the supply and demand curves for Serbia as an exporting market. These shows the amounts imported and exported, together with the world market price, and the ES and ED curves are usually more elastic than respectively the supply and demand functions in the domestic markets (Houck, 1986). Only at P_2 (the world market) does quantity of imports demanded equal quantity of exports supplied (Salvatore, 2010). Thus P_2 is equilibrium-relative commodity price with trade. The domestic prices in the two countries are equal to the world price, and the quantity of world (Salvatore, 1998; Houck, 1986; Tweeten, 1982).

Partial equilibrium models analyze changes in prices and quantities in a market without taking into account price and quantity movements in other markets. In the partial equilibrium modeling the focus is on the small part of the total economy, often on the one sector or one commodity. If we are interested in studying the particular market, say the market for raspberries, we can make the assumptions that the prices of all other commodities move in tandem. Partial equilibrium model is used as the theoretical framework for this study, since the study is concentrated on one particular agricultural sector (raspberries sub-sector), without considering other agricultural and non-agricultural sectors of the country as well as their prices.

In better explaining the comparative advantage, this study presents the quantitative analysis tool; through observation trade performance index that measure comparative advantage, Balassa index (BI). Balassa index is an index of revealed comparative advantage at the sector level that shows the success in the export markets relative to the performance of the economy in general. As an index of revealed comparative advantage (RCA), the Balassa index measures the intensity of trade specialization of a country within the region or the world (OECD).

Given the group of reference countries, the Balassa index is calculated as the ratio of the share of a certain product in the country's exports to another country or region to the share of the same product in that country or region's total exports. As the reference country can be taken any country, region or the world as a whole.

The Balassa index for the raspberry sector is formulated as follows:

$$BI = \{ X^{Raspberries}_{Serbia} / X^{Agriculture}_{Serbia} \} / \{ X^{Raspberries}_{World} / X^{Agriculture}_{World} \}$$

Where:

BI - Balassa index

$X^{Raspberries}_{Serbia}$ - value of the raspberries exported from Serbia in a certain year;

$X^{Agriculture}_{Serbia}$ - total value of agricultural production exported from Serbia (same year);

$X^{Raspberries}_{World}$ - value of the raspberries exported from the world in a certain year;

$X^{Agriculture}_{World}$ - value of the total agricultural exports from the world in the certain year.

If the value of the Balassa index is greater than 1, that means that the country has a comparative advantage in the industry (raspberry industry), since this industry is more important for this country's exports than for the exports of the compared countries. Higher value of the index indicates better sector/industry specialisation, one in which the product belongs. The values of the Balassa index for raspberry sector in Serbia and competitors' countries will be presented in chapter 5.

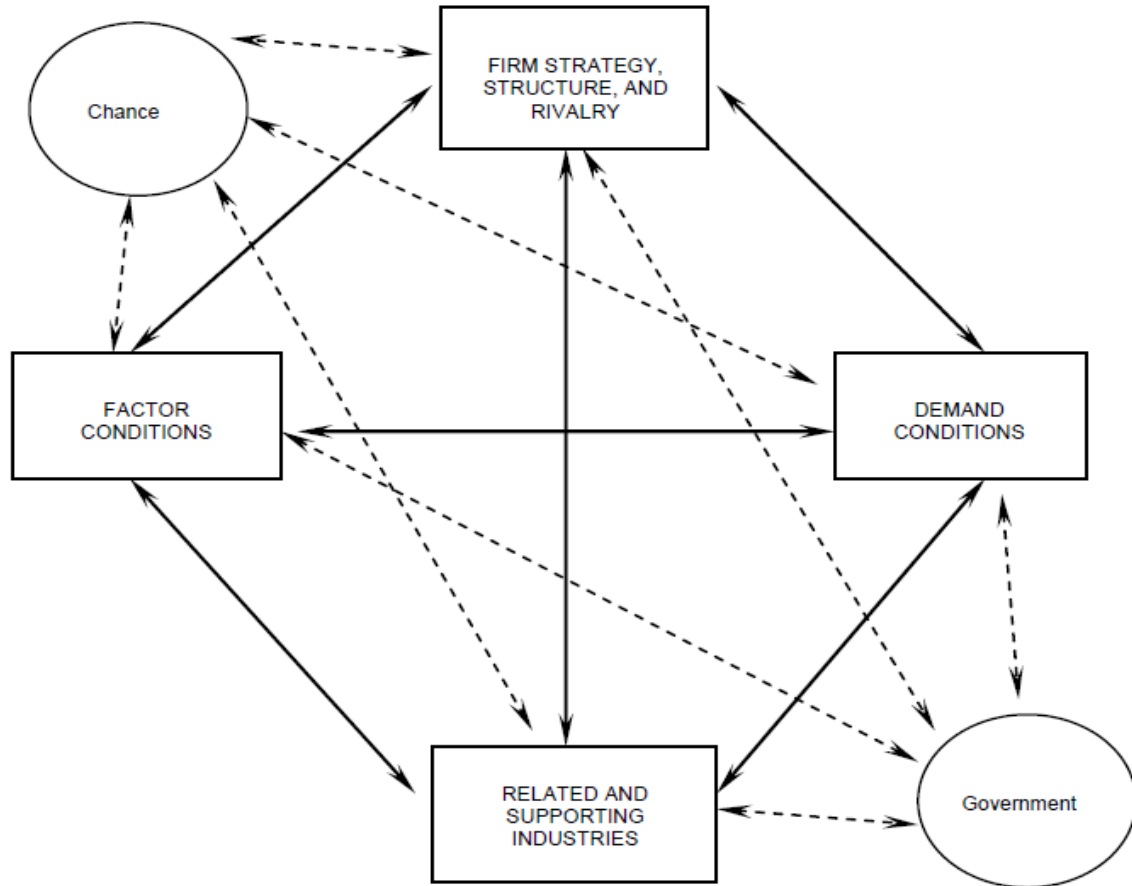
3.2 Competitive Advantage

The competitive advantage of the country (region) is the set of the activities in which enterprises based in the country tend toward international competitive advantage (Porter, 1990). According to Porter, the nations are most likely to succeed in the industries in the cases where the national “diamond” is the most favourable. The term “diamond” refers to the determinants of national advantage connected as a system. The “diamond” is the system in which the role of any determinant cannot be isolated from the others and the effect of one determinant is dependent on the state of the others.

The functioning patterns of the “Diamond” model can be explained by examining the industry over a certain period and the way how it achieves and maintains international success. Porter states that no nation can be competitive in everything due to the limits of human and other resources. The ideal is that the resources should be used in the most productive way possible.

The Porter’s Diamond model is based on four basic factors: (1) factor conditions, (2) demand conditions, (3) firm strategy, structure and rivalry and (4) related and supporting industries. In addition, there are two external determinants: (5) government and (6) chance. Each of the diamonds and the diamond as a whole system affect the international competitiveness of the industry. The factors and the whole model are presented in Figure 9.

Figure 9. The “Diamond Model”



Source: Porter, 1990

The six variables of the Diamond model are explained below.

Factor conditions are the factors of production and infrastructure necessary to compete in an industry. They include the labor skills and natural resources that can provide an advantage in the early stages of development. Porter distinguishes two groups of factors, basic and advanced factors. The basic factors are inherited by the nation and they are related to natural resources and endowments, abundant cheap labor, geographic location, and climatic condition among others. The advanced factors like the base of skilled workers, high tech technology, research and development in institutions are created by the nations. It is expected that the second group of

factors will provide a more sustainable source of competitive advantage than the first group (Porter, 1990).

Demand conditions show the nature of home demand for the product or service of the industry. The conditions are the pressures based on buyers' requirements of the quality, price and services in the certain industry. Nations gain competitive advantage in the industries where the home demand gives local firms a clearer picture of buyers' needs than foreign rivals can have. This will prepare the industry to compete internationally in future development (Porter, 1990).

Related and supporting industries are the networks of suppliers and distributors that cooperate with the industry to support it in the worldwide competition. Related industries are those in which organizations can coordinate or share activities in the value chain when competing (Porter, 1990).

Firm strategy, structure and rivalry capture the conditions of domestic competition, the way how companies are created and managed and the nature of domestic rivalry. National advantage results from a good coordination between goals, strategies and ways of organizing firms in industries, and the sources of competitive advantage in the industry. The level of domestic competitiveness of the industry will influence the increase in productivity needed to compete internationally (Porter, 1990).

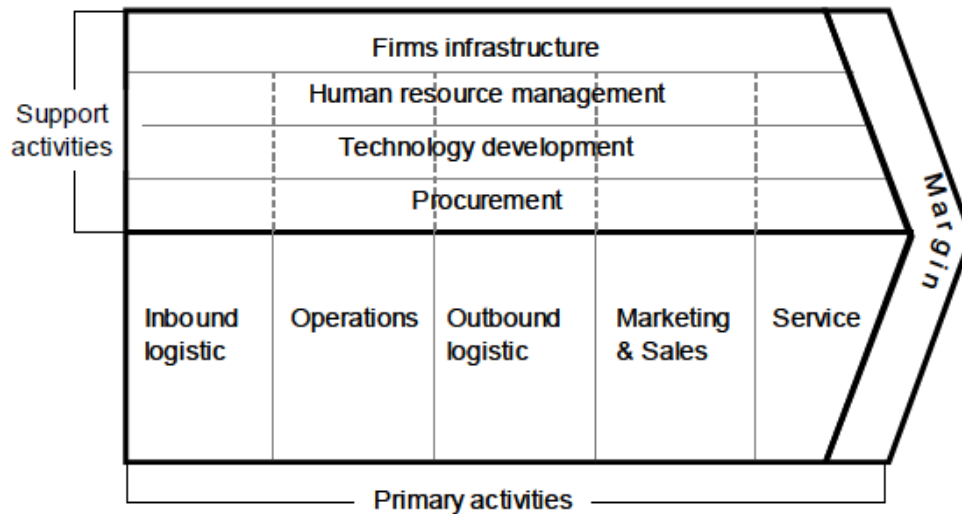
Government can influence the competitiveness and the national advantage of the industries. The role of the government can be seen by examining how policies (subsidies, taxes, educational policies, roles, antitrust laws, quality standards, capital market regulations etc.) influence each of the determinants. The policies and regulations made by policymakers can benefit or adversely affect the competency of an industry and a country. The government that protects firms from foreign firms is not encouraging increase in productivity. The government that is working to facilitate the process of opening a new business encourages entrepreneurial spirit (Porter, 1990).

Chance events are usually out of the control of the industries or governments. The role of chance is the likelihood that external events such as war, external political developments or natural disasters can influence the county or industry. Chance played an important role in changing competitive advantage in many industries (Porter, 1990).

Competitiveness is one of the central preoccupations for the industry/sector and the government in every nation all over the world. Moreover, the competitiveness position is permanently influenced by many determinants and the operating conditions vary over the years. As presented in Porter's model, among the most important factors that influence the competitiveness are: the factor and demand conditions, the sector's rivalry, management and strategy as well as the government and the chance influence. While analysing the competitiveness, all the determinants have to be considered as a system. The analysis of these factors is used as a basis for qualitative describing the competitiveness conditions in which the Serbia's raspberry sector operates. This study will identify several determinants that allow the raspberry sector to build the competitive advantage.

Another model developed by Porter that analyzes competitive advantage of the firm or the whole industry is the value chain analysis. The value chain framework is a model that helps in analyzing specific activities through which firms or sectors can create value and competitive advantage. The Porter's value chain is shown on Figure 10. According to Porter, firms need to be separated into various activities to identify the sources of competitiveness. Primary activities are inbound logistics, production, outbound logistics, marketing and sales and after sales services. Supporting activities include firm infrastructure, human resource management, technology development and procurement. Each of these activities employs purchased inputs, human resources, different technologies and draws on firm infrastructure such as management and finance. Activities vary in their importance in creating competitive advantage from industry to industry.

Figure 10. Porter's Value Chain



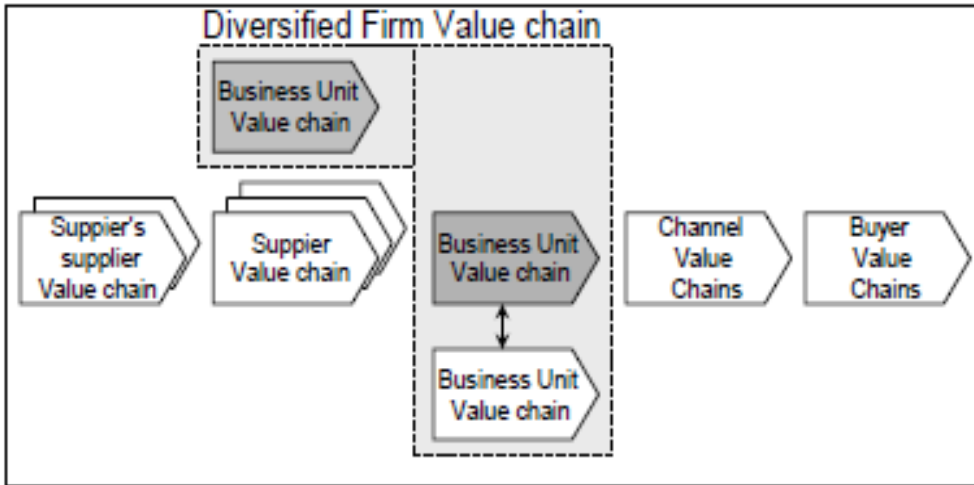
Source: Porter, 1985

All of the activities create value. The value chain model stresses the importance of value addition at each stage, where production is treated as just one of the few value-adding components of the chain. Value chain activities can be restricted to local markets or can be extended internationally. Differences among competitors' value chains are the main source of competitive advantage. The main goal of the value chain activities is to create value that exceeds the cost of these activities and to create a profit margin. Porter shows that firms gain competitive advantage either by becoming the lowest-cost competitor or by differentiating its products. Firms can gain competitive advantage by adopting new methods for conduct activities, implementing new procedures and technologies and employing different inputs.

Porter states that the value-chain framework can be extended beyond single firm. The firm's value chain is linked to the value chains of a firm's suppliers, the firm's distribution channels and the firm's buyers creating a larger stream of activities named value system. Gaining and sustaining competitive advantage depends not only on firm's specific value chain, but also on the whole value system of which the firm is a part. The main goal of all members of the chain is to produce final products that satisfy the needs of the final customer. They work in cooperation in

order to achieve the goal, while maintaining their independence. The Porter's value system is presented in Figure 11.

Figure 11. Value system



Source: Porter, 1985

The Porter's value chain framework was used and implemented in this case study of raspberry sector. This study analyzes the all aspects of raspberry value chain, starting from input suppliers, raspberry producers, intermediaries, processing industries, domestic or international wholesaler and retailers till the final consumers. The value chain framework was used as a tool to determine what of the activities from the value chain can help Serbia's raspberry sector to create value and achieve competitive advantage.

3.3 Literature review on SWOT analysis

An important part of the strategic planning is the scan of the internal and external environment. SWOT analysis is a method that summarizes all the internal and external factors of the sector's environment and analyse corresponding strengths, weaknesses, opportunities and threats. SWOT analysis provides information that can help in matching the sector's resources and capabilities to the competitive environment in which it operates (Afuah, 2009).

SWOT analysis is used by a numerous studies in the agricultural economics discipline. All of them identify strengths, weaknesses, opportunities and threats of the analyzing industry or sector and based on these four factors provide recommendations for acting in the future.

Veljkovic *et al.* (2008) analyzed the raspberry production conditions in Serbia by using SWOT analysis to define strengths and weaknesses, as well as opportunities and threats of the production. This study was mainly concentrated on agro-environmental conditions (temperature, temperature extremes, soil, and humidity), technical conditions (construction of cold storages) and socio-economic conditions (state policy) of raspberry production in Serbia. Internal strengths indicators, such as favourable agro-environmental conditions and employment of unemployed labour and internal weakness indicators, like lack of farmer organization and lack of modern technology are some of the factors identified in this study. Based on the SWOT indicators, the study concluded that there were conditions for further development and intensification of raspberry production in Serbia with the main focus on the creation of a national brand and on maintaining its position on the world market, in view of increasing competition from Poland and Chile. It suggested that modern technology should be applied in raspberry production, the share of fresh raspberry production should be increased, the production should be adapted to market demands and necessary quality standards should be applied. Some of the indicators and conclusions from this study reflect the same picture as a case study analyzed in this thesis. But, while this study provided only short list of SWOT indicators without giving detailed analysis of each of the factor provided, this thesis analyzes raspberry sector for 18 year period (1992-2009), provides detailed production and trade statistics with respect to fresh and frozen raspberries,

analyzes what happened during the observed period (war, sanctions) and analyzes factors with respect to the main competitors.

Novkovic and Mutavdzic (2010) analyzed the competitiveness of Serbian agricultural sector and applied SWOT analysis to identify internal features of the sector (advantages and shortcomings) and compare them with capabilities and perils from the surroundings. The researchers in this paper obtained analysis of agricultural capacity (agricultural land capacity, agricultural population, most important sectors), production results of main plant and animal products and the conditions and the economic results of Serbia's agriculture and based on their results they provided some indicators and conclusions. The strengths of the Serbia's agricultural sector provided in this study, like good natural conditions for production and tradition in conventional agricultural production can be applied on the raspberry sector. Some of the weaknesses of the agricultural sector identified by this study, like small and unorganized parcels of farms, poor irrigation system, bad organization of farms and insufficient support to the agricultural development by the state are the similar as the problems the raspberry sector is facing. The paper proposed macro management measures for agricultural competitiveness as follows: promote the use of the irrigation systems; encourage investment in the rural areas; investment in the infrastructure; consistent agrarian policy; development of institution for development of small agricultural business and improvement of organization (cluster development and cooperatives). The conclusion of the research was that the state needed to establish active long-term policy for the aims of agricultural development.

Savic (2011) in her study applied SWOT analysis on the soft fruit sector (raspberries, strawberries, blackberries and blueberries) in Serbia. This study was concentrated on the soft fruit industry in general without concentrating on the particular fruit and analyzed planting material, growing technology and harvesting methods for the soft fruits for three year period (2008-2010). The study is done with the cooperation of the Dutch embassy for the possible investments of Netherlands in Serbia. Some of the indicators of this study are consistent and can be applied on the raspberry case study of this thesis, such as, internal strengths indicators, like favourable climate, free trade agreements between Serbia and Russia, cheap labor, and internal weakness indicators, like individualism of farmers, lack of standards and lack of technology. The results from the analysis suggested that the main goal of the sector should be improving

production and processing industry to increase competitiveness on the local and foreign markets. The study suggested that the technology for fruit production, equipment and machinery for indoors and outdoors need to be improved and that the sector need to implement necessary standards into its production and processing methods. It also suggested that although climate conditions in the country are favourable, irrigation system is necessary and need to be developed. Although this study analyzed soft fruit industry in general and for short time period, the findings and suggestion from this study can be useful for the raspberry sector and have relevance in improving sector's competitiveness.

Begovic and Matovic (2011) conducted a study where they analyzed the fruit and vegetable processing sector in Serbia. The weaknesses of the industry that can be related with raspberry sector were: lack of the investments needed for sector's modernization, use of old technologies, insufficient cooperation between processors and lack of safety and food health standards required in the international markets. The main recommendation of the study was that the collaboration among the processors needed to be established so they could get credits more easily and increase their export. This measure can be implemented in the raspberry production sector where collaboration among small producers is required. The study suggested that the sector need to establish stronger business relations with foreign partners to successfully promote its products and gather new information regarding products characteristics, prices and distribution. The study concluded that the processing sector needed to be more horizontally and vertically integrated with all stakeholders in the value chain with the help of government. The results from the study can be implemented in raspberry processing industry since this thesis will analyze mechanisms through which raspberries move along the value chain.

Puskaric *et al.* (2009) analyzed vegetable production in the European Union with retrospection on the conditions in Serbia. The study identified some limitation factors that influence vegetable production development in Serbia, such as: small size of the estates which disables rational production, inadequate capacities of irrigation systems, lack of agricultural producer's cooperation and low interest of banks in production crediting. The raspberry sector in the country is facing the same difficulties. Organic production and fresh consumption of the products are seen as the main opportunities of the industry. The study concluded that the cooperation was one

of the imperatives of vegetable production development in Serbia, with the goal of a decrease in production costs, better usage of capacities and more efficient positioning on the market.

Buxton (2007) conducted a situation and needs analysis of the Australian pome (apple and pear) fruit industry, with a main focus on Victoria. The report provided an overview of the framework within which the fruit industry was operated and highlighted strengths, weaknesses, opportunities and threats within the value chain. Also, the report offered the recommendations for future strategy development to improve collaboration and coordination between all members of the value chain and strengthen the industry's global competitiveness. Australia's pome fruit industry is, like Serbia's raspberry sector, characterized by small family farms, fragmented industry, poor communication among industry's players and little collaboration and coordination along the value chain. The study recommended that the collaboration through the supply chain, from the grower to the retailer need to be improved, the new pome fruit varieties should be introduced and the ties between research institutions and industry need to be stronger to adopt new technologies in post-harvest and processing industry. This thesis will consider technology and the mechanisms through which raspberries move along the marketing channel within Serbia and in through the international marketing channel.

Dumitrescu (2009) conducted the SWOT analysis on the fruit and vegetable sector of Romania to explore the country's export potential. Identified strengths of the Romania's fruits and vegetable sector like favourable natural conditions for fruit production, traditionally quality products and opportunities for organic production are recognizable in Serbia's raspberry sector. The weaknesses of the Romania's fruit and vegetable sector identified by this study were high fragmentation of agricultural land and orchards, low concentration of production, inadequate infrastructure facilities for harvesting, storing and packaging, poor irrigation and lack of information regarding market regulations and prices. The study suggested that the all food safety standards need to be implemented, that the collaboration between producers need to be encouraged, the integrated distribution channels introduced and that the sector need to develop brand so that can be recognized internationally.

The Agricultural Economics Research Institute of Turkey in cooperation with Agricultural Economics Research Institute of the Netherlands (2009) studied the agro-food sector in Turkey through a SWOT analysis of the dairy, tomato, cereal and poultry sectors. The report defined

prerequisites and directions for the future development of the sectors by proposing different kinds of policy options. The weaknesses of the Turkish tomato sector (small land size, lack of the supporting policy, inefficiency of producers in marketing channel and Turkey not being the member of EU) are similar to Serbia's situation. The agricultural support policy was establishing producers' unions and cooperatives which would decrease production costs, increase access to credit, increase the competitiveness of the sector and enhance producers' options for storing, packaging, processing and refrigerated transport facilities. These are limitations that exist in Serbia and affect raspberry producers.

Cetin and Turhan (2003) in their study analyzed the competitive strategies of fruit and vegetable processing industry in Turkey. SWOT analysis was applied on the tomato-processing industry and the main internal and external factors were presented. Availability of cheap labour as a strong side and insufficient finance possibilities as the weak side of the industry were identified, the same as the Serbia's. The most important export market for Turkey's fruit and vegetable products is EU. The study suggested that Turkey need to establish closer relationship with EU in order to maintain and increase its market share. The competitive power of Turkey in EU marketing was affected by other countries that had similar production conditions. This is the similar situation with Serbia's raspberry sector where Serbia's main competitor in the EU market, Poland has the similar production conditions, prices and markets.

Faesel and Hill (1995) examined the development of Poland's fruit industry in transition up to 1990, followed by the situation since that year, in which legislative reforms were introduced to break up state monopolies and privatize state assets. The study analyzed the Polish fruit industry with respect to growers, wholesaling, processing and exporting sectors, and the role of marketing in export. The study conducted the SWOT analysis of the fruit industry, as a result of which made recommendations for increasing producers' influence on export, improving processing machinery and introducing new wholesale marketing system. As the main strengths of the industry, the study identified good and quality products, attractive prices, low-cost operations and well educated and cheap labor force. Current transport and communication set-ups are identified as the significant problems of the industry. The study concluded that the fruit industry in Poland should intensify its exports of processed and semi-processed products on the Western European market.

Many of the identified internal and external factors of these studies reflect the same picture as a case study of Serbia's raspberry sector. Identified strengths/weaknesses of the particular sectors, provided by these studies, that has positive/negative effect on sector's competitiveness are recognized and have the similar effect on raspberry sector in Serbia. In addition, many of the conclusions and findings of the various studies are consistent with the case of Serbia and its raspberry sector. The results and recommendations of these researches have relevance to improving Serbia's competitiveness in the raspberry industry.

4 Methodology

This chapter starts with defining the SWOT analysis, the method that will be used in this thesis for analysing the industry's strengths and weaknesses, as an internal factors and opportunities and threats, as the external factors of the overall sector's environment. The section 4.1 is divided into four sub-sections and each of the section lists and discusses the factors that identify and characterize the agricultural sector's competitiveness. The factors discussed above are not related to specific country and its agricultural sector but are more general and give the global picture of the indicators and their effect on the sector's performance.

4.1 SWOT analysis

The SWOT analysis is a qualitative method used for the strategic planning of a certain company, market, sector or an entire industry. SWOT is the acronym of the words: Strengths, Weaknesses, Opportunities and Threats. The SWOT analysis is a standard methodology for providing a general characterization of the current state of the organization (sector, industry) and defining an internal and external environment as an important part of the strategic planning process.

The basic goal of the SWOT analysis is to identify and evaluate the strengths and weaknesses in the internal environment and opportunities and threats in the external environment of the system. The analysis is based upon the comparison of the internal features of the system (advantages and shortcomings) which can be controlled within the system with those coming from the external environment, upon which the system does not have a control (Afuah, 2009).

The SWOT analysis identifies together the results of internal and external analysis of the company or sector. The main purpose of the SWOT analysis is to find the most favourable match of internal resources, capabilities and core competencies to develop competitive advantage and identify a position in the industry where the company can best defend itself against competitive forces or influence them to its own favour (Friend and Zehle, 2009). To do the SWOT analysis

the researcher need to have a customer focus, since competitive advantage is a result of satisfying customer needs (Friend and Zehle, 2009). The elements of the SWOT analysis, presented in Figure 12, were firstly developed as a strategic planning tool (Afuah, 2009).

Figure 12. SWOT framework



Source: Friend and Zehle, 2009

Strengths and weaknesses are the internal factors since they are connected to a company's or sector's resources, capabilities and core competencies. Opportunities and threats are external factors which depend on the external environment (Afuah, 2009). The organization's mission is to develop the best strategies by exploiting an organization's opportunities and strengths while neutralizing its threats and avoiding its weaknesses. Strategies that do not exploit an organization's opportunities and strengths that do not neutralize organization's threats and do not avoid its weaknesses are not able to improve its performance (Barney and Griffin, 1992).

The internal evaluation examines all the aspects of the organization and deals with strategies and objectives, facilities, system's structure in order to identify the strengths and weaknesses of the system. Organizational strengths are skills, capabilities and core competencies that enable an organization to identify and implement its strategies. Different strategies call upon different

skills and competencies. An organization which possesses distinctive competencies and implement them in the strategies it chooses can expect to obtain a competitive advantage (Barney and Griffin, 1992).

Organizational weaknesses are skills and capabilities that do not enable an organization to choose and implement strategies which supports its mission. An organization with organizational weaknesses should either make investments to improve its weaknesses or change its mission (Barney and Griffin, 2009).

The focus of the external evaluation is on the economical, technological, legislative, social, ethical, political, ecological and competitive environment in order to identify opportunities and threats within which the organization acts. Once this is completed, SWOT analysis determines which of the mentioned factors can help the organization in accomplishing its objectives, and what obstacles need to be minimized or overcome in order to achieve desired results.

Organizational opportunities are events or phenomena in an organization's environment which, if exploited, can generate above-normal economic performance while threats are events or phenomena in an organization's environment which makes it difficult for an organization to create and maintain above-normal economic performance or even normal economic performance (Barney and Griffin, 2009).

4.1.1 Internal strengths

Internal strengths are the factors that favour the agricultural industry and provide a strategic competitive advantage. They are issues that are within the control of the agricultural sector of the certain country to build on and exploit.

- Good natural conditions for agricultural production

As the primary industry, agriculture is directly dependent on natural conditions. Good natural and weather conditions of the certain country, including climate, soil and relief enable higher yields and better quality of the crop compared to the competitors. Major climatic factors for

agricultural cultivation include air temperature, air humidity, sunlight and water (Veljkovic et al., 2008). The physical and chemical structure, and biological activity of the soil determine soil fertility and are fundamental to sustaining agricultural productivity.

- High productivity

Intensive and profitable agricultural production can provide abundant yields and high quality of crop. High productivity production can yield higher total output to cover production costs and achieve the expected return (Veljkovic et al., 2008). The factors that have positive impact and raise productivity are:

- Farming methods to improve yields and sustainability

Agricultural sector that is able to resolve the problems related with the decline in soil quality and poor nutrition availability by using chemical solutions, exploration of new hybrids and new varieties, more productive, low-cost farming methods and sustainable farming practices is able to improve yields, crop health and profits (Organic Farming Systems, 2012).

- Use of irrigation systems

Intensive irrigation management combined with knowledge of plant systems and water needs contributes to high production and competitiveness of the agricultural sector. Efficient irrigation management in the farming operation process allows farms to be a top producers of high quality product with lower inputs (Riggs).

- Equipment and machinery

By using agricultural machinery, such as tractors, cultivators, equipment for irrigation and harvesting, equipment for pest and fertilizing control and product sorting, the sector is able to replace farmers' labor and increase its productivity.

- Sector embracing of new technology

Sector that is adopting new techniques and processes is greatly enhancing its competitiveness by increasing efficiency and decreasing costs. Crop productivity can be enhanced by using new technology and biotechnology since they target at insect and virus resistance, drought and herbicide tolerance, quality and marker assisted selection (Chronicle, 2012).

- Good infrastructure

Agricultural sector with developed physical infrastructure, such as water supply, sanitation, irrigation, energy, telecommunication and transportation and social infrastructure, such as health, education and housing is able to achieve comparative advantage.

- Employment in the sector, qualified and educated labor

Employment in the sector is analyzed as a percentage of total employment in the economy, as well as by gender and the employment of children. Sector with the higher percentage share of educated labor in agricultural and total population that has capacity to invent, innovate and master new techniques is able to achieve higher level of competitiveness.

- Effective market chain

Sector with effective supply chain management is able to successfully integrate a network of upstream linkages (sources of supply), internal linkages inside the sector and downstream linkages (distribution and ultimate consumers), create the value for the consumer and satisfy consumers' needs.

- Proximity to the major markets

Proximity to the big and significant markets is seen as an advantage for the certain country and its sector. The geographical location, openness to the outside world, country as a crossroads between international regions are considered as a country's strengths.

- Food safety and quality control systems

Agricultural sector with implemented food safety and quality systems enable sectors' players to market safe and healthy products. These systems help to develop and maintain the reputation of the sector as an industry with a clean, healthy and safe environment for food production and processing.

- Developed processing capacities

Agricultural sector with developed processing capacities has developed the whole infrastructure of cold storage facilities, fruit parks, packaging centres and value-added centres. Processing capacities help development of the sector by enhancing income of the farmers, creating markets for export of agricultural products and generating greater employment opportunities.

- Growing demand for agricultural products

Increasing demand leads to the increase in production of the food and feed crops. Increased wealth and per capita incomes, especially in developing countries, leads to increased demand for higher value food products and a greater interest for consumers in how their food is produced. With increasing population in the developing countries, growing incomes and a growing middle class, the demand for agricultural products is expected to remain strong. This will result in increased consumption and a higher level of trade of agricultural and processed products (Australian Government 1, 2012).

- Good marketing promotion and programs

The goal of marketing promotion, as one of the key elements of marketing mix, is to present information to consumers, differentiate the product and increase the demand by personal selling, advertising, sales promotion and public relations. Good marketing promotion helps in product acceptance, increases in sales, creation of brand or trademark and positioning on the domestic and international market (Marketing). The sector with well functioning and well-organized industry associations and marketing organizations is considered as strong and healthy. The

ability to cooperate on marketing initiatives and marketing promotions is a significant strength. They result in more effective efforts, better issue resolution and reduced costs.

- Macroeconomic settings in agriculture

Output growth, crop output, total agricultural output, gross value added at market prices, factor income, rate of employment and labor productivity affect overall performance of the agricultural sector. The higher the values of these indicators are, the stronger and more competitive the sector is.

- Agrarian policy and the role of government

Government helps agricultural sector in successfully competing on the world market by creating sustainable and efficient agricultural industry. Government does that by providing an insurance of support of sustainable rural development, providing food to satisfy the consumers' needs in terms of quality and health security, planting new orchards, creating programs for protecting, using and organization of agricultural land and stimulating exports.

The government provides a comprehensive range of support for research and development infrastructure including tax incentives and financial funds. Tax relief, provided to incentivize sector to undertake more scientifically and technologically challenging research and development or capital allowances for investment in equipment are example of strong research infrastructure. Agricultural research centres and institutions have a significant impact on the effort of the sector to stay apace with necessary innovations in production and processing technologies (BIS, 2012). Sector with a strong research programmes is able to increase on-farm productivity, total crop production and profitability by developing crop varieties resistant to the pests and diseases, adapted to cold and dry highlands, tolerant to low soil fertility and drought and having added value (Kenya, 2012).

- Trade agreements

Bilateral, multilateral or regional trade agreements have the positive effect on the overall agricultural sector trade. They lower or eliminate the tariffs of the member countries, stimulate the trade among the constituent countries and make product cheaper on their markets. Eliminating restrictions between free trade agreement partners leads to greater integration of the economies and increasing export opportunities. Free trade agreements can help improve the competitiveness of the industry through access to lower priced inputs and by encouraging producers to be more efficient to remain competitive against importing markets (Australian Government 2, 2012).

4.1.2 Internal weaknesses

Internal weaknesses are factors causing a concern that directly impact on the viability and progressiveness of the agricultural sector. Weaknesses are generally problems within the agricultural industry that can be directly addressed to improve the overall advantage.

- High input costs and availability of inputs

High costs of purchased agricultural inputs, such as chemical fertilizers, plant growth regulators, pesticides and herbicides are one of the constraints to improved productivity. Higher level of fertilizers and pesticides increase the pesticide residues in food which negatively affects the consumers' health.

- Land fragmentation, small and unorganized estates and parcel of farms and bad organization of farms (cooperatives)

Land fragmentation decreases the economic production since it restricts agricultural modernization (mechanization, irrigation, agronomic practices), inhibits improvements of the

land and creates economic and production problems due to the increased time, work and organization required by the parcels' distance (Lusho and Papa, 1998).

Small scale farmers are characterized by their spatial dispersion and lack of farmers organizations. These factors are the reason why small farmers are not producing sufficient quantities to meet large buyers demands, they lack in bargaining power and lack in information about the true value of their products (FAO ICTs). Lack of cooperation between small farmers, companies and banks, unproductive use of land by small owners due to the lack of knowledge and information prevent optimal productivity and makes small producers less competitive (IFC, 2012). Individual farmers do not have the access to more efficient and cost reductive technologies, input-output markets, they are unable to link into the food distribution chain and are lacking of market support institutions and information (FAO, 2011).

Small farmers are at a disadvantage competing against large farmers in the wholesale market because large farms are able to produce greater volumes of product over a longer time period at a lower cost to the wholesale buyer. Due to the efficiencies associated with economies of scale, for most agricultural commodities increasing farm size is linked to higher rates of return, making large farms more economically viable then the small ones (Australian Bureau of Statistics, 2003).

- High transportation costs

Agricultural industry has always been highly dependent on transportation. High transportation costs affect firm's overall cost structure and profitability and are the source of market inefficiency. Passing higher transportation costs on to the consumers in the form of higher prices of the commodity lead to reduced sales and thus lower profits.

- High post-harvest losses

Many post-harvest losses are usually direct results of factors before harvest. Crop that is infected with pests and diseases, innapropriately fertilized and irrigated, or of poor quality before harvesting, can not be improved by post-harvest treatments. If the quality of harvest is below standards, the rate of commodity loss is faster (FAO and UNEP, 1981).

The factor that has a negative impact on post-harvest losses is the lack of modern cold storage facilities. In the absence of a cold storage and cold chain facilities, the farmers are forced to sell their products immediately after harvest which results in low price realization. Lack of proper storages leads to attacks by pests and other organisms. The damage of crop caused through such infestations leads to the market value reduction and loss for the farmers (Report, 2010).

- Aged farmers and rural devastation

The relevant factor of depopulation and rural areas growing old is migration of rural populations to towns. Migration of working age population to urban areas causes the biological reproduction reduction in rural areas and increased number of the old people in the rural areas.

- Perishable crop

Losses in the perishable crop can occur from the field to the final consumer and depend on the degree of the perishability of the product and they are inherent in the nature of the product. Perishable crops requires an adequate storage, packaging, transport and handling technologies. In the warm humid areas, fresh crop has a low level of natural protection against climate conditions which leads to the higher level of bio-chemical and physiological deterioration (FAO and UNEP, 1981).

- Lack of access to credit

Agricultural sector with insufficient self- financing capacity and with the weak economic performance is addressed to use loans, either through banks or state funds. Lack of credit loans joined with improper government intervention is common in the agricultural sectors with dominance of small, fragmented farmers. The availability of credit allows farmers to be protected from the inflated costs faced in the agriculture, improve the quality of fertilizers and increase the output.

- Lack of standards

Agricultural sector that lacks in international quality standards regarding food safety and food health standards, standards in handling, placement and distribution of the product is not able to meet the needs of the consumers from international markets and thus increase its competitiveness.

- Lack of marketing knowledge and marketing extension services

Farmers usually do not understand the true costs associated with the marketing of their products. The managers of retail and wholesale markets, farm managers, transporters and processors are supposed to provide them the information of how and where to sell their crops, how to store and package their crops. The marketing managers need to be able to help farmers in determining prices, help them with determining whether to store their crops or sell immediately and where to buy and how to pay for inputs. Sector that lacks in marketing managers is not able to achieve competitiveness on domestic and international market (FAO Marketing).

- Low purchasing power and change in consumer preferences

Social changes, like the ageing of the population, family structures (e.g. decreasing household sizes, decreasing birth rate, and decreasing rate of marriages), the increasing polarization between rich and poor and increased consumer awareness about the links between diet and health cause the changes in consumer preferences and contribute to new demands for food. The sector that is not able to introduce innovative processes, value-added products, new marketing concepts and cooperation between production and supply chain can not satisfy consumers' needs and cannot ensure the customer that it is provided with safe product processing, the required taste at maximum convenience and at an affordable price.

- Bad packaging design

The agricultural sector that is not able to provide ecological packing design with environmentally friendly materials is not able to meet international requirements regarding food safety while exporting its crop.

- No effective mechanism for price stabilization

High price of agricultural product through its impact on wages and inflation can have a destabilizing influence on the macro economy. Government that does not provide proper policy through price support to farmers, tariffs, trade protection is not able to protect and insulate domestic macro economy from external shocks. Price stabilization mechanism increases the producers' certainty about the price they will receive for the crop they have harvested, allow the producers to make rational planting decision regarding how much to plant and how intensively to cultivate (Odin and Nash, 1990).

- No export trademark

The sector that has no export trademark of certain product is not able to differentiate its product in order to attract potential consumers and remain competitive. Product trademark guarantees consistent quality, allows firms to attract premium prices from the upper ends of the consumer market and enables firms to position their unique products in the international markets (Caribbean Community, 2012).

- Low direct export

Low level of direct export decreases the profit of the sector since it requires handling with all the logistics of the transaction. Also, the degree of the control over all aspects of the distribution is smaller, it requires more effort, time, finance and people power to cultivate a customer base in the international markets and the sector is not able to respond to customer communications as quickly as the direct chain can (Delaney).

4.1.3 External opportunities

Opportunities are external factors that may be beneficial for the agricultural industry to capitalise on. The agricultural sector can gain competitive advantage by making use of these opportunities.

- Commodity is of strategic importance to the agriculture in the country

The strategic commodity of the country is the product that has significant share in the country's trade balance through its contribution to export earnings and for which the country has unexploited production and trade potential (Report Africa, 2009). The country has an opportunity to enhance its comparative advantage by developing efficient value chain management of its strategic commodity.

- Positive effect on the development of other economic activities

Vertical diversification into processing of domestic produced goods requires a shift from the primary to the secondary or tertiary sector. It entails further uses for existing commodity by value added activities processing, marketing and trade. Vertical diversification expands market opportunities for raw commodity and enhances sectoral growth and stability since processed products have greater price stability compared with raw goods (Samen, 2010).

- New varieties

The agricultural sector can increase its competitiveness by using new varieties of the crops produced. New varieties enables producers to achieve higher yields and use resources more efficiently. Paired with new production systems and modern technology, the new varieties helps farmers to extend the harvest season of the crop, produce the crop two or more times a year and produce the product with the higher shelf life and superior flavor. This will enable growers to strengthen their presence in the market and meet the demands of the retailers and food service operators for year-round supplies of the product (WB Project, 2012).

- Growing market demand for the agricultural product

Factors in the marketplace that provide growing demand for an agricultural product over the longer term are: population growth, growing urbanisation combined with income growth, changing diets, developing countries that provides new global growth markets and emerging consumer trends where consumer are looking for stronger relationships with the products and brands they buy.

- Organic production

Nowadays the organic food market is the most dynamic and rapidly growing sector of the world food industry (Agriculture Canada, 2012). Organic agricultural production is more competitive in the international markets despite higher costs of production. Although an organical production is more expensive than the conventional one, it is more profitable since organically grown products bring a premium price. Organic products have a greater level of competitiveness due to the higher level of productivity which is manifested through greater density of planting (plants/hectare) and higher yields per plant. The higher level of competitiveness of the organic product can be achieved if there is a well-defined market with differentiated prices (FAMU, 2006).

- High quality raw material

High quality of raw material in the agriculture enables sector to obtain a stable production of high quality product. Agricultural sector needs to be able to use renewable raw materials such as biomass and biofuels, since the increase in the petrol price over the years has increased the cost of crop production (COGECA, 2007).

- Increase of competitiveness with the development of cooperatives

The cooperation between farmers and wholesalers is significant as it provides acquisition of the products that meet customers' needs. Agricultural cooperatives increase the competitiveness of the agricultural sector by improving the productivity of the farmers and their income through a process of value-addition, encouraging communication between members, production of quality consumer goods, implementation of joint use of facilities, purchasing and marketing (Prakash, 2000).

- Higher level of product finalization in own processing capacities

Agricultural sector should focus on stimulating agricultural production and exports of agricultural products with the higher level of processing since the world market prices of processed products are higher than the prices of primary products. When exporting, the processed product needs to be in accordance with the prescribed standards and requirements of the international markets in terms of quality of the product, packaging and amount of sugar and permitted additives. Implementation of appropriate marketing strategy can help sector in increasing higher level of competitiveness.

- Favourable agricultural policies

The government policy can stimulate the development of certain agricultural sector by creating favourable policy framework that encourage use of technologies and stimulate agricultural scientific research and innovation. Some of the government policies that create opportunities for increase of sector's competitiveness are:

- Favourable policies for technology improvement in post-harvest and processing technology and commercial services

Favourable policies that encourage adopting post-harvest technologies help agricultural sector in reduction of field and storage level losses and in improvement of agricultural productivity. The governmental measures include improvement of harvesting, timing and post-harvesting handling techniques, developing appropriate processing equipment, developing of improved technology by providing research infrastructure, developing packaging, and promoting appropriate technologies (USAID Kenya, 2010). The favourable measures for improving linkages between farmers and markets include development of infrastructure farm to markets and storages and implementing grades and health standards to successfully compete in the international market (Roy, 2010).

Improved processing technology can help developing value-added product with increased export possibility. Aim of the improved processing technology is to increase the value of the processed product, secure markets and raise returns for primary producers. Improved processing

technology can help in more productive harvesting, better postharvest treatment, enhancing shelf life, better grading, sorting and presentation of the product (SD FAO, 1996).

- Increase of export possibilities by ISO standardization and increase of product quality

The agricultural sector that use international standard systems regarding food safety, proper storing, placement and distribution of the product it has the possibility to increase its export. The standards serve as an important quality signal in trade and help sector in increasing its competitive advantage.

- Agricultural sector's research institutes and education and qualification of the young workforce in the agriculture

The main functions of the research and development institutes are to enhance the base of the natural resources, provide new economic opportunities, ensure safe and healthy products and to empower the agricultural system through research and technology development which can help in improving competitiveness in agricultural production, processing and marketing. To stimulate agricultural research and innovation, the government and financial institutions need to provide credit support and set up a special fund (Jian, 2012).

The aim of the agricultural development is to attract and retain the skilled and qualified workforce with an emphasis on young professionals, R&D agricultural specialist and managers that will help increasing international competitiveness and enhancement and sustainability of the natural resources. Scientific and professional development programmes supported by the government need to be established in the agriculture to produce a cadre of young scientists and researchers (Strategy South Africa, 2008).

- Foreign direct investments in land

Foreign direct investments in agriculture are often related to FDI in arable land to secure and control the the access to certain commodities grown on the land. The positive impact of foreign direct investments in agricultural land is increased productivity of the land. This is achieved if FDI in land is directed to better access to agricultural inputs, to using technology that raise crop yields and educating farmers. Foreign direct investments in irrigation systems help use of

existing resources more efficiently, generating tax income, improving infrastructure and increasing agricultural exports due to the increased productivity (Görge et al., 2009).

- Branding of agricultural product

Product distinction and branding are important ingredients for market differentiation of the product. The sector that has developed brand name of its commodity is able to retain current customers, attract potential customers, increase profit and remain competitive. Brand is usually associated with quality, good service and value which makes it easier to sell farm product (Cornell, 2009).

- Creating an open market due to international integration

The advantages of open market economies compared to non-market countries are in higher investment ratios, better macroeconomic balance and in stronger role of private sector in economic development. Open market economies enable sector to achieve comparative advantage by using its resources better than the competition, higher income to those employed in the sector producing products for international markets, greater opportunities for sector to gain access to competitive sources of inputs and opportunities to invest resources where returns are the highest (Rondinelli, 2002).

4.1.4 External threats

Threats arise when conditions in the external environment jeopardize the reliability and profitability of the agricultural sector's business. Although the threats are uncontrollable, the sector can take some actions to reduce their impact.

- Unfavourable weather conditions and lower profit for farmers

Agricultural producers are highly dependent on weather conditions and everything they do, from sowing to harvesting is affected by it. Unfavorable weather (e.g. storm, drought) decrease the yields of the crop. The sector's lack of capacity to respond to natural disasters and lack of

systems for early warning worsens the effects of bad weather. In the short term, unfavourable weather conditions increase the input cost of the agricultural products.

Ongoing low profitability of producers caused by bad weather conditions leads to decline in the production base for some agricultural product. Losses in the producer supply base can have long term consequences for the security of local supplies on a yearly basis which can hamper the ability of the exporter of the agricultural product and key retailers.

- Rising oil price and input costs

The increase in oil prices raises the costs not only of producing agricultural commodity, but also of transporting it. Agricultural sector uses oil products as an input in agricultural chemicals, to fuel farm equipment, to transport inputs to the farm and to transport farm outputs to the consumer. High oil prices impact the cost of producing commodity and affects the price of the product offered to the final consumer (Oil price, 2011).

- Lack of high quality resources for functioning and development of the sector

Limited availability of productive agricultural land, lack of skilled and educated labor, unfavourable natural conditions and lack of new technology are the major constraints for increased production of the agricultural sector. The sector that lacks in high quality human and natural resources is not able to increase productivity and competitiveness of its commodity and thus increase export of the output.

- Currency volatility

While exporting to the international markets, the trade is affected by changes in the exchange rates which can have an impact on competitiveness of the sector over the short period of time. Oil price development dictate the currency movements over the medium term. (threat irish)

- Productivity stagnation

Stagnation of agricultural output growth rate leads to the low rate of agricultural employment and higher rate of unemployment. Stagnation of the agricultural sector leads to inadequate growth in demand for skilled and unskilled labor and to the stagnation in agricultural investments

meaning that enough productive capacity to sustain agricultural growth are not forthcoming (Jha, 2007).

- Migration of young population to the urban areas

Low level of the agricultural income and the absence of the alternative activities are the reason why young people are not staying in the rural areas and migrate to the cities. The agricultural sectors are dominated by the older population who do not have the young in their households and who are active in the rural settlements since agriculture is their only source of income (ARI, 2004). This kind of population structure is not able to increase productivity of the sector.

- Difficult access to the new technologies and low level of education of agricultural producer

The low level of income of poor and small agricultural producers prevent them from meeting capital requirements of new and improved technology. In some cases, the new technological options offered by extension services do not fit into the farming system and the socioeconomic conditions under which the farmers are operating. Farmers that are not well organized and poorly educated are not able to gain access to agricultural support services which can enable them to use modernized machinery. The limited use of modern technology in agricultural production is limited due to the inadequate linkages between farmers, extension and research services and remains constraint to increase agricultural productivity (Cassava).

Educational level is positively correlated with agricultural output. Agricultural producer with low level of education is not willing to adopt innovations and new technologies, accept risk, understand how to calculate appropriate input quantities in a modernizing environment, save for investments and embrace productive practices. Agricultural sector characterized by uneducated labor force is not able to increase its productivity and competitiveness (Weir, 1999).

- Insufficient knowledge of foreign markets

Inadequate information of potential foreign markets, competitors and foreign business practices are the barriers the exporters face. Due to the lack of information, the exporters are not familiar with the standards and regulation of foreign markets, distribution and service, payment conditions, import tariffs and quotas and are not able to easily communicate with foreign

distributors and customers. These factors increase the cost of production and distribution (Hollensen, 2007).

- World market fluctuations in the commodity, indirectly affecting the purchase price in the domestic market

The level of volatility in global food commodity prices generates uncertainty for an exporter of agricultural product in terms of potential market returns. The sharp spikes in agricultural commodity prices make it difficult for agricultural producers to devise and implement growth strategies.

- Unfavourable government policy

Some of the factors that represent unfavourable state policy and potential threat for sector's development are:

- Insufficient support from the state for agricultural development

Poor economic growth and weak macroeconomic stability are the reason for insufficient support from the state for the development of the agricultural sector, either by prices or budget payments. The measures of the agricultural policy that are not in compliance with requirements set by international institutions (e.g. WTO, EU, trade agreements) are not able to provide an adequate support for the development of the sector (Novkovic and Mutavdzic, 2010).

- Insufficient influence of the economic policy measures and lack of coherent land policy

Lack of influence of the economic policy measures in the agriculture, lack of coordination mechanisms at national level, lack of research capacity, low level of investment in agricultural research and lack of national mechanism to allocate resources to priorities inhibits creating an efficient and sustainable sector which can successfully compete on the international market. Low investments in land development and underutilization of productive land are the results of no comprehensive land policy (Strategy South Africa, 2008).

- Insufficient legal regulation and discrepancy between domestic and international laws

Outdated and fragmented legal and regulatory mechanism is a constraint for further development of the agricultural sector. Lack of enforcement and administrative mechanisms, insufficient knowledge of the law regulations, lack of incentives of regulators to enforce law, limited environmental standards, poor coordination and consistency in implementing regulations of the relevant authorities are the reason why regulation laws have not been developed and implemented in the overall agricultural industry. The agricultural sector which lacks in legal regulation is not able to achieve higher level of competitiveness (Phung et al., 2012).

- Export limitations (export quotas, no export stimulations)

Export limitations imposed on the certain product are instituted to maximize domestic supply, which keep price of the product low within the country. While this is beneficial for consumers, it is not good for the producers.

- Threats of the competitors

Competition from the exporters and substitutes represent the main threats of the competitors as we can see below:

- Competition from potential exporters and large exporters

Potential competitors can be sectors that are competing within the same market or using the same product, the sectors that are using similar technologies or sectors from other geographical areas and with similar products. Potential competitors can gain a market share and competitive advantage over the existing exporter (Māori).

- Competition from more profitable agricultural products and substitutes

Substitutes limit the sector's potential returns by placing the ceiling on the prices that sector can charge to make a profit. As the new price offered by substitutes becomes more attractive, it becomes more difficult for the existing sector to make a profit. Demand for substitutes reduces the demand of already established agricultural product on the market (MaRS, 2012).

- Increasing competitive marketplace

The increasing scale of retailer groups enhance their bargaining power with suppliers. Besides, new suppliers who continue to emerge across sector can benefit from lower input costs and greater economies of scale. This presents a competitive threat for exporter of agricultural product and highlights the need to focus on developing and promoting key points of differentiation which can help exporter to maintain and develop its market position.

5 Results

In most cases the SWOT analysis is performed for the companies and organization units to identify their strengths and weaknesses, opportunities and threats to find out what goals they need to achieve and what strategy to implement into their business. In my case I decided to look at the whole sector and analyze the future perspectives of the Serbia's raspberry commodity and what steps the industry need to make to increase its performance and competitiveness. After this analysis one will be able to see the position of the country's sector in the world market on the macro and microenvironments and determine the opportunities for the industry in the future.

SWOT analysis is conducted through the secondary sources such as journal publications, reports, official documents, as well as personal ideas. Collected information are compared with competitors where possible in order to obtain clearer picture about the sector and its position worldwide to make the SWOT analysis more credible. The third period (2006-2009) is taken as the representative period for the purpose of the SWOT analysis. The chapter is divided into two sub-sections: 5.1 that provides SWOT analysis of Serbia's raspberry sector and 5.2 that provides concluding remarks from the applied SWOT analysis and provides suggestions based on the identified indicators from SWOT analysis.

5.1 SWOT analysis applied in Serbia's raspberry sector

The first thing discussed are the strengths of the raspberry sector that will help to identify the standing of this industry.

5.1.1 Internal strengths

All nations have different skills and resource endowments, and different ways in their exploitation (Porter, 1990). Nations are most likely to succeed in the industries where the determinants of national advantage are most favourable. Serbia has many incentives and favourable resource endowment for producing raspberries.

- Favourable climatic and soil conditions for growing raspberries and experience and tradition in producing raspberries

There is a long-term experience and long tradition in producing high quality raspberry fruit in Serbia. The good soil and climatic conditions are the first of the basic factors crucial for the raspberry production in Serbia. Raspberry is a mid-temperature climate plant; it does not tolerate extremely low winter seasons, large temperature fluctuations and summer droughts. To ensure productivity and optimum yields per unit, raspberries require high quality soils, preferably deep, fertile, moderately heavy and mildly acid ones. Moderately warm and moderately humid areas are the most suitable for the raspberry cultivation. Climatic conditions in Serbia provides all these requirements. The most favourable climatic conditions can be found in well-known raspberry growing areas of Serbia (Arilje, Cacak, Ivanjica, Valjevo, Sabac, Brus and Aleksandrovac) where high yields per area are produced (Veljkovic et al., 2008). Serbia's raspberry is known to be of high-quality and well flavour, rich in sugar. In 2006-2009, average raspberry yields in Serbia were 5,54 tons per hectare compared to 3,49 tons per hectare in Poland. In addition, average raspberry yields in Chile in 2008 were 4,14 tons per hectare which shows that Serbia is more productive than its main competitors.

- Favourable geographical position as a link between West and East

Favorable geographical-strategic position between two continents, and neighboring eight countries, makes Serbia easily and quickly accessible from all major import and export markets in the raspberry sector. Possibility of jointly entering international markets, which is facilitated by improving infrastructure and access to European Corridors 10 and 7, enables Serbia in transportation connecting of Western and Central Europe with South-eastern Europe and Middle East (Laketa et al., 2011).

Chile's geographic isolation and distance from its principal markets has the implications for the geography of raspberry production in the country and the terms in which Chile's producers are integrated into the agri-food system along the raspberry value chain. Chile does not enjoy the same proximity to large and high-value markets and is forced to concentrate on export strategy with dominance of frozen product.

- Strong agricultural sector and strategic importance of raspberry commodity to the agriculture in the country

Serbia ranks second in the world raspberry production behind Russia. The average share of raspberry production in total world production in Serbia, over the third period, was 15%. Serbia had the biggest share in the world raspberry production compared to its competitors, Poland, Chile and USA, whose average shares were 12%, 10% and 9%, respectively (UN FAO).

Beside the fact that the raspberry production in Serbia has the long tradition, the agricultural sector in the state is also strong. In the third period, the average share of agriculture in GDP was 11% and its average share in total employment of the country was almost 20%. The average share of the agro-food exports in total goods export was 23%, making agricultural sector the largest export earner. This solid foundation in agricultural industry is valuable for producers in Serbia who are considering transition into raspberry fruit production.

The agricultural sector in Serbia remains an important part of and contributor to the economy, with its share in GDP, total employment and total goods export of the country much higher than the relative share of the competitors. The average share of agriculture in GDP, over the third period, in Poland, Chile and USA was 4%, 4% and 1%, respectively. The average share of agriculture in total employment of Poland, Chile and USA was 15%, 12% and 2%, respectively, while average share of agro-food exports in total goods exports of respective countries was 10%, 11% and 8% (WB).

- Low labor costs

Looking at wages, as an important part of labor costs and an essential variable for the sector's competitiveness, Serbia appears competitive taking advantage of its low wages in agriculture. When comparing this indicator with its competitors, Serbia has a certain advantage since in 2008 the average monthly wages in agriculture were 820 USD compared to 1221 USD in Poland and 1776 USD in the USA (FAO). This is most likely reflected in raspberry sector and represents a very important advantage in such a labor-intensive crop, where harvest costs can represent up to 60% of total production costs (EAC).

The high profitability of Serbian raspberry sector is achieved mainly due to the low labor costs of seasonal workers who are paid around 1,8 USD per hour. The average labor cost in raspberry production in Serbia is about five times lower than in the EU where raspberry is grown with the higher degree of technical upgrades into the production (Kljajic, 2011). Labor costs in raspberry industry in USA, that are mainly using mechanical harvesting are 13,5 UDS per hour with all expenses included, while mechanical operators are paid at a rate of 19 USD per hour. The raspberry picker in Chile earns about at 12,65 USD per day (McGuire, 2011).

The low price of raspberry product in Serbia is partly the result of low labor cost. This could allow raspberry farmers in Serbia to sell the fruit at a more competitive market price. As shown in chapter 2, average raspberry producer price in Serbia during the whole observation period was the lowest; 0,87 USD/kg, compared to the average producer price in Poland that was 0,89 USD/kg and the producer price in USA that was 3,72 USD/kg.

- Lower energy costs than in the surrounding countries and the EU

Total cost of production is the sum of the cost of labor, capital and energy. The cost shares of these input factors are defined as the costs of one input factor divided by total costs. According to the Eurostat, the prices of electricity in Serbia are the lowest among 37 European countries. These values are about 60% less than average in the region. Electricity prices for industry in 2008 were 0.145 USD; 0.119 USD and 0.070 USD per kilowatthour in Chile, Poland and USA respectively while in Serbia accounted for 0.08 USD in 2010. In the raspberry industry, energy is used for irrigation pumps, cooling and freezing the fruits and for the purpose of processing industry.

- Employment of unemployed and underemployed labor

High unemployment rate in rural areas in Serbia, amounting to 21% in 2008, reflect the problem of lack of employment opportunities and seems to be serious structural problem of Serbian agriculture and rural economy (Bogdanov and Vasiljevic, 2009). The economic significance of the raspberry sector (from the aspect of micro and macroeconomics) is determined by the labor intensive production character, considerably benefiting the unemployment issue in the whole country.

The raspberry production and processing industry employs around 22.500 workers annually together with 4.000 full-time and seasonal workers amounting to 1% of total employment of the country in 2008 (Micic and Leposavic, 2008). During the harvest season, the sector employs up to 200.000 workers. People from different professions own more than 50% of all planted areas under raspberries. Besides, the sector involves supported population, children and senior citizens. In Poland, soft fruit and cherry industry provides around 80.000 full time jobs (production, processing, marketing), amounting to 0,5% of total country's employment in 2008.

- An export-oriented product, which generate income for the agricultural industry and overall economy

The Serbian raspberry is an export-oriented product, which generates significant earnings for the economy. Generally the exports are destined to EU countries, like Germany, Austria, Netherlands, France, Italy and Belgium. The raspberry's participation in the total export of agricultural products over the period 2006-2009 was 11%. During the same period, the average share of raspberry export in the total agricultural export of Chile, Poland and USA was 2%, 1% and 0,1% respectively.

An additional tool applied in the study as a measure of sector competitiveness is the Balassa index. The Balassa index confirmed that the raspberry's share in the total Serbia's agricultural export is very high. According to results, the Balassa index value of Serbia's raspberries for the period 2006 to 2009 is 107,67 in average which is much higher index value than our direct competitors Chile 19,58; Poland 11,48; and USA 1,19. The results show that export share of raspberry sector in the total agricultural exports is more significant for Serbia's agriculture, than it is for the exports of those, other countries used as comparison.

- Free Trade Agreements with Russia and EU

In 2000, Serbia signed Free Trade Agreement with Russian Federation enabling free tax and no custom in trade between these two countries. Serbia is the only country outside the Commonwealth of Independent States³ that enjoys Free Trade Agreement with Russia. The agreement states that the importing country regulates the rules of origin, in accordance with

³ The Commonwealth of Independent States is a regional organization whose member countries are former Soviet Republic, formed after the breakup of Soviet Union (wikipedia).

WTO principles, meaning that commodities produced in Serbia with predominant value added in Serbia are considered of Serbian origin and free of customs duties when entering Russia (Savic, 2011). The agreement gives Serbia the advantage over the competitors which have to pay import duties when delivering products to Russian market.

In addition, Serbia benefits from the open access to the EU market since 2000. In this context, exports of fresh and frozen raspberries are free from any duty. As part of the free agreement between EU and Chile, Chile was granted free access for fresh raspberries and the MFN (most favored nation) duty which has been progressively reduced from 14,4% to 7,2% and to 0 from 2010 (EC Commission, 2006).

5.1.2 Internal weaknesses

- Fragmented raspberry production and bad cooperation between raspberry producers

There are 50.100 raspberry producers with an average area of 0,21 ha in Poland; around 20.000 raspberry producers with an average area of 0,83 ha in Chile; and around 80.000 producers with an average area of 0,2 ha in Serbia, which shows that raspberry production in Serbia and in the competitive countries is fragmented (EC Commission, 2006; Dominguez, 2008). Raspberry farms in Serbia, as well as in Poland and Chile, are mostly family owned seasonal businesses, usually relying entirely on household labor. The fragmentation of raspberry plantations is one of the obstacles in increasing yields and modernization of the production.

Individually producers cannot raise the capital to develop the necessary structure, they are unable to provide input material by lower cost, they do not have the access to new technology and they are unable to link into the marketing channel. Fragmentation of farmers enables producers to achieve high negotiation power when purchasing raw materials. Due to the weak negotiating positions of individual farms, economy of scale is not achieved, which is directly reflected in the cost of production.

The price of raspberry commodity in Serbia is beside supply and demand on the raspberry market, also influenced by the owners of the cold storages or processors since they have dominant position due to their size. Serbian raspberry producers have no influence on the price of the product. Every year, prior to the harvest season, raspberry producers and cold storage owners are negotiating about the price which will be paid to the producers. However, during the harvest period prices tend to change from the price agreed. Payment of raspberries is mainly done in cash which leaves room for manipulation and illegal acts (EC Commission, 2006).

Raspberry sector in Serbia lacks in farmer organization and association. Raspberry farmers in Serbia are not willing to merge their land with other individual farmers (and thus increase the size of plantings) because they do not want to sell or exchange their property and because of undefined structure of the land market (USAID, 2008). If Serbian raspberry production is to survive in the world market, producers must be persuaded to work together. However, the government is not capable of forming agricultural cooperatives due to the lack of financial funds and legal knowledge.

As a small scale producers, raspberry farmers in Serbia lack in knowledge about the true costs and the real, market price of the fruit. There is a lack of extension (marketing) services, supported by the government in the raspberry sector that would enable faster flow of information to producers regarding changes in the export markets, information on international market access requirements, information of how and where to sell the fruit under favourable conditions, helping them in determining prices and providing the information about input prices.

Cooperation between individual farmers can greatly increase the profitability of the raspberry sector. A producers association could represent the interests of all growers through general advice, pricing policy and promotion. Through cooperatives, raspberry producers can procure new seedlings to increase quality of the crop and gradually introduce the required standards. In order to increase the competitiveness of Serbian raspberry production, EU provides subsidies only to legal producers' marketing organizations. Subsidies are granted to cooperatives with minimum yields of 10.000 tons, while most of them process at least 20.000 tons (Radosavljevic, 2008).

Unlike Serbia, the government of Poland and Chile play a significant role in supporting small producers. The Poland's and Chilean government are aware of the fact that the low level of organization of the sector and fragmented industry are constraint on the improvement of the competitiveness of the sector.

The organized sector in Poland for all fruits and vegetables represent only 2% of total marketed production. EU provides support programs in the fruits and vegetable industry to the Producer Organisations created by producers to market jointly their products in order to strengthen their competitiveness. The support is also provided to Producer Groups that meet the criteria of Producer Organisations, with the aim to encourage their formation and facilitate their administrative processes and investment support. In addition, Common Agricultural Policy (CAP), implemented by EU, introduced a single farm payment in the form of income support (EC Commission, 2006).

Small farmers in Chile play an important role in raspberry production, thanks to the support program headed by Chilean Ministry of Agriculture and government agencies. The goal of the Chile's government is to enhance the productivity of small raspberry farms through lending, technical guidance and providing market information. The raspberry sector in Chile was identified by the Ministry of Agriculture as a sector of strategic importance and thus efforts have been made to foster small farmer entry into the market. Chile's raspberry sector is characterized by the existence of several firms which are specialized in berry fruit. These firms are small to medium sized export companies which are originally established by pioneering raspberry growers or groups of medium to large-scale growers. Later on, the firms have expanded their supply chain by incorporating the growers whose plantations were close to their processing and packing facilities. A smaller number of firms are owned by small-scale growers associations and are supported by state through Agricultural Development National Institute (INDAP) and export promotion agency (PROCHILE). Those associations serve as sources of information and technical support for growers (Challies, 2010).

- Lack of machinery and equipment

Raspberry harvesting in Serbia, as well as in Poland and Chile, is labor intensive and is done by hand, while in the USA is mechanically harvested (95%). Some machinery in Serbia is used in the preparatory phase, like motor cultivators. The advantage of the machine harvesting over hand picking is in its labor saving potential. Presently, there are only two self-propelled machines for raspberry harvesting in whole Serbia (Micic and Leposavic, 2008). Use of agricultural machinery (tractors) per 100 sq.km of arable land for the third period in average is 1249 in Poland; 426 in Chile; 271 in USA and the lowest in Serbia, 18 (WB). Moreover, the problem of the sector is difficulty of merging of farmers' areas necessary for mechanized harvesting.

- Low labor productivity

Unit labor costs (ULCs), the average costs of labor per unit of output⁴, is a useful way of comparing labor costs across countries taking into account differences in their productivity. Lower ULCs of 2.6 in USA compared to 7.8 in Poland in 2008 makes USA more competitive (OECD). High unit labor costs means that labor costs are high relative to productivity. As such, these costs represent a link between labor productivity and the cost of labor in producing output. If a country's/ sector's ULCs increase, and even more so than its competitors, they might lose market share and their growth expectations might be negatively affected. ULCs can be reduced by restraining wages and/or increasing labor productivity (Felipe and Kumar, 2011). This study takes into account labor costs (wages) and labor productivity in Serbia relative to its main competitors.

Labor productivity in agriculture is calculated as the ratio of the agricultural real GDP and hours of work⁵. Serbia recorded the lowest labor productivity in average over the period 2006-2008, valued at 3,4 relative to 3,8; 4,2; and 32 in Poland, Chile and USA, respectively. Thus, Serbia shows weak comparative advantage since it is less productive per hour worked compared with the other countries. One of the reasons for Serbia's relatively low labor productivity is that workers in agriculture sector have relatively low level of education and knowledge compared to workers in the countries competitors. Another reason for Serbia's low labor productivity might

⁴ ULCs are measured as the ratio of total labour costs to real output, or as the ratio of mean labour costs per hour to labour productivity (output per hour) (OECD term).

⁵ Share of agriculture, value added in GDP(current USD) is taken from World Bank database. Worker hours are obtained by dividing agricultural employment (1000) per hours per year, taken from Laborsta FAO.

be that sectors in Serbia use less capital per worker than the countries considered. In terms of competitive advantages, the low labor productivity of Serbia is partially compensated by the low labor costs.

- Poor infrastructure

One of the disadvantages of Serbia is that the country has outdated and insufficiently maintained infrastructure, inadequate to provide good accessibility to the markets. In 2008, the share of paved roads in total roads in Serbia was 48%, much lower than the recorded share in Poland and USA, which were around 68% and 67% respectively (WB).

The great problem for raspberry growing in Serbia is poor road network and distance of raspberry plantations, placed in the hilly-mountainous areas, from good roads. Bad transport roads combined with the inadequate means of transportation are the reasons why the quality of the fruit is significantly lost. Although fresh raspberries can attract much higher price, infrastructure weaknesses which delay reaching markets prevent exploitation of that possibility.

- Poor irrigation

Although Serbia's irrigation system covers 180.000 ha, only 30.000 ha of cultivated area is irrigated, which means that the use of irrigation mechanism in Serbia is low. The share of irrigated arable land in total arable land is among the lowest in Europe (Bogdanov and Vasiljevic, 2008). Average share of irrigated land in arable land in Serbia over the period 2006-2008 was 3%, much lower than the average share in USA which was 13% and higher than the Poland's share accounted for 1% (UN FAO).

Raspberry plantations are usually in open-field without plastic protection and they are barely irrigated. Only 3-5% of areas planted with raspberries in Serbia are irrigated. The most common irrigation mechanism is trickle irrigation (Nikolic et al., 2008). More frequent and longer droughts caused by reduced rainfalls and increase of average temperature, reduce the capacity of water resources and lead to the decrease of average raspberry yields.

- Outdated technology in primary production and processing industry

The weakness of the raspberry production and processing industry in Serbia is inadequate technological infrastructure. Due to the sanctions and underinvestment in recent years, majority of the raspberry plants use outdated technology which has not been modernized since the 1980s. Also, raspberry processing industry is characterized by bad and outdated technology. Modern information systems are not used; computers are not applied into production process and into the control of raw materials, semi-products and final products. This results in non-standard quality products, old-fashioned design and unattractive packing (ARI, 2004). Technological backwardness as well as absence of technical and technological innovations have effect on average raspberry yields that are highly dependent on weather conditions. Both sectors, primary production and processing industry need to be modernized; the sectors need to implement up to date technology, provide quality, quantity and continuity of the products in order to increase export and meet the needs of local and foreign markets. In Chile the efforts have been made to adapt foreign technologies, particularly USA, and develop new technologies to enhance the international competitiveness (Agosin and Bravo-Otega, 2009).

- Postharvest handling/ management, lack of cold storages and insufficient number of cold trucks for fresh raspberries transport

Harvesting and postharvest management of raspberries is not well developed in Serbia and represents one of the weak areas of the commodity chain in the country. The extension of fresh raspberry durability is limited by storage capabilities. The problem is that the existing facilities are inadequate, outdated and without air-conditioning that result in higher losses of the fruit. There are only 10 out of 118 cold storages in the country that has a modern storage conditions, with new ULO (ultra low oxygen) technology although the required number is much higher. Also, some of the processing facilities have not implemented quality systems of the fruit yet. Grading and packing of fresh berry is not well developed, especially when it comes to small packages (MAFWM, 2011).

No cooling facilities exist at collection points although the fragility of the fresh raspberries implies immediate cooling. Since raspberries are highly perishable, they need to be moved

quickly to consumers once harvested. Frozen raspberries are transported by refrigerated trucks, while chilled raspberries are transported by refrigerated tankers. During the harvest season, the demand for trucks is high, which cause problems to traders when organizing transportation and respecting delivery dates (USAID 2, 2008).

In the cold freezing industry of Poland there are around 200 enterprises, of which around 100 enterprises freeze fruits (Maack, 2005). There are between 70-80 freezers in Chile and to most of them raspberries are the main products. Raspberry producers deliver the fruit to the local cold storages and later the product is distributed to the freezers facilities (EAC).

- Low level of processing

Majority of Serbia's raspberry production is exported as the frozen fruit. Serbia does not have developed commercial production of value-added raspberry product for which the prices are higher than world market prices of primary products. Instead, European companies with highly developed processing industries buy Serbian broken and frozen raspberries to produce all kind of processed products, which are later re-exported (USAID 2, 2008). Instead of promoting semi-processed and frozen raspberry, sector should consider production of the products of a higher processing phase, such as raspberry juices, jams, yoghurts, preserves, syrups and candied and dried fruit. Higher level of product finalization in own processing facilities generates the higher margins and profits.

Chile and especially Poland have more developed processing industry. Polish raspberries are marketed as follows: 58%-60% are destined to frozen market; 8%-10% to fresh and 32% of raspberries are destined to juices, concentrates and puree (Pawlonka, 2012). In 2008, 67% of Chile's raspberries are exported as frozen; 22 % are exported as concentrate juice; 7% are exported as fresh and the remaining 4% are consumed on the local market (Dominguez, 2008). After Poland became a member of EU, many European firms invested in berry fruit processing sector and have either permanent or seasonal representation on the Polish market (Maack, 2005).

- Bad packaging

Problem with exports of raspberries from Serbia is poor quality of packaging. Due to the lack of technology and equipment, Serbian companies are not able to meet strict EU requirements and produce packaging material of adequate quality. Instead, foreign buyers provide Serbian companies with proper packaging and labeling material (USAID 2, 2008). Being a member of EU, Poland produces packaging material that satisfies EU requirements. Besides, as shown, Poland has developed processing industry. Processing industry in Serbia needs to modernize in the area of packaging by improving design, quality of packaging and by improving facilities for packaging. Also, packers need to be educated on the market requirements, labeling innovations and design approaches.

- Insufficient governmental support for the raspberry sector development, weak agricultural policy and land market

Serbia has no clear and long-term strategy for supporting raspberry production. Agrarian budget makes only 2,5% of GDP in 2009 (Gulan and Stankovic, 2008). Frequent changes in administrative structures brought radical changes in the system of support. Serbia does not yet have a functioning land market, ownership rights are poorly defined and recorded and are an obstacle for the proper operation of the land market, although land tenure in Serbia is overwhelmingly private. Poor land and credit market, disjointed property registration system, inefficient land administration, and weak private sector involvement in property markets all contribute to reduced on-farm production efficiency. Serbia has no accurate records on agricultural land and there is an inconsistency between statistical data and cadastral records (Country Report, 2006).

Export incentives for fresh raspberry are modest and do not represent a significant stimulus for exporters. The state implements export subsidy which applies to raspberry juices only, 10% of export price. As an activity with insufficient of self- financing capacity, raspberry sector is addressed to use the loans to successfully organize its production and development. Lack of governmental subsidies, lack of favourable loan conditions for raspberry planting and processing facilities and complicated state administration do not help in stimulating the development of raspberry production.

The government support for raspberry production is higher in Poland and Chile. Poland's membership in EU resulted in the increase in the amount of financial support allocated for agriculture and raspberry sector development. EU subvention for raspberry production is 400 Euro per hectare (Pawlonka, 2012).

The Chilean government provides assistance to small raspberry growers, those of less than 15 hectares. Raspberry growers receive 5 USD-20.000 USD of financial support with the goal of improved quantity and quality of the product and increased export. Regional organizations that serve as the extension programs of the government provide loans and technology transfer (Krugman, 2010). Chilean Ministry of Agriculture requires that each participant of the value chain (farmers, fresh raw material brokers, fresh fruit collection points, freezing plants and exporters) need to be registered within the same institution so that it will be able to keep records of traceability of the product (Dominguez, 2005).

- Lack of educational, research and scientific institutions

Serbia has no national strategy for improving raspberry production. This is caused by small funds allocated for raspberry related research work. In 2009, only 0,4% of Serbia's GDP was allocated to overall research and development programs, which is lower than the share of the competitors: in Chile, the share of GDP allocated for R&D was 0,7%; in EU the share was 1,8% and in the USA the share was 2,8%.

Currently, two institutions, the Fruit Growing and Viticulture Center in Cacak and Faculty of Agriculture in Belgrade cooperate on creating new raspberry cultivars, of improved biological and economic characteristics, adjusted to the specific growing conditions of the region (Nikolic et al., 2008).

Serbia's scientific research programs are modest compared with the Poland's institutions that have strong research programs on cultivar creation. By introducing two new raspberry varieties, Polana and Polka, Poland was able to extend the harvest season and improve yields from raspberry plants. The introduction of cultivars in Poland that are spreading relatively fast in the raspberry sector shows that research plays an important role in the sector's competitiveness (EC Commission, 2006).

- Lack of necessary standards in the raspberry production and processing

Obtaining of EuroGAP⁶, ISO and HACCP⁷ certificates confirm safety and control in food production, processing, packaging and delivering foods, provides for better competitiveness of the sector at the international market through reducing barriers at the world market and creating conditions for acquiring of higher profit. Although raspberry producers in Serbia follow domestic YUS standards, they are lacking in implementation of European and international (American and Japanese) quality assurance and protection standards. Serbian producers lack in GlobalGap standard for quality assurance of the product, also required in raspberry production.

Oversight of the raspberry production in Serbia is a matter of concern, since Chile has made great efforts in implementing all the required standards. Poland, as a member of EU has already implemented necessary requirements regarding food quality. Currently, 49 of 118 cold storages in Serbia have or are in the process of implementing ISO 9001 and HACCP standards (mpt gov). To satisfy the demand of the USA and Japanese markets, Serbian raspberries are imported through the EU, as a guarantee of quality standards (Radosavljevic, 2008).

5.1.3 External opportunities

- Increasing trade and demand for raspberry consumption

Raspberries are increasingly commercially important. Demand for the raspberries is growing, especially in the markets of the EU and USA, where consumers' expectation is increasingly for year-round supply of fresh raspberry. Due to the higher standard of living, consumers in the future are likely to prefer buying fresh fruit weekly from the supermarkets. The USA market

⁶ EuroGAP (European good Agricultural Practices) is a private sector institution which sets voluntary standards for the certification of agricultural products all over the world (Baghasa, 2008).

⁷ HACCP (Hazard analysis and critical control points) is a management system which controls food safety by analyzing biological, chemical and physical hazards from production of raw material, procurement and handling, to production, distribution and consumption of the final product (FDA, 2011).

consumes 20% of the world supply of fresh raspberries, while Germany and Austria consume 15% each (IERAL, 2006).

Besides, processed raspberries are incorporated into an increasingly diverse range of value-added products, including yoghurts, deserts, beverages and snacks (Challies, 2010). Demand for fresh and processed raspberry by the dairy, baking and cake-shop industries is also growing. World consumption of fresh raspberries in the third period increased by almost 40% relative to the first and by 10% relative to the second period (UN FAO). In addition, total world trade of fresh and frozen raspberries increased over the three periods, both by quantity and value. World trade of frozen raspberries by quantity in third period increased by 40% compared with the first and 20% compared with the second period, while the frozen raspberry trade by value in the third period increased by 78% relative to the first and 57% relative to the second period. World trade of fresh raspberries by the quantity in third period increased by 52% (92% by value) compared with the first and 27% (59% by value) compared with the second period (UN FAO).

- Positive effect on the development of other economic activities

In addition to being the most profitable and one of Serbia's largest export commodity, the raspberry is a strategic product for other reasons. Most of the revenues from its cultivation flows back into the country's hilly and mountainous areas, where this crop is produced, thus the raspberry is essential for rural development of the country. The raspberry export trend proved to be very stable (with an average share of country's raspberry export in total world export 25%, 23% and 20% over the periods), its production has never declined, even during the year of the NATO aggression and the periods of embargo (with the average share of around 15% in total world production, over the periods) (UN FAO). The export has been a precious source of foreign currency, attracting large companies from other sectors, which needed foreign cash for their imports, to enter into the raspberry trade themselves.

Positive impact of raspberry production in the overall economic development is achieved by building and expanding the capacity of the food industry, by indirect influence on the development of supporting economic activity (fruit processing industry, trade, marketing) and by building the infrastructure, particularly the local roads as the prerequisite for the overall socio economic development.

- New varieties suitable for the fresh raspberry market

The harvest season in Serbia's raspberry production can be extended by using new raspberry varieties and modern technology, which can bring benefits to the farmers who have the possibility to earn higher prices in autumn or spring than in the June and July. Farmers should use new varieties with an extended season and improved characteristics suitable for the fresh raspberry market, such as light color, big fruits and with the shelf life of at least ten days.

By using new raspberry varieties Polana and Polka, Poland was able to extend the harvesting season over the longer period, from July until the end of October. Heritage raspberry variety, grown in Chile, is harvested twice; with the harvest period from November till January and from March till May, enabling Chile to increase its export of fresh raspberries to North America.

- Increasing export to the Russia

Free Trade Agreement signed with Russia enabled Serbia to increase its export of fresh and frozen raspberries. Export quantity of frozen raspberries to Russia over the period 2000-2009 increased by 90% relative to the period 1996-1999⁸ in average (UN Comtrade). Serbia has an opportunity to increase its export of fresh raspberries to Russia due to the benefits of early season of the crop, import duties and relative distance compared to some of the competitors (Yarmak, 2011). Serbia has a good climate to grow raspberries in the early season and is closer to the market relative to the Netherlands, one of the main Russian supplier. Besides, raspberries exported from the Netherlands are usually grown in other locations in the world, not in the Netherlands. An opportunity of Serbia to develop fresh fruit industry can help developing processing industry and thus increase profit to the country.

- Fresh raspberry market

There is a large potential for shifting from frozen bulk raspberry exports into exports of fresh fruit in Serbia. The average fresh raspberry export by volume from Serbia in the third period increased by 80% compared with the first and 11% compared with the second period. Fresh raspberries have the bigger market opportunities compared with the frozen raspberries due to the higher producer and export prices and the level of the competitiveness.

⁸ There are no recorded data for Serbia's raspberry export to Russia prior to 1996 in UN Comtrade database.

Growers are usually paid 30–50 % more for fresh raspberries picked directly into small plastic punnets, while export prices are 200 % to as high as 400 % above those for bulk frozen whole fruit (USAID 2, 2008). The competition in the fresh retail business is lower compared with the frozen one, since Chile, being far away from Europe, cannot compete while Poland is more concentrated on the frozen raspberry sector. The majority (95 %) of Chile's fresh raspberry export went to the USA (UN Comtrade). The quality of the fruit and delicate post-harvest process makes maritime transport of the fresh raspberries from Chile non-viable and the air-freight costs are much higher than the costs of the competitors that are closer to the markets (Agosin and Bravo-Ortega, 2009). This is the reason why it is difficult for Chile to arrive in European market in good condition, which makes the Chile's ability to open up new market harder. In recent years, the export of fresh raspberries from Chile practically disappeared because of the low international competitiveness (Dominguez, 2012). Mexican producers almost completely displaced Chilean exporters from the USA market since they are much closer to the USA. In order to differentiate itself, Serbia's opportunity is to start exporting fresh berries, as it has only to compete with European producers, like Spain, UK and France. In 2009, the average export price of fresh raspberries in Serbia was 1,5 USD/kg, while the export prices in Spain, UK and France were 8,5 USD/kg; 12,1 USD/kg; and 6,5 USD/kg (UN Comtrade).

- Possibility for foreign investors to buy land and invest in processing industry

Serbia is an attractive location for foreign investments since it has a favourable tax regime. Serbia has the lowest corporate profit tax rate in Europe, set at 10% and personal income tax rate set at 12% (BelgradeNet, 2010). Corporate income tax rate in Poland is 19%, while the corporate income rate in Chile is 18,5% (EUROSTAT Tax; TaxRates, 2012). Personal income tax rate in Poland is 32%, while the Chile's income tax rate is progressive from 0% to 40%. The combination of very favourable tax system and the low cost domestic labor (lower than those in the EU member countries) provide great incentives for foreign investors. By operating in Serbia, the foreign investor can benefit from having production outside the EU, while having the possibility of accessing EU market easily.

There is the possibility of joint-venture with Serbian companies in the fruit sector and possibility to export to the Russia under favourable conditions, due to the free trade agreement signed with the country. The beneficial impact of FDI in Serbia can be provided by the capital in-flow, tax

income, technology and knowledge transfer, higher wages and job opportunities in the sector. FDI in land provides an opportunity to fruit sector to apply technology that raise yields and reduce post-harvest losses, invest in irrigation system, improve infrastructure by building roads and increase agricultural export due to increasing overall productivity and quality of the fruit (Nikolic and Mutavdzic, 2010).

- Raspberry from Arilje as product with PDO⁹ and creating recognizable product brand

In 2010, Arilje raspberry was given protected name as the raspberry with special features originating from region Arilje in Western Serbia (EI, 2012). Due to the specific conditions (climate, soil), raspberries from Arilje are said to have different taste, aroma and content (dry matter) from other raspberries (Paus, 2008). Those special features of the fruit gives raspberry from Arilje comparative advantage compared to the other markets that can be used as the starting point for product differentiation of the product. Under ideal growing conditions, average yields as high as 24 tons per hectare have been achieved in this region. Being the product with protected geographic indications and with the superior properties it is expected that the demand from international markets for the raspberry from Arilje will increase. Arilje is well known in the world by raspberry production and provides an opportunity for the country to create national brand.

- Trade Agreements with EU and USA

Serbia enjoys preferential status in trade with EU and USA which is an opportunity for investors, as they can freely export into these markets according to the Autonomous Trade Measures granted by the EU and the General System of preferences approved by the USA in 2005. Furthermore, the application of Interim Agreement on Trade and Trade-related matters in 2009 between Serbia and EU and potential integration into WTO would open new big markets and offer a lot of opportunities for the agricultural/raspberry sector (MAFWM, 2011). As fruit production in Serbia is focused on the export, its liberalization is seen as the main engine for innovation and competitiveness i.e. retention or conquering the new markets. Thus, liberalization could potentially improve fruit growing sector in Serbia.

⁹ Protected Designation of Origin (PDO) promotes and protects names of quality agricultural products and foodstuff. PDO covers agricultural products and foodstuff which are produced and processed in a certain geographical area using recognized know-how (EC Agriculture, 2012).

Free Trade Agreement signed with USA enabled Serbia to increase its export of frozen raspberries. Frozen raspberry export by quantity to the USA during 2005-2009 increased by 20% compared to the nine year period, 1992-2004¹⁰, in average (UN Comtrade).

- Increasing export to Japan

Although the raspberry export to Japan during the whole observed period was not significant, the share of frozen raspberry export from Serbia to Japan in last few years is constantly increasing. Serbia increased its share of export of frozen raspberries to Japan from 6% in 2006 to 24% in 2009, while Chile's share of frozen raspberries export to the same destination decreased from 28% in 2006 to 21% in 2009 (UN Comtrade). Average share of Poland's export to Japan was around 3% during 2006-2009. In 2009, Serbia was the world leader in frozen raspberry export to Japan. In addition, Serbia was able to receive the highest export price of frozen raspberry, 6,6 USD/kg compared to 4,9 USD/kg in Chile and 4,8 USD/kg in Poland.

- Organic raspberry production

Demand for organic product is growing 20% annually, despite the fact that the price of organic products can be 25% higher than their conventional alternative (USDA, 2010). The share of organic land in total agricultural area in 2006 in Poland, USA, Chile and Serbia was 1,6%; 0,5%; 0,06% and 0,02%, respectively (IFOAM, 2008).

Although the share of organic land in agricultural land in Serbia is the lowest one, compared with the country's competitors, there is an opportunity for Serbia to increase organic raspberry production. The most important organic products in Serbia are wild and cultivated fruits and berries and the organic production is mainly export driven. Frozen berries like raspberries, strawberries, blueberries and blackberries are the most exported products (USDA Organic, 2009).

Organic raspberry production in Serbia is performed without the use of artificial fertilizers, pesticides and other chemicals and was monitored by the relevant international institutions. Serbia has established a legal framework on organic agriculture harmonized with the requirements of EU. In order to increase land with organic production and the number of farmers

¹⁰ Serbia did not export during 1993-1995 and the data for 2003 are not available in the UN Comtrade database. There is no recorded export of fresh raspberries.

that are involved in organic production Serbian government paid subsidies of \$429 per hectare for vegetable and fruits in 2009 (USDA Organic, 2009).

Organic farming in Poland is governed by the provision of the Act on Organic Farming from 2004. Funding for organic agriculture in Poland comes from two sources, the national budget and the budget of the EU (MARD, 2008). Until 2007, the government support or incentive for organic production did not exist in Chile, when the Organic Agricultural Law was passed. Beside the lack of strong legislation as a major obstacle to growth for the Chilean organic sector, 70% of organic horticultural exports from Chile went to the USA, making Chile highly dependent on that market (FAO Chile, 2000).

The price of the organic berry product is about 30 % higher than for conventional products, while their demand is much higher than the supply. Organic production in Serbia is grown on 14.000 ha, which makes 0,3% of the total arable area and the number of registered organic farmers in the country is 218. Both, organic raspberry production and harvested area in Serbia during the 2007-2009 increased more than 65% in average relative to the period 1999-2003 (Zunic, 2010). With growing demand in the world market for organic berries, berry ingredients, and berry products, organic raspberry production in Serbia have considerable potential on international markets and is expected to increase.

- Marketing

Instead of exporting frozen raspberries in bulk, the sector needs to be stimulated to export processed products, taking into account the prescribed international standards and requirements in terms of quality, packaging, the amount of sugar and permitted additives. Increase of the competitiveness of the final product could be achieved by adoption of appropriate marketing strategies and approach to the world market. It is necessary to promote this final products branded with the joint efforts of the state, banks, local and international experts and the introduction of new brands of product with superior quality.

The increase in raspberry product assortment can result in higher profitability in this kind of production. Raspberry production should be concentrated on export to the world market, with simultaneous development of domestic market and increase in supply of fresh raspberries.

An adequate marketing strategy can help in creating recognizable brands. Some of the activities are: providing marketing information on new and innovative products that companies can produce on regional and international market of fresh raspberries, organizing exhibitions and visits to international trade fairs, international promotion via media and organizing local services to distribute market information (e.g., via press releases to journals specializing in foreign fruits).

5.1.4 External threats

- Unfavourable weather conditions

Unfavourable weather conditions, like extremely hot temperatures that can scald berry decrease the raspberry production and average yields. Since raspberry plantations in Serbia, as well as in Poland and Chile, are usually open-field without plastic protection and not irrigated, the production volume is therefore highly sensitive to weather conditions and can fluctuate from year to year. In 2002, raspberry production in Serbia amounted for 94.000 tons while in 2003 the production was 79.000 tons due to the drought. The year 2007 was particularly unfavourable for the raspberries production caused by severe drought on the global level which resulted in the decreased world raspberries production by around 10% in the following year, confirming the fact that raspberry growing greatly depend on weather conditions (UN FAO). The fruiting period can be extended by using plastic protection systems which can protect crop from the rain or bad weather and provide constant quality.

- Increasing raspberry production in other producing countries

Raspberry production in Chile and Poland, Serbia's main competitors, increased by 20% and 17% in average, respectively, over the last two periods. Other large producing countries also increased their raspberry production, like United Kingdom which production increased by 35% over the last two periods and Ukraine with average increase of 23% (UN FAO). Increased raspberry production in these countries lead to their higher potential export in the future.

- World market fluctuations in the raspberry commodity that can indirectly affect the purchase price of raspberry in Serbia

The price of raspberry depends on the global demand and the yields of the other major producers. If Chile has a good year, the price in Serbia decreases. Frozen raspberries are commonly imported by developed countries and are highly dependent on the purchasing power of consumers.

The exchange rate fluctuations, supply and demand, weather conditions, input price changes, threat of competitors, lack of labor, changes in consumer preferences, implementation of standards and global crisis cause changes to the functioning of the world raspberry market. Changes in buyers' taste for quality, taste, flavor and appearance of the raspberry commodity cause changes to the functioning of raspberry value chain and might have effect on the raspberry demand (Veljkovic et al., 2008).

As shown, global demand for raspberries is increasing, which is a positive trend for raspberry producers in general. On the other hand, global supply fluctuates significantly since it depends on climatic conditions in the major producing countries. This result in shifting of international prices; and particularly downward shifts, are transmitted back to the raspberry producers who bear the risk of participating in what is a relatively volatile market.

Exchange rates play a significant role in the competitiveness of country's exports. Serbia's raspberry sector is almost entirely export oriented and is sensitive to exchange rate trends. Export prices are affected by global supply and demand and also by the dollar-euro exchange rate. In 2001, the average export price was 1,00 USD/kg; it reached a higher level of 1,65 USD/kg in 2004 and dropped to 1,44 USD/kg in 2006 (USAID 2, 2008). Given the importance of the EU market, which absorbs 93% of frozen and 98% of fresh raspberry exports from Serbia, the value of dinar relative to the euro is highly significant. The Serbian dinar has been weakening in the last decade and in the recent years the depreciation significantly increased. The weakening of the exchange rate reduces general purchasing power. It is likely that change of exchange rate change will have an impact on domestic prices (Jovanovic, 2012).

- By not being a member of EU Serbia is not able to benefit from the economic advantages enjoyed by its members

Since Serbia is not a member of EU, it does not enjoy all the benefits of membership like other member countries, such as agricultural subsidies, the Common Agriculture Policy (CAP)¹¹ direct payments, and the funds aimed at agricultural and food industry development and modernization and restructuring of farming and food processing.

Poland as a member of EU, uses various opportunities and benefits from more trade, a wider choice of products, better quality and food safety, and stronger rural communities (EC Agriculture). Accession to the EU would enable Serbia to increase its export of agricultural and food products on the EU market and to get easier access to the third country markets. The competition within the EU would encourage productivity, lower the price of the agricultural products and put the greater focus on the promotion of the quality of the products by implementing HACCP control system. The main problem the Serbia is facing is that the country's primary agricultural and food industry is not well developed to cope with the same industry in the EU.

- Threats of the competitors

The raspberry sector in Serbia faces competition from Poland and Chile, as the leading exporters of frozen raspberries and from USA, Spain and Mexico, as the world largest fresh raspberry exporters. Poland, as the main threat from Europe, has succeeded in taking over a sizeable share of the raspberry market owing to the promising cultivars, low producer and export prices and existence of a strong industrial basis. The average share of Serbia's export to Germany decreased over three periods, from 43% in the first to 30% in the third period, since Poland was able to take over a certain share of the German market, due to the lower export price of frozen raspberry (UN FAO). Unlike Serbia which exports higher quality bulk-frozen raspberries, Poland exports pre-cooled raspberries, which have the lowest quality and thus lower price.

Due to the complementarity with USA season and proximity to the market, Chile benefits in the fresh raspberry export. The average share of USA, Spain and Mexico increased from 8% in the

¹¹ The Common Agricultural Policy (CAP) is a system of EU agricultural subsidies and programmes that combines a direct subsidy payment for crops and land which may be cultivated with price support mechanisms (EACON).

first to 41% in the third period (UN FAO). Although Serbia exported only 7% of fresh raspberries from the total raspberry exports in the third period, those countries are a potential threat for Serbia in the fresh raspberry market, especially Spain, as the biggest European fresh raspberry exporter.

- Possibility of a decreased export due to an absence of food safety standards

So far, raspberries, mostly frozen have been exported to economically most developed countries of EU (Germany, Austria, France, Italy and Belgium). In third period, 93% of frozen raspberry export from Serbia went to EU, while USA and Japan contributed to around 1% of the total country's export each (UN Comtrade). The above markets demand raspberry product of high quality and conformity with HACPP, Euro-GAP, ISO standards in raspberry production and processing. Raspberry sector in Serbia did not fully implement necessary food quality and safety standards into the primary and processing industry. That could lead to the inability to export into the international markets that require certain standards.

The marketing efforts of raspberry producers are handicapped through lack of implementation food safety requirements. The big number of exporters is not sufficiently familiar with the standards and regulations of importing countries. Recently, certain amount of raspberry shipment had been returned from the EU market due to high pesticide levels.

5.2 Conclusion from the SWOT analysis and suggestions for the sector's improvement

The SWOT analysis applied on the raspberry sector in Serbia suggests that there are favorable conditions for further development and intensification of raspberry conditions in Serbia, bearing in mind weaknesses and possible threats of the production. In order to maintain leading position in raspberry production and export worldwide and increase the competitiveness on the global market, Serbian raspberry sector need to ensure horizontal and vertical integration within marketing channel. Horizontal integration enables economies of scale, while vertical integration provides more efficient marketing systems (input production, packaging, transport, distribution channels, direct sales).

To generate higher profits, achieve higher market share and satisfy the demands of consumers for the raspberry products, it is essential to maximize cooperation between all the participants of the marketing channel; raspberry producers, processing industries, wholesaler, exporter and retailers. The development of an integrated system is required due to the complexity of the operating conditions, changes in the business environment, treats from the competitors, perishability of the fruit and oscillations in demand. The strong distribution system can be the competitive advantage.

The growth, profitability and competitiveness of the raspberry sector in Serbia can be enhanced through investment in all stages (production, processing, trade and marketing) and changes in export structures. One of the first steps in creating stronger competitiveness of the sector is integration of raspberry producers into cooperatives which will strengthen its position on the market and help them establish trustful links to processors and exporters.

In the primary production, new raspberry seedlings need to be provided. New cultivars suitable for fresh consumption extend the harvest season and bring possibility of out of season raspberry production, which allow producers to increase their profit through higher price of the fruit. New growing technology, with the use of greenhouse tunnels; improved system of irrigation instead of using the traditional method and certified planting material that has applied international standards related with the use of the pesticides will allow higher quality and profitability of raspberry production. Serbia's raspberry sector needs to implement all the required European and international standards of general health and safety at all level of production so that it would be able to increase its export worldwide.

The special treatment in Serbia's export offers should be given to organic farming. The high-quality of Serbian raspberries, combined with low agrichemical use, and a profitable brand should be created in the future. The export of the organic fruit should be used to promote the comparative advantages to the EU market in the production of biologically safe, organically produced, healthy food of high quality, with geographical indications.

Due to increasing competition on the world market, raspberry production needs to be intensified by a higher degree of processing, attractive packaging and brands. Investment should be made in packaging facilities so that the packaging material could be able to satisfy healthy standards.

Infrastructure and transportation of the fruit need to be upgraded, particularly for the export markets. The processed raspberry tends to generate the highest profit margins, so the aim of the sector should be on increasing production within own and modernized facilities and creating its own end-products, instead of exporting the frozen raspberry in bulk on the world market.

To improve the production of raspberries and maintain its position on the world market the sector should increase the proportion of the fresh raspberry production due to the constant demand for fresh raspberries in the developed countries. That would be enabled through the government support that has been insufficient till these days and only concentrated on the processed products (raspberry juices).

The government should provide support for investments in primary production (machinery, irrigation system, certified seedlings, planting material), processing industry (improved cold storage and packaging facilities, modernized equipment for processing industry) and provide support for implementation all the required standards. The government needs to invest in opening distribution centres that will provide uniformity and consistency of the quality fruit, and their continuity and provide information to producers related with the consumer needs and price trends in the green and wholesale market. The government needs to help raspberry producers in their promotion on the domestic and world market. That can be done by providing the financial support when visiting international trade fairs and by supporting joint performances of the companies on the world markets (MAFWM, 2011). Educational programs and professional training provided by extension/marketing services can help raspberry producers so that they will be able to produce crops that satisfy international standards and that can help them in getting information of foreign markets. Permanent education of raspberry producer is required. According to the new national legislation, the safety of the fruit is the producer's responsibility (Karajkov, 2010).

The closeness to the European market and attractive price, new cultivars suitable for fresh consumption, possibility of out of season raspberry production are the reasons why Serbia should concentrate on the fresh raspberry. Strong research institutions involved in cultivar creation for fresh or frozen markets are important in ensuring the long-term competitiveness of the sector. Research helps in creating cultivars that are resistant to important diseases, improve the taste and the quality of the fresh raspberry and create the product that is able to meet consumers' demand.

Better organization and integration of all the sector's participants will facilitate achievement of greater results. Joint organizations and associations of producers, processors and traders will help participants to be better informed and prepared to deal with price, supply and demand fluctuations in world markets. That will allow all contributors to obtain optimum price. The marketing concept of business should be applied in the process of planning of production, processing and export, and should be applied to meet the needs of foreign markets in terms of quality, safety, presentation and price and as the result, increase the profit.

The price-based competitiveness of Serbian frozen raspberries on the EU market is the result of the country's proximity (and thus lower transportation costs) and low labor costs compared with Serbia's main competitors. Better price competitiveness enables Serbia to increase the raspberry export. Tradition in growing raspberries, availability of natural resources and geographical position favour raspberry production. Raspberries from Serbia are characterized by a high percentage of dry matter, which provide superior quality of the product. These Serbian "diamond of national competitiveness" allows Serbia to achieve comparative advantage.

Poland succeeded in taking over a sizeable share of the market and have the opportunity to further improve its position due to the tradition in growing raspberries, strong scientific research on cultivar creation, existence of a large semi-processing industry, geographical concentration of raspberry production (70% of national production is grown in the region Lubelskie) and low labour cost (although higher than Serbia's). Membership in the EU enables Poland to enjoy all the benefits.

Chile's main advantage is that the country is able to receive higher prices of the raspberries through the export in the off-season to the USA and EU. Chile implemented required high international standards regarding fruit safety and health, enabling country to export worldwide. Raspberry sector in Chile enjoys support from the government which consider raspberry sector as a sector of strategic importance by putting efforts to make small farmers entry into the market (Challies, 2010). Chilean raspberry sector is characterized by the existence of several firms which are specialized in raspberry fruit. Those firms have expended their supply chain by incorporating the growers whose plantations are close to their processing and packing facilities. Raspberry sector in the USA is characterized by mechanized harvesting which enables country to obtain highest yields among the competitors.

6 Concluding remarks

6.1 Summary of the thesis

This study investigates the raspberry sector of Serbia, over the period 1992 to 2009 with the main purpose to reveal how the sector has been affected by relevant factors focusing on the comparative and competitive advantage and challenges confronting the world raspberry market. The main part of the study is devoted to an in-depth analysis of the main drivers and impediments behind the trends in the Serbian raspberry sector over the last 18 years.

Raspberry, as one of the most important single commodity in agriculture of Serbia, was selected for the analysis considering crucial role for agricultural production and trade. Apart from being the most significant exported agriculture product, raspberry is beside yellow corn the most significant domestic economy products when it comes to export value. Such exports results certainly have a positive effect on the producers, stimulating them to increase their competitiveness by investing into production.

The central question in this study is: what internal and external factors that are favorable and unfavorable are behind the successful international competition in a Serbian raspberry sector? How has the Serbia's raspberry sector been able to create and sustain a competitive advantage against the best competitors? The answers to these questions are of central concern to Serbian producers and exporters that must compete in the international markets. The main objective of the study is to identify internal and external factors that create competitive advantage of the Serbia's raspberry sector against its major competitors and explore ways to increase the competitiveness of the industry.

No matter how a country is small, closed, with specific consumer preferences it is impossible that its agricultural production, trade and prices are without the influence of global trends. Thus, trends in Serbia, more or less are influenced by global trends. Moreover, in certain production, as is the case with raspberry sector, Serbia's agriculture contributes significantly to the formation of regional trends (USAID 2010).

Some see the sector's competitiveness of a certain country as a macroeconomic phenomenon driven by variables such as exchange rates or government policy while some consider it as an influence of cheap and abundant labor as well as natural resources, large positive balance of trade, rising share of world export or because it is the sector that creates jobs (Porter). The factors behind the strength of the raspberry sector in Serbia are consistent with traditional theory explanations of dominance of international trade while others still need to be investigated. The main research questions this study tries to answer are how to mitigate the consequences while benefiting from the opportunities of the industry. Moreover, what kind of policies are the most needed.

In recent years the world production and trade of raspberries significantly improved. The increasing trend of demand for raspberry fruits has been attributed to: customers' requirements towards quality due to health and lifestyle concerns and needs of supermarkets for fresh raspberry all year round, improving packaging and requirements of safety and healthy fruits, improving technology and a large increase in world trade of raspberries. Such changes require responses by producers and traders in this sector. Although Serbia has a significant success in trade of raspberries it is primarily oriented to the small number of markets (frozen raspberries in the EU market) and from these markets do not draw the highest benefits (no raspberries in supermarkets in the EU under Serbian brand names). That's why this sector needs a new marketing strategy oriented in understanding how raspberry markets work.

Therefore given the importance of raspberry exports and the role it plays in the Serbia's agricultural trade in general, and taking into account increasing competition on world raspberry market – it is important to identify the internal and external factors that are favorable and unfavorable influencing export flows of Serbian raspberries. Thus this paper is specifically concerned about the identification of strengths, weaknesses, opportunities and threats of the raspberry sector in Serbia in the context of comparative and competitive advantages. It analyzes Serbia's raspberry sector and uses the SWOT analysis in order to maximize the benefits of the evaluation of all four categories and find the competitive advantage of this specific sector. It also puts effort to suggest possible ways to expand trade and offer recommendation how to improve competitiveness.

Various indicators were taken into account for the SWOT technique to control for the influence of the factors affecting Serbia's raspberry export and its competitiveness. SWOT analysis showed that the most important factors are:

(1) The analysis of internal *strengths* helps in determining the highest resource priorities to capitalizing on opportunities, setting back the competitors' initiatives, identifying and exploiting advantages. The strengths of the raspberry sector are long tradition in raspberry growing, favourable climate with specific soil conditions which provide optimal production, low labour and low energy costs, high average yields and the sector being of the strategic importance for the economy of the country.

(2) There are many *opportunities* for the Serbian raspberry sector to grow as an important crop in highly competitive environment, both for countries in the region and in the world. The main opportunities are increasing demand for fresh and processed raspberry, organic raspberry production, concentrating on the fresh raspberry market, creating national brand, Arilje malina as the product with PDO and increasing export to Russia and Japan.

(3) On the other hand, the main *weaknesses* discovered by this SWOT analysis showed that Serbia has poorly organized marketing channel, fragmented raspberry production, outdated technology in all levels of the production, lack of safety and health standards, low level of processing and insufficient government support. Various factors demonstrate need for strengthening in order to contribute to the development of the sector. This list served to realize the parts of the sector that are weak and areas where they need to be improved which brings us to the threats and recommendations that will help the sector recover.

(4) The part of SWOT matrix that captures *threats* is useful and could generate sector especially in preparing for future scenarios so the losses can be minimized. The main threat comes from the competitors, especially in the frozen raspberry market, Chile and Poland. Unfavourable weather conditions that can reduce raspberry harvesting, decreased export due to the lack of implemented standards, Serbia not being the member of EU and world market fluctuations in the raspberry commodity are threats the raspberry sector is facing.

Changes in the market conditions and increasing competition on the world raspberry market from other producing countries make the cost of entering the new markets increase and

investment necessary. Without intervention and improvement of the conditions regarding yields, quality, productivity, organisation and marketing, there might appear a threat for a substantial reduction of the production and export of raspberries in the near future with negative effects on the income and the employment in Serbia, which all might threaten the market position of the sector.

In order to respond to the challenges confronting the raspberry sector and defend its market position, the Serbian sector in particular needs to be strengthened in the sense of primary production, processing industry and market competitiveness. The main objective is to improve the entire raspberry marketing chain from production to final destinations. The impacts will include an increased export of high quality of fresh and processed raspberries from Serbia, which will lead to increase of export income and an improvement of the trade balance.

The timing for an intervention in the raspberry sector is relevant due to increased international competition on export markets. Steps are taken to bring the framework in compliance with EU requirements, but the enforcement of quality and food control still need to be implemented. This must be taken into account when evaluating feasibility and future perspectives of the present and future productions and trade within raspberry sector.

Liberalization of raspberry trade has numerous and complex effects on macro level. Having in mind the limited size of the Serbian market, as well as traditional connection with economies of EU countries the raspberry sector is expected to be the main pillar of future development. Government should initiate measures for further trade facilitation, adopt measures of necessary trade promotion and strengthen further institutional integration into the international economy, focusing on the integration into the EU and WTO. It is realistic to expect the trend of raspberry export rise into EU countries to continue, which is certainly a positive effect of liberalization. As an EU member, Serbia would rely on the free trade agreements with other markets which would foster integration of Serbia's raspberry sector into the world economy. Since the raspberry production in Serbia is export oriented, potential market loss would bring higher negative implications than the effects of liberalization. In this sense, liberalization will have a positive effect since it will initiate significant changes in the sector which will be reflected in the increased competitiveness in the way that will keep existing and enter the new markets.

Considering the trend of world population increase, growing demand for raspberry, changes in consumer's preferences towards healthy and organic fruits, the growing trend of this fruit's trade is expected to continue. In recent years, there has been increased demand for frozen raspberry from Japan and Russia, which is the great opportunity for Serbia to increase the market share on those markets.

Chapter two provides a historical background of Serbia and economic assessment of its agriculture and raspberry sector in order to perceive the overall picture of the country's development as well as performance of the agriculture. Focus is on the raspberry sector, its production, trade and prices as well as the sector's position in the competitive environment. Many of the conclusions of this analysis are consistent with main findings of previous studies on the SWOT analyses as well as with economic theory observed in chapter three of the study.

Chapter three provides some of the concepts of international economics and trade theory. The chapter provides models that illustrate concept of comparative and competitive advantage, partial equilibrium, Porter's Diamond model and value chain as well as literature review that assists and offer background for the research.

Chapter four combines many findings of various studies related and give an overview of the factors commonly used in explanation of the SWOT analysis of the industry/sector. The specific list refers to general indicators that can affect agricultural sector of the certain country which can also be applied in the raspberry sector. The given indicators provide comparative and competitive advantages of the sector and can affect the sector's competitiveness.

Chapter five applies SWOT analysis on the raspberry sector in Serbia. The SWOT analysis tries to capture the factors which are consistent with the theories of comparative and competitive advantage and all the elements of the value chain presented in chapter 3. The main objective is to improve the entire value chain of raspberries from production to final destinations. The chapter provides main conclusions from the applied analysis and some of the recommendation and perspectives of Serbia's raspberry sector.

Chapter six provides summary of the thesis and the most important conclusions, suggestions and implications of the study.

6.2 Limitations of the study

Mention should be made of the data problems encountered in the study. In this study where possible, data for the Serbian raspberry sector were compared with the data for the same sector in other countries. However, many other studies that analysed Chilean raspberry sector in general lack data since officially published foreign trade statistics of Chile are still not available which make comparative analysis more difficult to conduct. Eurostat database does not capture the statistics of the countries that are not members of the EU, thus Serbia and Chile are not included into this valuable classification.

Also, the reported figures on raspberry trade may not be fully consistent, because different sources of data had to be combined in order to obtain more tractable data for the purpose of this analysis. This needs specific attention on the consistency between the two databases (FAOSTAT and UN Comtrade) taking into account that they apply different classifications for raspberry commodity. FAOSTAT database refer only to fresh raspberry, while UN Comtrade report separately statistics for frozen and fresh raspberries (still inconsistent with FAO).

Mention should be also made of the data limitations in the SWOT analysis presented in chapter five. Due to lack of data for the raspberry sector, few indicators are based on data taking into account agriculture in general. This, however is not expected to have relevant implications allowing one to analyze comparative and competitive advantages in the raspberry sector since the indicators considered are most likely consistent within agriculture in general and each particular sector. By analyzing the agricultural sector, one can gain insight into how Serbia's production, trade and marketing links within raspberry sector have been affected over these periods.

Furthermore, one of the main limitations of the SWOT analysis, which this study is also facing, is that the importance of each factor cannot be measured quantitatively and that it is difficult to assess which factor has the greatest influence on the strategic decision. Quantitative research allows the researcher to measure and analyze data which this study does not provide.

The items considered for the SWOT analysis do not carry certain weight that represent how significant each item is to the sector. One may conclude that a shorter list of strengths versus a

longer list of weakness means the sector is not doing well, which might be wrongful conclusion. Taking a SWOT checklist approach can also result in factors not being prioritised.

This analysis allows generating lists of factors concerning the sector, but the lists alone do not help in achieving the sector's objectives and does not mean that the planning process has been completed. The exact effects of these limitations on the findings of the decision making process model are unknown.

6.3 Suggestions for further research

Regardless these general disadvantages of the SWOT analysis, this study is not a simple checklist since it puts effort to consider the degree of factors considered versus its competitors to determine how strong that factor is and look the size of an opportunity or threat and show how these inter-relate with its strengths and weaknesses. It could be useful tool to assist other researches interested in this topic. However, further studies should put efforts to evaluate and estimate export potential of Serbian raspberries to different countries and effective ways to expand these flows. This paper has identified the threats on the raspberry sector in Serbia. What remains is a daunting task but achievable challenge to reduce these threats. Some recommendations are suggested and defined the tools which could help realizing these goals but quantitative assessment and estimation procedure on export potential remained.

The list of items generated by this analysis provides information or items it needs to look into deeper using other tools such as statistical surveys, focus groups or even employing a test-market strategy for a new product or service.

While this study puts effort to suggest possible ways to expand trade and offer recommendation how to improve competitiveness, others are needed to measure for the relative significance of the indicators in order to reveal which part of the sector has the strongest potential and which need to be most recovered.

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