



Market analysis of the fruit sector in Zlatibor County, Serbia



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Table of Contents



Preamble	3
1. Context	5
1.1. Private Sector Development Project (PSD) – Review	5
1.2. Why the SDC selected Zlatibor County	5
1.3. Approach to market development	8
1.4. Why the fruit production sector was selected?	10
2. Zlatibor County's Fruit production Sector	11
2.1. Territory devoted to fruit production	11
2.2. Fruit producing crops	11
2.3. Raspberry	12
2.3.1. Surface area, raspberry production and yield in Zlatibor's participating municipalities	12
2.3.2. Cold storage facilities and workforce	14
2.3.3. Markets and competition	15
2.3.4. Challenges facing the production and sale of raspberries	18
2.4. Apple	19
2.4.1. Apple production and yields in selected Zlatibor municipalities	19
2.4.2. Markets and competition	21
2.4.3. Challenges to the production and sale of apples	24
2.5. Plum	25
2.5.1. Plum production and yields in the selected Zlatibor municipalities	25
2.5.2. Markets and competition	27
2.5.3. Challenges to the production and sale of plums	29
2.6. Who holds support functions in the fruit production sector?	30
3. How can fruit production become more competitive?	35
3.1. Productivity and the quality of production	35
3.2. Processing and adding value to fruit through cooperatives	36

3.3. Innovation: increasing the competitiveness of the fruit production sector through the sale of fruit products with added value.....	37
4. Intervention strategies.....	39
4.1. Vision and logic of interventions.....	39
4.2. Establishing a functional model for the provision of advisory services to agricultural producers aimed at achieving a more intensive level of fruit production.....	40
4.3. Capacity building for cooperatives.....	41
4.4. Establishing market research functions as a precondition of innovation.....	41
What next?	42
Annex I: Another look on issues	43
Annex II: Export of raspberries, apples and plums from Serbia.....	47

Preamble

South-western Serbia's private sector development (PSD) project is a three-year programme funded by the Government of Switzerland through the Swiss Agency for Development and Cooperation (SDC) and implemented by the Regional Development Agency "Zlatibor" (RDA Zlatibor).

The project's overall objective is to contribute to the generation of income and employment by facilitating market development in sectors with growth potential, namely: tourism, fruit production, meat processing and dairy production.

The fruit production sector has been selected for development intervention for the following reasons:

- **Relevance:** Fruit production is dealt with intensively or extensively by around 70% of rural households; 14% of households represent the dominant source of income generated from fruit production; 30% of Serbia's total raspberry production takes place in Zlatibor County and the images of individual municipalities are fully supported by specific types of fruit ("when I say raspberries, I think Arilje"), which all serves to prove that this sector displays dynamic growth and represents a significant contribution to the regional economy.
- **Potential to generate income and employment:** export-oriented fruit production: – over 90% of raspberries are exported; 76 cold storage facilities employ around 1.500 workers; in excess of 5.000 seasonal workers (pickers) are engaged; the traditional processing of fruit to produce brandies, jams and fruit preserves provides an excellent platform for development - not only in terms of the value chain in the fruit production sector,

but also in support sectors like transport, packaging, marketing etc., thus generating the potential to create new jobs. The intensification of production in the sector is based on knowledge and good production practices that enable primary producers to increase yields and fruit quality, thus increasing revenue. Expansion of their product range and improvement of their level of fruit processing will lead to the introduction of a new production process that will require the engagement of both low-skilled and highly-qualified workers in the fruit processing segment.

- **Potential for intervention:** the PSD programme provides support in sectors with growth and development potential, on the one hand, while, on the other, it recognises so-called "actors of change" that have the capacity and strength to lure and "tug" others. The area's competitive position within Serbia, but also on the international market, creates the space for various interventions to contribute to systemic change: transferring knowledge and information, spreading good production practices, promoting connectivity, intensifying the use of research and development, promoting regional products etc.

The PSD project uses the M4P ("Making market work for the poor") approach to market development, which is widely accepted by development agencies worldwide. By supporting the current market, the PSD project seeks to achieve long-term, systemic change that will facilitate this sector's growth and development. Through interventions in the areas noted, the project aims to achieve the effect of increasing revenues in the fruit production sector and thereby increase employment opportunities:

- **Creating a functional model for providing advisory services to agricultural producers with the aim of intensifying fruit production activities:** The project seeks to contribute to raising knowledge levels and the application of good production practices among producers in order to advance fruit production. Achieving this goal requires improvement to the current model of mutual cooperation between primary producers, on the one hand, but also, on the other, the cooperation of all stakeholders that provide information and services related to fruit production. The PSD programme, in conjunction with Uzice's Agricultural Advisory Expert Service, the Agricultural Innovation Centre in Arilje, Cacak's Fruit Research Institute and fruit processors, will work on increasing the availability of existing advisory services and the creation of new ones aimed at contributing to more intensive productivity.
- **Enhancing the capacity of cooperatives:** One way to increase the competitiveness of so-called 'small producers' is through functional cooperatives that enable members to join forces to secure a better market position and/or secure added value through the joint preparation of traditional fruit products. The PSD programme, in partnership with the Ministry of Agriculture, Forestry and Water Management - Office for Rural Development, municipal agricultural services and other interested parties, will work to improve existing programmes designed to strengthen cooperatives.
- **Advancing market research functions of as a precondition for innovation:** Good positioning, coupled with the retaining of existing markets and expansion to new ones, implies the permanent monitoring of demand trends as one of the pillars of development and product innovation. The PSD programme, in conjunction with the Uzice Regional Chamber of Commerce, the Serbian Investment and Export Promotion Agency (SIEPA),

research agencies and wholesalers traders, will initiate the process of improving research on market developments as a basis for developing existing products and introduction new ones.

Following the presentation of reports, the Programme will continue to seek partners with which to implement the noted interventions most effectively.



1. Context

The following chapter provides a brief overview of the "Private Sector Development" project (hereinafter 'PSD') and the region the project covers, alongside a review of the specific approach applied for analysis of markets and criteria for the selection of the fruit-growing sector.

1.1. Private Sector Development Project (PSD) – Review

The Regional Development Agency Zlatibor is implementing a three-year PSD project (May 2009-April 2012) in five municipalities of Zlatibor County: Arilje, Nova Varos, Priboj, Prijepolje, Cajetina and the City of Uzice, while funding of CHF 1.65 million is provided by the Government of Switzerland, through the Swiss Agency for Development and Cooperation (SDC).

The project's overall objective is to reduce poverty and improve the economic position of all stakeholders in the value chain of SMEs, creating opportunities for job creation and safeguarding existing jobs through a system of multiphase interventions to support the SME sector's growth and development. Three sectors have been selected: tourism, meat/dairy processing and fruit production, as all three play important roles as generators of income and employment in the County.

The role of RDA Zlatibor is as a facilitator - offering support to key stakeholders in the value chain, with the aim of introducing systemic changes that will ensure the initiated process's sustainability.

1.2. Why the SDC selected Zlatibor County

Zlatibor County is located on the territory of south-western Serbia, at the three-way intersection of Republic of Serbia, Montenegro and Bosnia and Herzegovina. It is Serbia's largest county in terms of area (6.141km²), covering the territories of 10 municipalities: Arilje, Bajina Basta, Cajetina, Sjenica, Kosjeric, Nova Varos, Pozega, Priboj, Prijepolje and Uzice. It is home to 313.396 people living in

Overview 1 - Regional Development Agency Zlatibor

RDA Zlatibor was established as a limited liability company in 2008 through transformation of the Regional Centre for Small and Medium-Sized Enterprises (founded in 2002).

The RDA was established as the result of a public-private sector partnership, with both sides representing the agency's Founding Assembly.

Organisationally, RDA Zlatibor is based on disseminating knowledge as a catalyst for socio-economic development processes in Zlatibor County.

The mission of RDA Zlatibor is to provide a contribution to the sustainable socio-economic development and stability of Zlatibor County, encouraging competitive communities suited for life, work and business through the implementation of strategic planning, the promotion of favourable business environments, marketing territories and the implementation of community development initiatives.

RDA Zlatibor promotes an adequate institutional framework and stronger territorial cohesion, as well as providing a sustainable regional partnership among stakeholders responsible for the socio-economic development of Zlatibor County. The RDA participates in defining priorities and implementing regional development measures, facilitating analysis and debate and providing advisory support for stakeholders.

The private sector development (PSD) supports RDA Zlatibor in the strengthening of its strategic and facilitator role in the process of EU integration.

For more information visit: www.zlatibor.co.rs

380 towns and villages. According to its geography and soil configuration, Zlatibor County is classed as a hilly-mountainous area, with forest and forest land covering 42% of territory and agricultural land accounting for 51% of the total area.

In the period prior to the economic restructuring of the Republic of Serbia, during the 1990's, the main industrial activities included textile production, metallurgy, mining and production of building materials. In 2009, with exports worth \$310 million, Zlatibor County contributed 5,96% to Serbia's foreign trade, mainly thanks to exports of non-ferrous metals (copper and aluminium), fruits and

textiles. Industry is characterised by a low level of increased value and the closures of a number of companies operating in these industries, coupled with the privatisation of large systems. This has resulted in a significant increase in unemployment levels within the county. Zlatibor County boasts significant natural resources, with the dominant sectors represented by the processing industry (metals (28,1%) dominate the processing sector, followed by industrial minerals (18,8%) and the production of textile products (11,9%)). Zlatibor County also enjoys a high share of Serbia's total production for certain individual products: raspberries (30%), potatoes (10%) and plums (5%). The most developed activities in agro-

industrial sectors are: the slaughter industry, meat processing and production of cooked meat products (ham, sausage, bacon etc.), milk and dairy products (cheeses and creams), natural fruit brandies with registered geographic origin, medicinal herbs and forest fruits (mushrooms, wild strawberries, blueberries, juniper berries etc.), while capacities also exist for the production of fruit juices, syrups, jams, marmalades, compotes, preserves and the processing of vegetables.

Zlatibor County's agricultural production, tourism and processing industry ensure the creation of added value to the aforementioned sectors.

The total population of Zlatibor County (according to the 2002 census) is 313.396, which marks a 5,7% decrease on the population recorded by the previous population census of 1991. It also equates to 4,3% of the total population of Serbia (7.5 million). Individual parts of the County are characterised by pronounced poverty and the county's average unemployment rate is 31,3% (2009). Young people, lacking adequate opportunities to secure income and employment, tend to leave to seek opportunities in urban centres (Belgrade, Novi Sad). Outward migration represents a major threat to socio-economic progress in the County and deprives existing businesses of skilled labour. The average monthly salary in the district (EUR 369) is below the national average (see Table 1). Dispari-

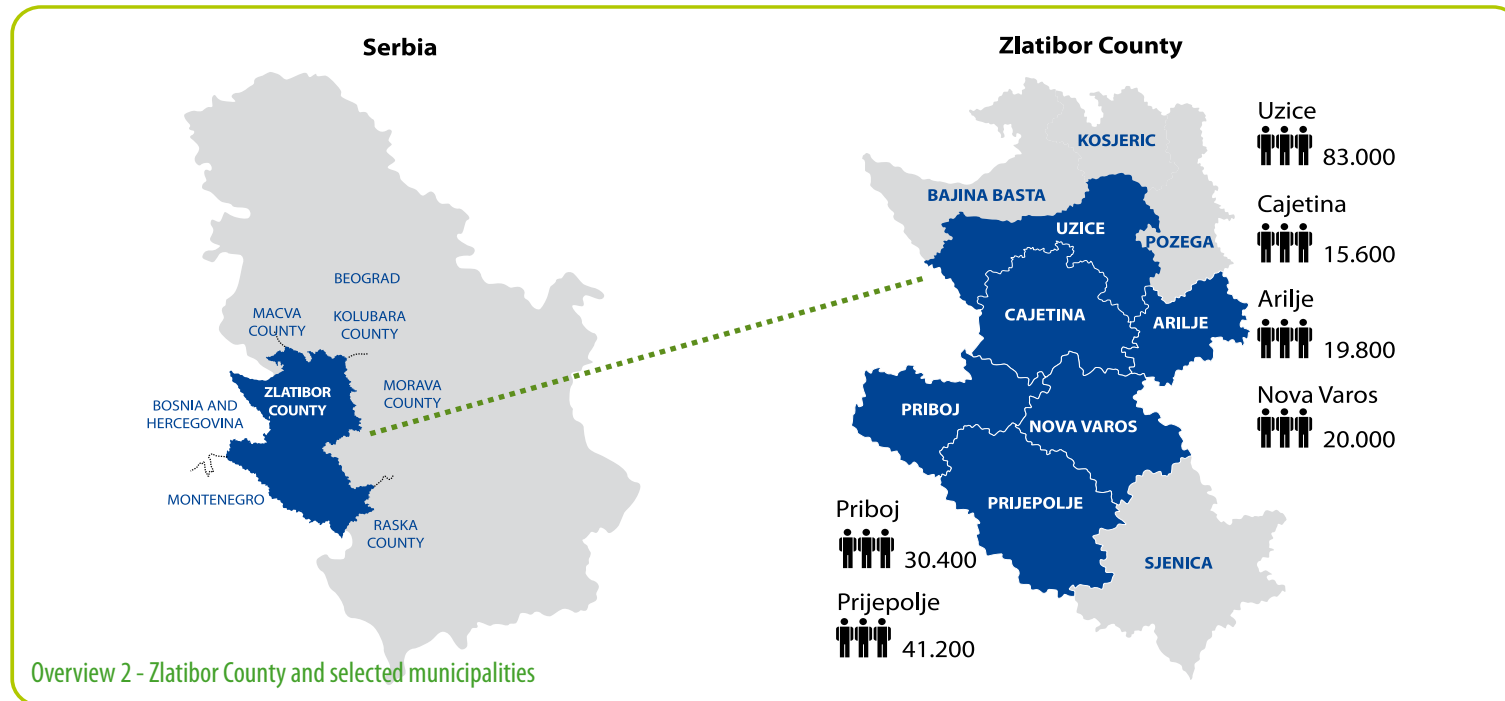


Table 1 - Population and some poverty parameters

Municipality	Population			Unemployment		Income		Human Development Index (HDI) 2002 - 2007
	Total (1991.)	Total (2002.)	Total (2008.)	Unemployment rate		Average monthly income 2009 (EUR)	Average monthly income 2009 (RSD)	
				2002.	2009.			
Uzice	82.723	83.022	83.601	16,34	20,45	421	42.137	
Arilje	20.335	19.784	20.567	18,88	16,54	321	32.090	
Prijepolje	46.525	41.188	43.148	23,24	50,41	313	31.291	
Cajetina	15.996	15.628	16.132	15,36	13,67	325	32.535	
Nova Varos	21.812	19.982	21.606	17,73	43,05	372	37.222	
Priboj	35.951	30.377	32.753	33,76	47,79	280	27.955	
Zlatibor County	302.228	313.396	325.997	19,82	31,3	369	36.893	0,792-0,810
Serbia	7.381.579	7.498.001	7.334.935	25,32	26,6	436	43.597	0,772-0,826

Statistical Office of the Republic of Serbia and the National Employment Service¹

¹ National Employment Service statistics are unofficial

ties between the impoverished rural and urban populations are extremely high. Vojvodina and Western Serbia (of which Zlatibor County belongs) record the biggest difference².

A marked difference exists between the County's municipalities when it comes to levels of development. The HDI (Human Development Index) level is measured according to the level of development of municipalities (according to categorisation which provides the basis for the state's regional development policy):

- **Kosjeric, Uzice and Arilje** belong to Serbia's **most developed** municipalities.
- **Pozega and Cajetina** are in the **developed** group.
- **Bajina Basta and Nova Varos** belong to the group of **average undeveloped** municipalities.
- **Priboj** is **undeveloped**.
- **Prijepolje and Sjenica** are in the fifth group ("**most undeveloped**" or rather "**insufficiently developed**").

The high rate of outward migration - especially among young people, high unemployment rate in the county, low income - especially in rural areas - and major disparities in the development of municipalities lead to the conclusion that developmental interventions are essential to creating sustainable sources of income and employment in Zlatibor County, especially for the youth. These are the reasons for SDC's support of the PSD programme implemented by RDA Zlatibor.

² Statistical Office of the Republic of Serbia (2007): Measuring standards of life-Serbia 2002-2007, for the World Bank & DFID, Belgrade

³ "Making market work for the poor"

1.3. Approach to market development

The PSD project uses the M4P³ ("Making market work for the poor") approach to market development, which is widely accepted by development agencies worldwide. The PSD project is one of the more frequent projects that are orientated towards introducing long-term, systemic changes on the market that will provide sources of income and employment for more people. PSD is a pioneering project in Serbia that promotes this approach based on the following four elements:

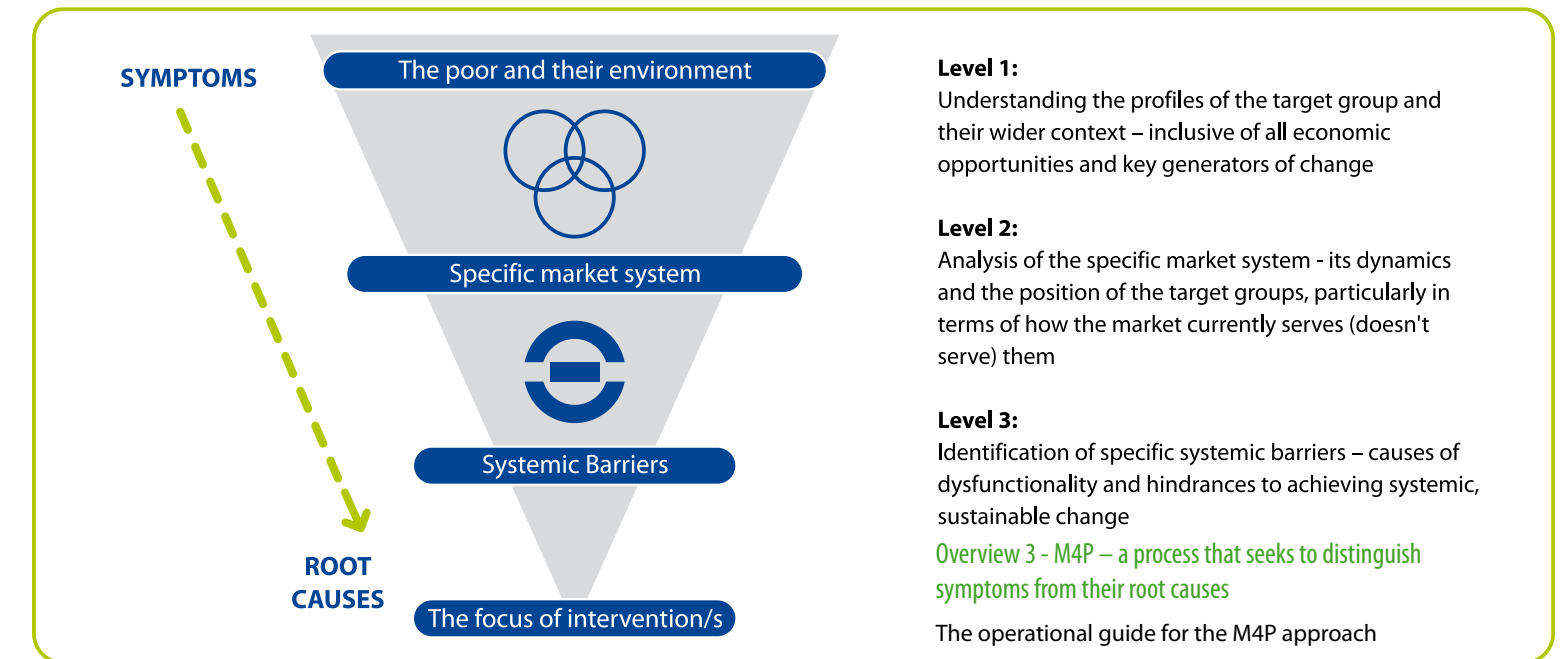
- **Understanding the market system:** A base of intensive research and analysis in order to develop an essential understanding of target markets and identify obstacles in the environment, thanks to which we will be able to observe the differences between symptoms and their root causes. This approach allows the project to provide all stakeholders (market players, municipal representatives, et al.) with clear and strategic advice based on information.
- **Drastic systemic change:** Focusing on the causes of problems rather than the effects enables an understanding of unfavourable and/or insufficiently-functioning markets, positions and capacities of different stakeholders – both on the market and in the environment – thus enabling systemic change. With such a focus, the PSD programme differs from conventional development programmes that aim to provide direct solutions to companies and thereby restrict their range of action and sustainability.
- **Focus on sustainability:** The directing of intervention towards systemic solutions ensures that sustainability is the central point of this approach. The project views sustainability in a broader sense, as a market opportunity for the target group to offer and use a variety of goods and services even after a period of intervention. As such, the guidance for this work includes two questions:

- 1) Who will be responsible for implementing key market features in the future?
- 2) How will that be made financially sustainable?

- **Intervention through facilitation:** Via the PSD Programme, RDA Zlatibor is continuing its strategic reorientation from being a direct provider of services to SMEs to a facilitator of regional socio-economic development. This entails reflecting a strategic role as a catalyst for development processes in the county, based on market research and analysis in order to provide interested parties with strategic guidance and motivate them to assume responsibility for the implementation of certain functions. Es-

entially, facilitation represents the stimulating of others to take action based on their motivation and capacities. In this way, the programme supports RDA Zlatibor's strengthening of its strategic and facilitator role in the process of EU integration.

The entire intervention process is illustrated in Review 3 In accordance with this process, the PSD project commenced Analysis activities in the selected municipalities in May 2009, aimed at achieving better understanding of the target group (youth, unemployed, women, "impoverished") and their socio-economic context. **As a result of this phase, the project selected three sectors for further intervention: tourism, fruit and meat and dairy.**



Using a phased approach, implying gradated intervention based on mutual support, the project has conducted in-depth market analysis of the fruit production sector (level 2 in the diagram, with results summarised in this report), in order to ascertain the structure and dynamics of the fruit production sector, as well as difficulties hindering intensive and comprehensive growth. As a result, the project defined three key areas of intervention (see Chapter 4), which will represent the project's main focus over the next 18 months.

1.4. Why the fruit production sector was selected?

- **Relevance to the local economy**

Fruit production is dealt with by around 70% of farms, while 14% of households represent the dominant source of income generated from fruit production. Although only 3,5% of agricultural land is dedicated to fruit production, 20% of Serbia's total raspberry production takes place on the territory of the selected municipalities and 3% of plum production.

- **Potential to generate income and employment**

Export-oriented fruit production: – over 90% of raspberries are exported; 76 cold storage facilities employ around 1.500 workers; in excess of 5.000 seasonal workers (pickers) are engaged; the tradition of processing fruit to produce brandies, jams and fruit preserves provides an excellent platform for development - not only in terms of the value chain in the fruit production sector, but also in support sectors like transport, packaging, marketing etc., thus generating the potential to create new jobs. Expansion of the product range and improvement of fruit processing levels will lead to the introduction of a new production process that will require the engagement of both low-skilled and highly-qualified workers in the fruit processing segment. Moreover, the fruit sector is inextricably

linked to other sectors (packaging, fertilizers, safety equipment, transportation, advisory services) and is thus able to exert a huge influence on the generation of greater income and employment in Zlatibor County.

- **Potential for intervention**

The PSD programme provides support in sectors with growth and development potential, on the one hand, while, on the other, it recognises so-called "actors of change" that have the capacity and strength to lure and "tug" others. The area's competitive position within Serbia, but also on the international market, coupled with many different stakeholders and their willingness to cooperate, creates the space for various interventions to contribute to systemic change: transferring knowledge and information, spreading good production practices, promoting connectivity, intensifying the use of research and development, promoting regional products etc.



2. Zlatibor County's Fruit production Sector

This chapter covers analysis of the fruit-growing market, observing basic components of the regional supply of fruit products and describing trends in fruit production over recent years, thus providing the basis to understand market dynamics and key challenges facing fruit production in the participating municipalities of Zlatibor County.

2.1. Territory devoted to fruit production

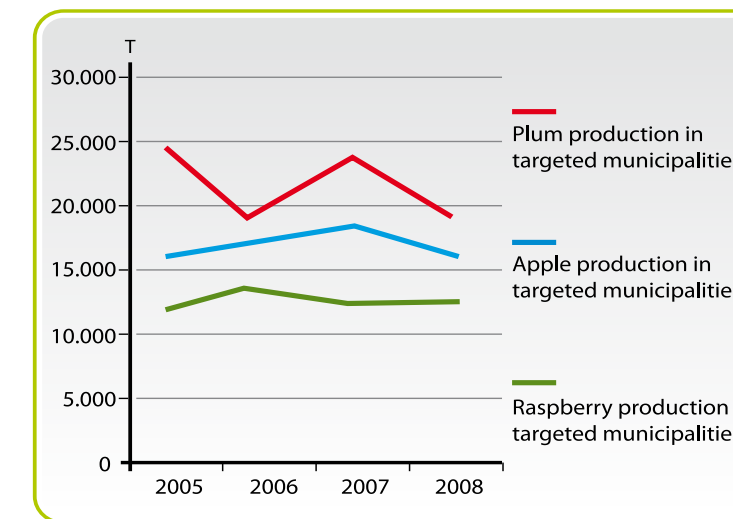
A surprising fact is that a mere 3,5% of the county's total agricultural area is devoted to fruit production, but even that represents the second most important agricultural activity, after livestock farming, throughout the Zlatibor County and the targeted area. Fruit crops occupy significant areas on the territory of the City of Uzice (10,14% of total agricultural area) and in the Municipality of Arilje (16,91%). The area devoted to fruit production is much lower in other municipalities, while the municipality with the least fruit cultivation area is Nova Varos (2,26%).

2.2. Fruit producing crops

The Zlatibor County produces: plums, apples, cherries, sour cherries and pears (the last three are not cultivated extensively, representing only isolated pockets on land plots); raspberries, strawberries, blackberries (blackberry plantations were much more widespread in the past, though lower profitability compared to raspberries contributed to the demise of raspberry production) and, in recent years, plantations of blueberries – as an alternative to raspberry (in case of a bad raspberry season, according to the producers). Thus, raspberry, apple and plum achieved dominance in the area's fruit production sector.

At first glance (Graph 1) and considering production levels, it would appear that plum production dominates, followed by apple growing. However, this is affected by the number of trees and the area covered by plantations, as opposed to yield. If we consider yield, we can see that production of plums (7,9 kg) and apples (13,02 kg) per tree is below the national average (14,5 and 15,5 kg respectively), indicating more extensive production. Raspberries, however, are grown over a smaller area but achieve an average yield of 7,1 t/ha higher than the national average (5 t/ha).

Graph 1 - Trend of raspberry, apple and plum production (T) in participating municipalities

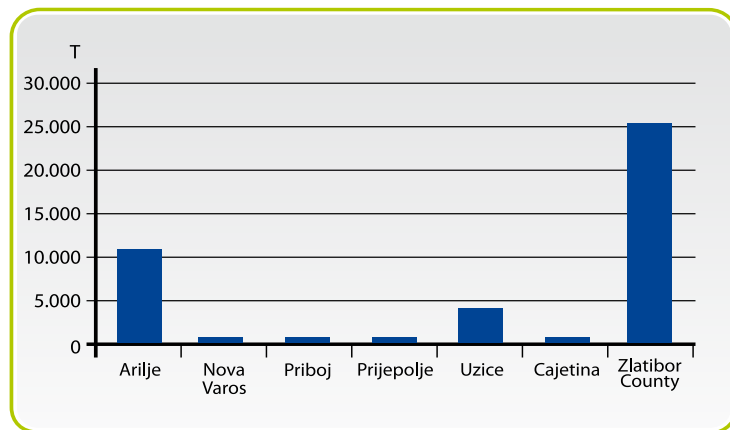


Statistical Office of the Republic of Serbia

2.3. Raspberry

Raspberries represent the most profitable commercial fruit crop in Zlatibor County, which is the country's biggest raspberry producing area. Some 25.810 tons of raspberries were produced in the Zlatibor County during 2009, accounting for 29,7% of total raspberry production in Serbia and 20,97% of total land area used for raspberry growing in Serbia.

Overview 4 - Production, surface area and average raspberry yield per municipality

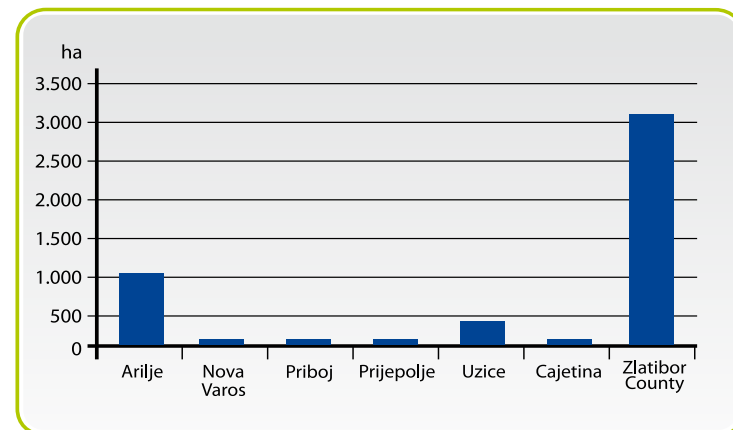


Graph 1 - Raspberry production (T)

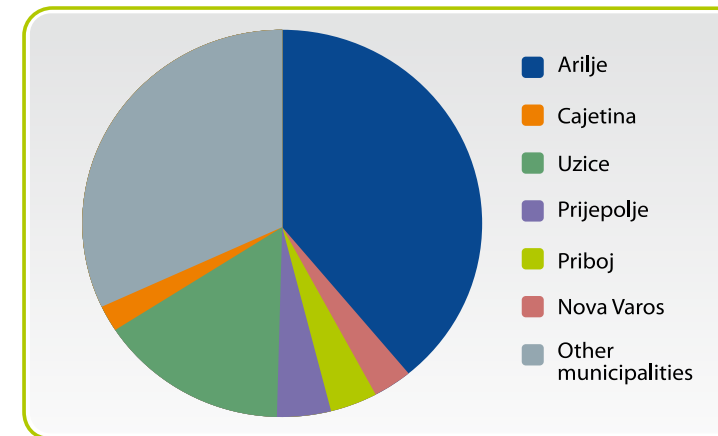
2.3.1. Surface area, raspberry production and yield in Zlatibor's participating municipalities

Summarily observed, Zlatibor County is Serbia's largest producer of raspberries. However, major disparity is evident between the participating municipalities when it comes to the structure of production, yield and surface area devoted to this crop in 2009 (Overview 4).

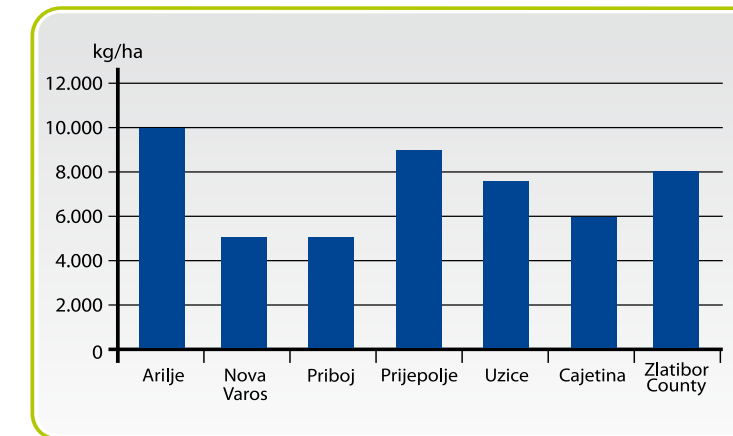
"More than 5.000 small factories produce about 20 million kg of raspberries annually in open-air grows, providing the municipality with significant foreign funds. This area boasts the world's highest concentration of raspberry plantations, Europe's largest cold storage facility for freezing fruit (Agricultural Workers Cooperative Arilje") and it was here that the record was set for production of raspberries (44.763 kg per hectare). Here practices change the theory ... Raspberry gave new life to the Arilje area, which is why the locals erected a monument to the fruit." - Development Programme of Arilje Municipality



Graph 2 - Area under raspberry (ha)



Graph 3 - Share of production in County (%)



Graph 4 - Average yield (kg/ha)

Statistical Office of the Republic of Serbia (2009)

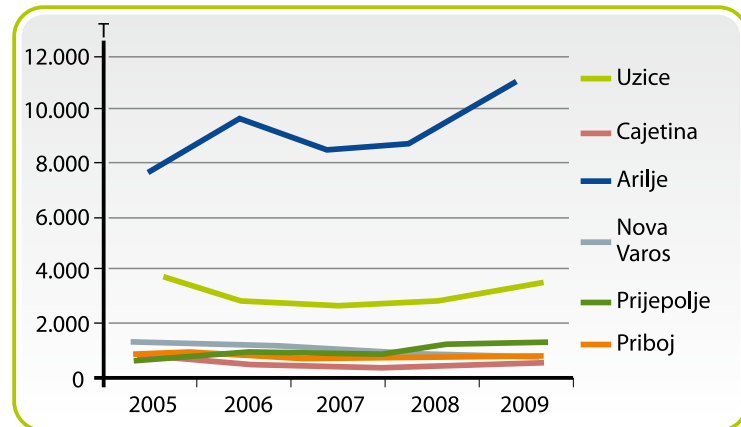
Arilje represents a hub of raspberry production; commercial raspberry growing is carried out in every village in the municipality and, according to estimates, the average farm cultivates raspberries over 0,25 hectares.

Besides Arilje, significant raspberry producing areas are located in Uzice, where production is carried out on plantations covering 0,1 - 1 ha. There are limited possibilities for the development of raspberry production in Nova Varos, Priboj, Prijepolje and Cajetina, due to the local microclimate and land configurations. As such, the average raspberry plantation in these municipalities covers from 0,10 to 0,15 ha. According to average yield, with the exception of Prijepolje municipality, which has a slightly higher average yield, it is clear that this is a case of **extensive production**⁴. Considering the land configuration of almost all participating municipalities, a greater surface area for planting should not be expected. As such, the proper implementation of all agro-technical measures is key to

the realisation of larger scale production. Significant growth in raspberry production levels are registered in the municipalities of Arilje and Prijepolje, while the fruit's production is stagnating or slightly declining in other municipalities (Graph 2). If we add to this the major differences in average realised yields, one can conclude that there is no transfer of knowledge or good manufacturing practices and that Arilje does not represent a "trigger" for growth and the advancement of raspberry production in other municipalities.

The most common raspberry variety produced in the area is the Willamette type, which accounts for an estimated 95% of surface area used for raspberry cultivation. The remainder is devoted to production of the Meeker and Tulameen types. Willamette is mostly used for freezing, while the Meeker and Tulameen varieties are

⁴ Intensive fruit production implies the application of adequate agro-technical production measures and knowledge aimed at obtaining the best possible yield in terms of both quality and quantity. Extensive fruit production is the opposite of intensive production and relates to the absence or partial application of knowledge and agro-technical fruit production measures.



Graph 2 - Raspberry production trends (T)
Statistical Office of the Republic of Serbia (2009)

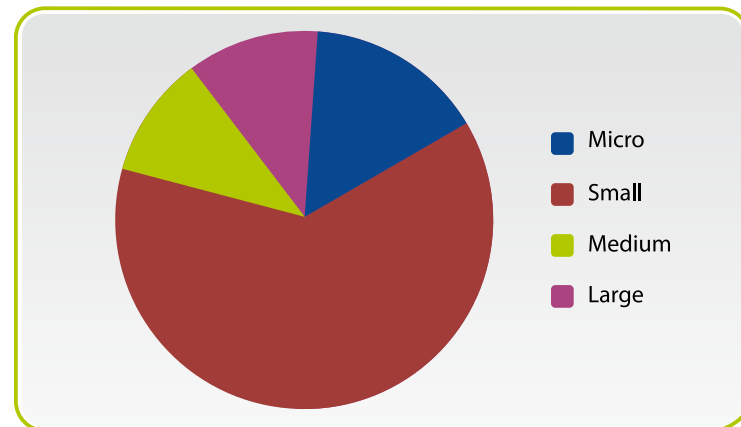
suitable for sale as fresh produce. A change of strategic direction to promote the more profitable sales of fresh raspberries would require a change of varieties grown and improvements to manufacturing practices.

2.3.2. Cold storage facilities and workforce

Raspberry crops require a large commitment of labour. Larger cold storage facilities (number and capacity of cold storage facilities shown in Table 2 and Overview 5) have 30-40 permanent employees year-round. Smaller cold storage facilities have up to 15 full-time employees, while the number of staff significantly increases during the harvest season, when the number engaged by large cold storage facilities exceeds 100 employees (handling, grading etc.). Just 1 ha of raspberry plantations requires a staff of 12 workers during the harvest season (60kg of raspberries per day). Estimates suggest that around 5.500 non-local workers are employed in the harvest season in Arilje alone (picking, bulk buying and

Capacity of cold storage facility	Number of facilities	Share, %
Micro < 10 T	12	15,79
Small 0-500 T	48	63,16
Medium 500-1500 T	7	9,21
Large > 1500 T	9	11,84
Total	76	100

Table 2 - Cold storage in selected municipalities



Overview 5 - Representation of cold storage facilities by size

transportation), considering that local residents are fully engaged in these activities. The seasonal workforce mainly comes from Zlatibor's underdeveloped municipalities, such as Priboj and Prijepolje, as well as travelling from Eastern Serbia and Romania. The trend of engaging this temporary workforce grows alongside the growth

of production. The workforce in other municipalities is represented solely by household members.

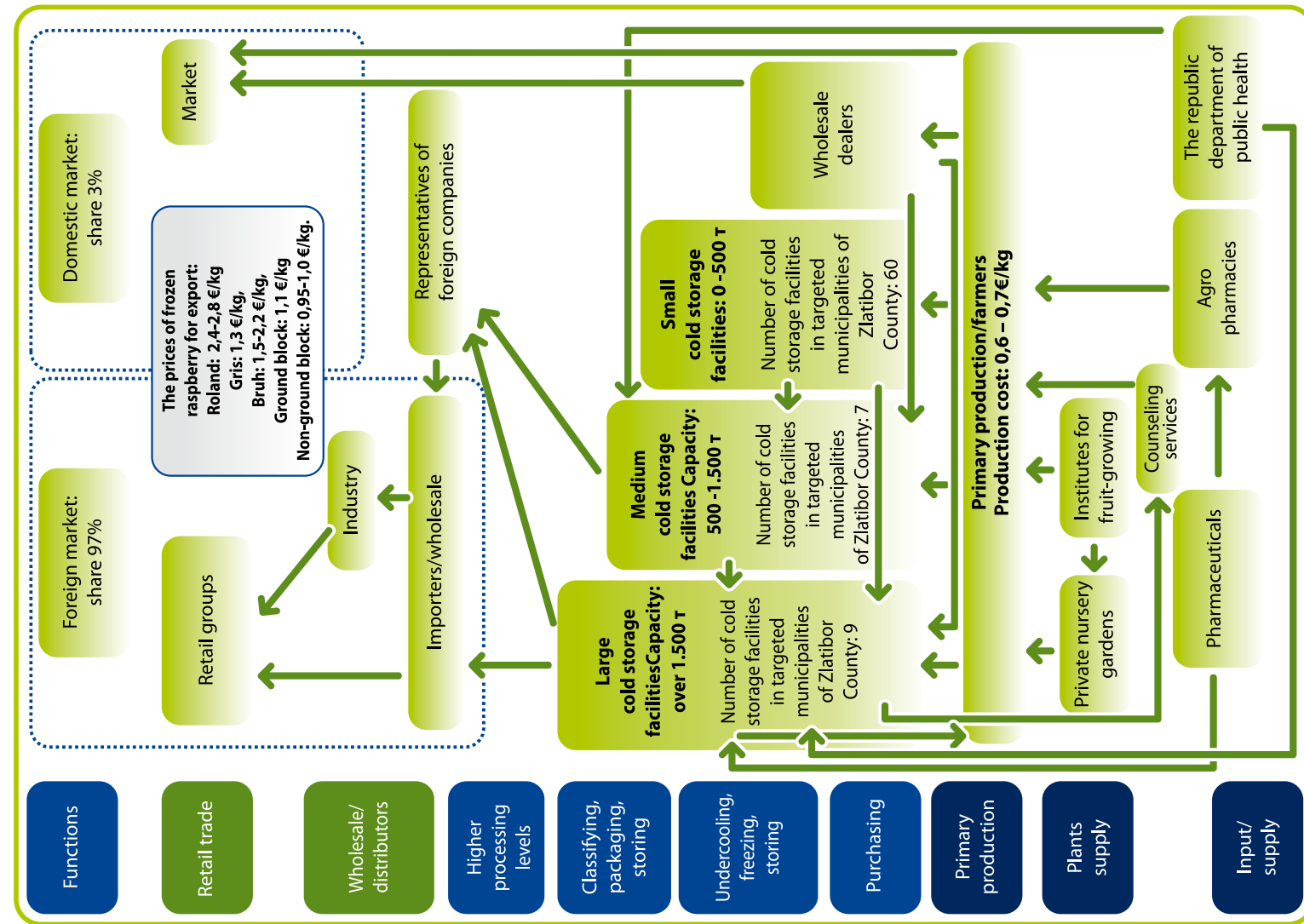
2.3.3. Markets and competition

The repurchase of raspberries from producers is organised by cold storage facilities that buy an estimated 97% of raspberry crops, while the remainder finds its way to the local market. Raspberries purchased by cold storage facilities during the harvest season are sold on foreign markets as frozen produce. The most significant markets for the placing of raspberries are Germany and France, which are accessed via at least one mediator – large trading companies (wholesale firms, for example) – which then place frozen raspberries in large retail chains. The reason for this, on the one hand, are existing market divisions between major retailers operating on the European market for a long time. On the other hand, no cold storage facility in Serbia boasts sufficient quantities of frozen raspberries to meet the needs of large retail chains (value chain - Overview 6).

Part of the domestic yield of frozen raspberries is packed domestically in end-user packages, while part of the export yield is packaged abroad – though the size of the package determines the end-user. Packages range from small, weighing 0,200 kg, to cardboard boxes weighing 10-15 kg. In both cases, packages display notifications that the raspberries are sourced in Serbia, though without the branding of local manufacturers.

A higher level of raspberry processing, which would add to the product's value, or the placement of fresh raspberries, which would replace frozen raspberries to a certain extent, is almost non-existent. One of the main reasons for this is a lack of research and development; lack of information on foreign markets: supply and demand in terms of new products and trends, new technologies that would provide cold storage firms with an adequate basis to invest in higher levels of raspberry processing.

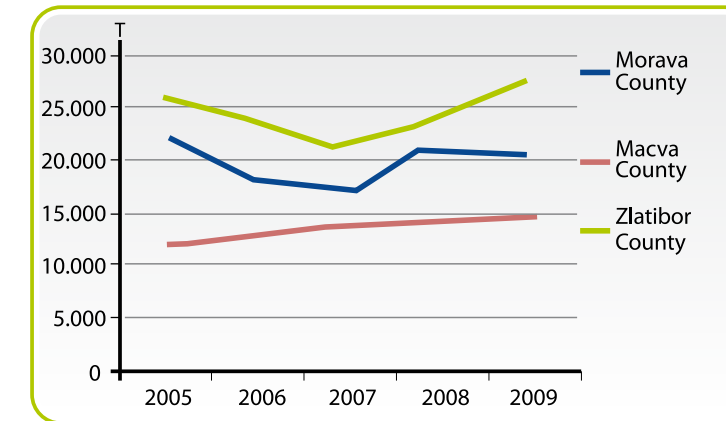




Overview 6 - Value chain: Raspberry

The Zlatibor County's main competitors in Serbia are the Morava County and the Macva County (Graph 3). The Morava County has recorded a slight decline, both in terms of production and planted area, while the Macva County has recorded slight but constant growth in levels of raspberry production and surface area devoted to this crop in the last five years – though this county achieved average yields below those of the other two districts (in 2009 the average yield in the Zlatibor County was 8.099 kg/ha, in Morava it was 7.576 kg/ha and in Macva 5.092 kg/ha).

Graph 3 - Raspberry production trends (T) in competing counties

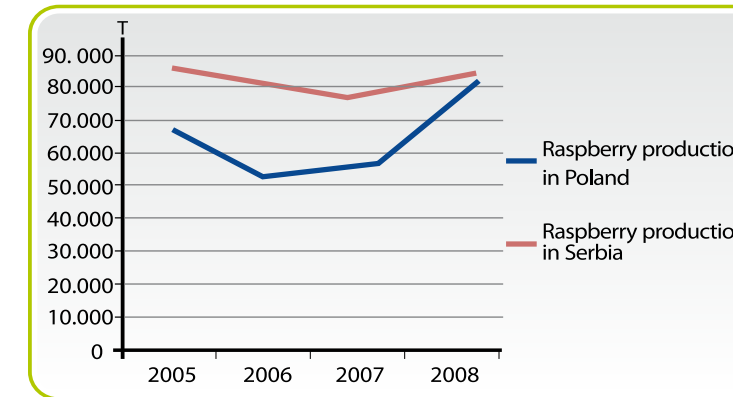


Statistical Office of the Republic of Serbia

Serbia's main European rival is Poland, which is recording growth of raspberry production year-on-year. In the period from 2005 to '08, raspberry production in Poland rose by 24,58%. However, if we observe the period between 2007 and 2008, we can see that **raspberry production in Poland increased by 44,68%**, while **in Serbia that growth totalled 9,5%**, which indicates that this growth trend will see Poland soon overtake Serbia's raspberry production volume. Increasing raspberry production in Poland en-

ures the country's greater ability to supply the European market, which poses a serious threat to the production and placement of raspberries from Serbia (Graph 4). Neither Serbia nor the Zlatibor County can compete with Poland when it comes to increasing the surface area devoted to this crop, due to natural limitations. However, accordingly, Serbia can endeavour to increase yields and introduce new varieties (extending the fresh raspberry season) to existing raspberry areas through **greater application of knowledge and the improvement of production practices**.

Graph 4 - Raspberry production trends (T) in Poland and Serbia



National Statistical Offices (Poland, Serbia)

In 2009, exports of raspberries from the Uzice region⁵ (Table 3) accounted for 32,12% of Serbia's total raspberry exports, while in 2008 it accounted for 30,22%⁶. Serbia's main global competitor in the production and export of raspberries is Chile, though it should

⁵ The data source is the Regional Chamber of Commerce in Uzice, which does not lead the data to Zlatibor County, but for Uzice Region, with Ivanjica instead of Sjenica, which belongs to Morava County.

⁶ In 2009 Serbia was the world's leading exporter of raspberries, with sales of 63.300t and total revenue of 200 million dollars (3.154 \$/t). In 2008 Serbian raspberry exports totalled 54.900t and yielded revenue of \$ 203.600.000 (3.710 \$/t).

Year	Raspberry exports from the Uzice region		Raspberry exports from Serbia		Raspberry exports from Chile	
	T	\$/t	T	\$/t	T	\$/t
2008	16.590	3.924	54.900	3.710	39.709	3.142
2009	20.336	3.452	63.300	3.154	34.669	3.547

Table 3 - Raspberry exports from the Uzice region, Serbia and Chile

Regional Chamber of Commerce in Uzice

be noted that Chile mainly exports fresh raspberries to the markets of Western European and North America, out of season in the northern hemisphere, with which one can interpret price differences.

It is essential to note that internal imports of frozen raspberries from the Republic of Serbia to the Zlatibor County is a result of lower purchasing prices, while those same raspberries are subsequently repackaged and exported to foreign markets.

2.3.4. Challenges facing the production and sale of raspberries

Raspberries from the Zlatibor County are a competitive product on the European market. However, constant effort is required to maintain and improve its competitiveness, which can only be achieved by improving the entire sector. Raspberry production in Poland is growing and, accordingly, so its offer on the European market. This represents a direct threat to sales of Serbian raspberries. Possible solutions include:

- Increasing raspberry productivity and quality on existing surface areas, coupled with the application of **knowledge and good production practices**, implies the expansion and availability of advisory services for all agricultural producers – key stakeholders when it come to raising the productivity and

Example of good production practices:

Arilje local Milomir Stojic is a world record holder in raspberry production, producing in excess of 30 t/ha of fruit on his five hectare plantation, with top class "roland" raspberries accounting for over 90%. Such results are not achieved accidentally. In addition to engaging the entire family completely throughout the year, during the harvest season he engages 100 workers, who are provided with accommodation, and three cooks prepare 300 meals per day.

quality of raspberry production. Some producers are earning far higher returns than others and represent a good example for other producers.

- Value added raspberries**, whether that relates to **sales of fresh raspberries** or any other product, would lead to an increase in processors' profits and their competitiveness on the market. A lack of higher levels of processing **indicates a low level of innovation** due to a lack of information on supply and demand fluctuations for new products, new technologies and future fruit processing trends.

2.4. Apple

The Zlatibor County boasts 6,3% of all apple trees in Serbia (the average number of apple trees in Serbia in the period from 2004 to 2008 was around 15 million, with a slight growth tendency at an average rate of 1% per year) and in 2008 the Zlatibor County achieved 7,67% of total apple production.

2.4.1. Apple production and yields in selected Zlatibor municipalities

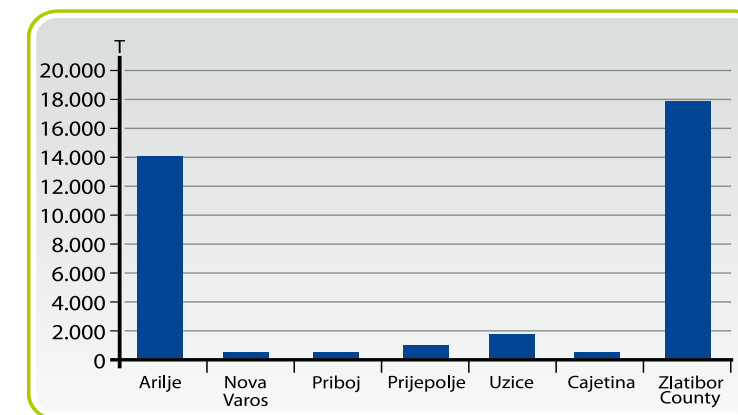
The Zlatibor County's apple producing centre is the Municipality of Arilje, which boasts 60,63% of the total number of apple trees in this region (Overview 7), realising three-quarters of total pro-

duction and achieving the highest average yield per tree, which is among the highest in Serbia – indicating intensive commercial production. Most commercial orchards in this municipality cover an area of 2-3 ha, though a number of registered producers boasts apple orchards with an area exceeding 10 ha.

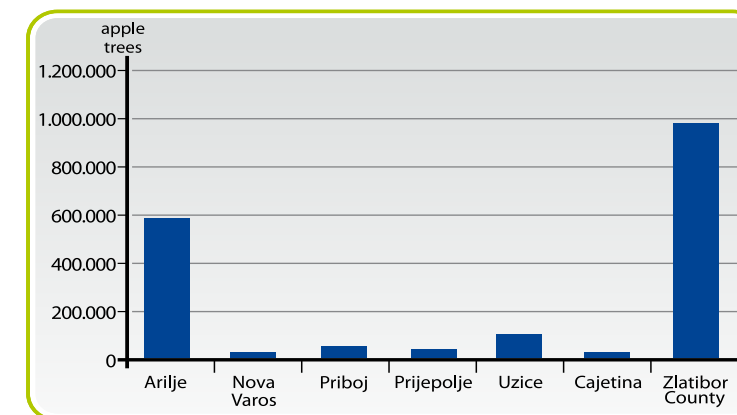
Estimates suggest that Uzice has around 300ha of apple orchards. Yield per tree is equivalent to the Zlatibor County level, but exceeds average production per tree in the Republic of Serbia. Apple production in Uzice is characterised by small orchards planted on garden plots.

A relatively small number of apple trees are cultivated in Nova Varos, Priboj, Prijepolje and Cajetina. The slightly higher number of apple trees in Prijepolje is a result of the existence of two large "state" orchards, covering an area of 18 ha and owned by ZZ "Poljoprodukt". These four municipalities achieve a mere 6,64% of the Zlatibor County's apple yield, while the average value of yield per

Overview 7 - Apple production, number of trees and average yield per municipality

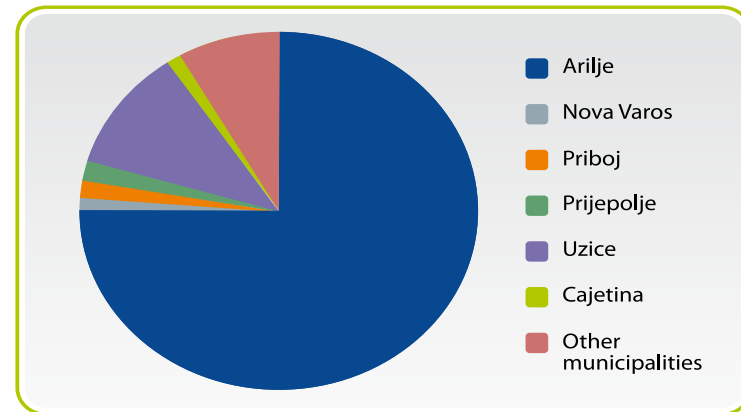


Graph 1 - Apple production (T)



Graph 2 - Number of apple trees

Graph 3 - Share of production in County (%)



Statistical Office of the Republic of Serbia (2008)

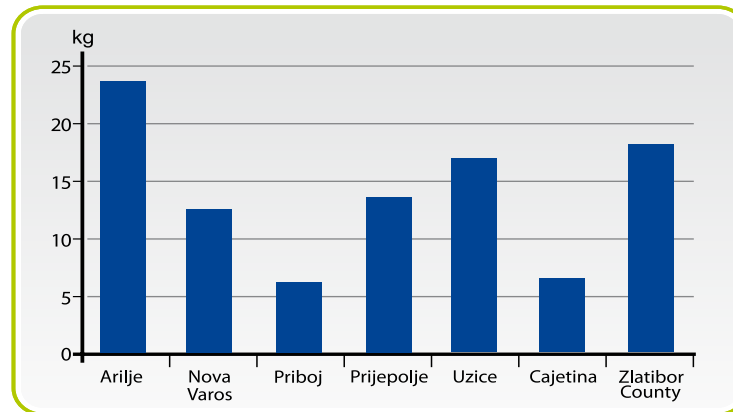
tree is below the national average. The main characteristics of apple production in these municipalities are: aging orchards, small surface areas and the incomplete implementation of agro-technical measures.⁷

The most common apple variety in the County is Idared, a traditional variety for this area and, thus, most orchards are older – though new orchards are being planted. The new varieties that are most in demand on the market are Granny Smith, Golden Delicious, Red Delicious, Gala, Mutsu etc. These varieties are also slowly appearing in new orchards, mainly in Arilje. One obstacle to establishing orchards of new varieties is a lack of storage space⁸, with which their quality could be preserved – as opposed to the Idared variety,

⁷ The greatest contribution to raising intensive production of apples in these municipalities belongs to a USAID project that distributed apple seedlings for up to 0,5 ha in each municipality. Most of these families abandoned apple production after a while, due to a lack of funds for commercial production. Intensive apple production is continued by around 50 families (25 ha). The project saw distribution of apple varieties that are in demand on the market, but are not suited to conditions in the Zlatibor County, specifically Prijepolje – e.g. Granny Smith, Delicious, Gala.

⁸ The Zlatibor County has just one cold storage facility specialised for apples with a significant capacity (1.600 t). It operated successfully for two years, but was forced to stop working last year, due to financial insolvency. Higher levels of apple processing are also handled by only one company in the Zlatibor County, which makes flaky pastry products from the fruit. There is no cold storage facility capable of extending the shelf life of apples in the municipalities of Nova Varos, Prijepolje and Priboj.

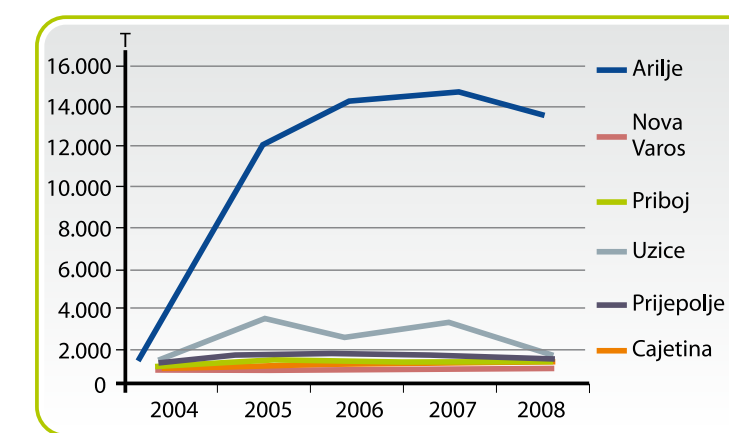
Graph 4 - Average yield (kg/tree)



which are either immediately repurchased upon harvesting and/or display good characteristics for storage in basic conditions. An additional challenge for producers is represented by the financial resources necessary to establish new orchards, as well as the 5-year period required for trees to reach full maturity and for the investment to be worthwhile.

Observed summarily, the number of productive trees in the Zlatibor County is increasing year-on-year, regardless of the fact that individual municipalities (Cajetina and Prijepolje) are experiencing a tendency of decline (Cajetina by 5,35%, Prijepolje by as much as 17,49%) as a result of clearing orchards due to their age. Observing apple production in Zlatibor County, we see that it is characterised

Graph 5 - Apple production trend (T) in selected municipalities



Statistical Office of the Republic of Serbia

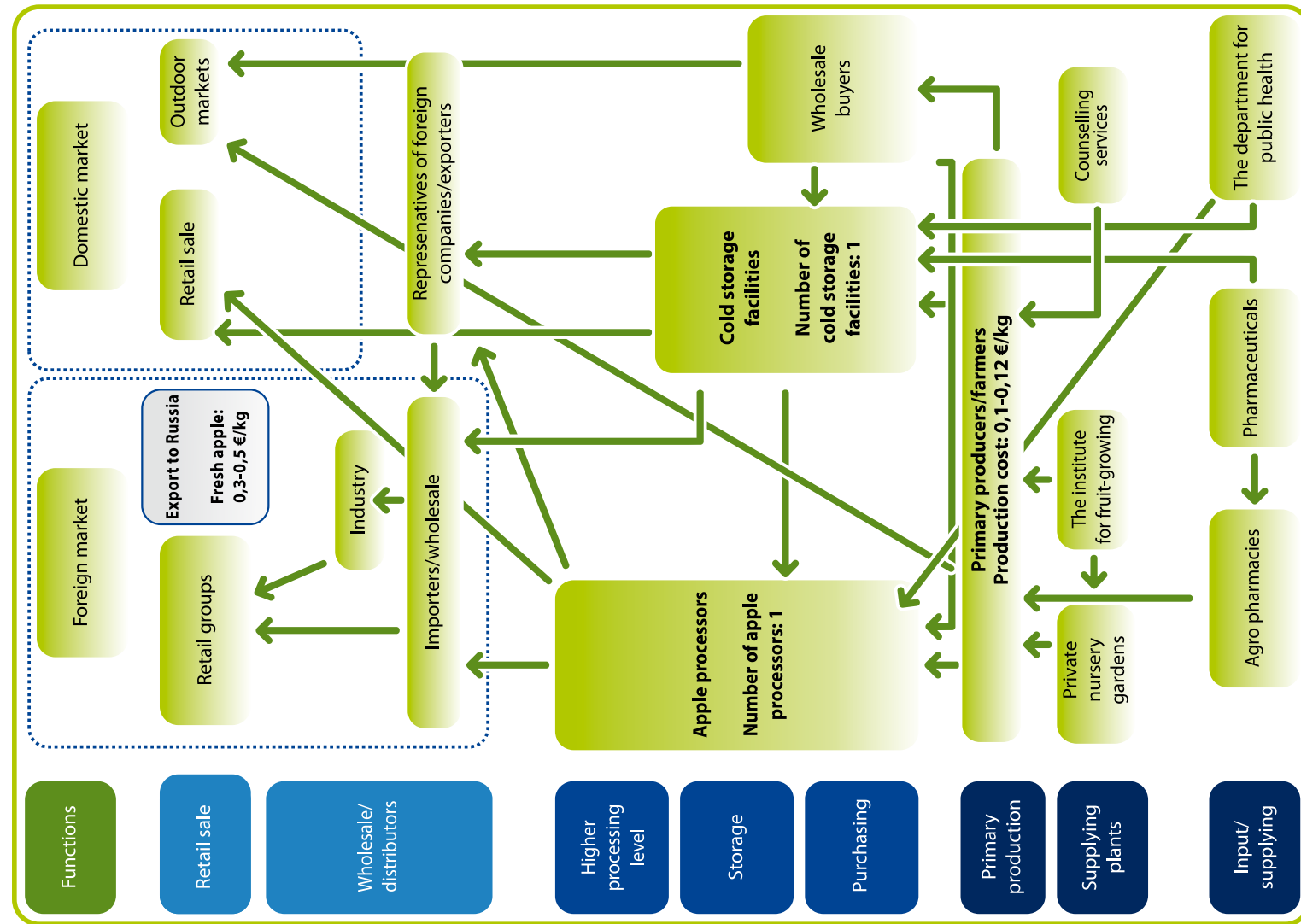
by growth trends (during the period from 2004 to 2007), with the exception of 2007-2008, when there was a slight decline - dry years, which supports the thesis that an inadequate number of producers are engaged in the intensive production of this fruit (Graph 5); The highest production growth levels were recorded in Uzice, almost 10-fold, and Arilje, just over 6-fold. Production growth in the municipalities of Priboj, Prijepolje, Nova Varos and Cajetina ranges from 2,5 (Priboj) to 5,5-fold (Nova Varos).

2.4.2. Markets and competition

There is no organised repurchase of apples, nor is there a predefined or single market. Every producer has their own market (value chain in Overview 8), such as green markets, wholesale markets, mega markets etc. Apples are also sold to dealers who export to Russia and in 2008 the sale price was 0,30 to 0,50 euro/kg for first

class fruit. The reason for the relatively low price of apples lies in the fact that producers do not have mini cold storage units that preserve the fruit's seasonal characteristics and raise its sale price and, as such, apples are not stored until May and June but are rather immediately offered for repurchase after harvesting and storage.





Overview 8 - Value chain: Apple

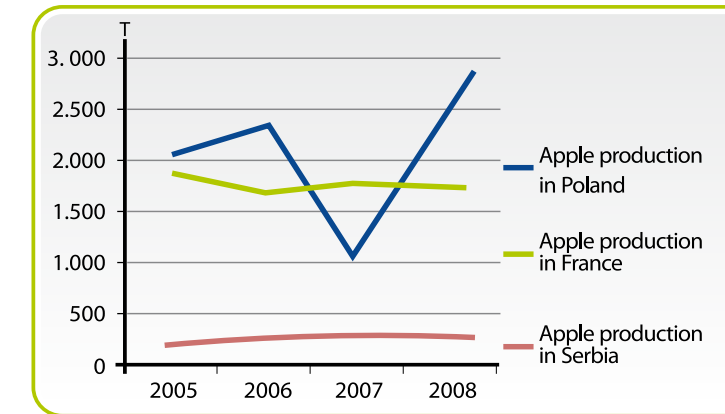
Year	Fresh apples	
	T	\$/T
2008	584,853	264,97
2009	1.561,504	277,16

Table 4 - Apple exports from the Uzice region
Regional Chamber of Commerce in Uzice

Apple export figures for the Uzice region are shown in Table 4. Apple production in the selected Zlatibor municipalities is mostly exported to Russia, which is the world's biggest importer of apples (in 2008 Russia imported 1,1 million tons of apples).

The lack of storage capacity/cold storage facilities is one of the reasons why imported apples are found on the domestic market, mostly originating in FYR Macedonia, Slovenia, Italy and Greece. The most common imported varieties are Idared, Granny Smith, Jonagold, Golden Delicious, Red Delicious and Gloster. Import trends vary from year to year.

Europe's largest apple producing nations are Poland, Italy, the Netherlands and France. These countries not only achieve enviable production levels, but also average yields ranging up to 50 t/ha, which Serbia and the Zlatibor County cannot meet. Observing the export market⁹, Serbia's main competitors are Poland (Europe's biggest producer of apples, with 2,8 million tons in 2008) and France. Poland recorded a significant increase in apple production levels in the period from 2005 to 2008 – by as much as 36,43%, followed by a sharp fall in production in 2007, due to adverse climatic conditions (dry year). In contrast, observations of the sector in France show that, following a fall of 7,95% in the period from 2005 to 2006, it has experienced stagnation, while the area of land devoted to



Graph 6 - Apple production trends (1000/T) in Poland, France and Serbia
National Statistical Offices (Poland, France, Serbia)

apple production is decreasing year-on-year – falling by as much as 14,29% in the period from 2003 to 2008.

Last year saw Moldova enjoy a large supply of apples on the Russian market, thanks to yields that were 30% higher than usual. Moreover, its geographical proximity significantly reduces transportation costs, ensuring that Moldova will continue to be a major supplier of apples to the Russian market in the future. Apples from China also appear on this market, and at lower prices than those from elsewhere. Apple production in China in 2008 was up around 15% on 2007. As such, the year-on-year increase of apple production in China will create ever greater competition for European producers on the Russian market, primarily because of transportation costs.

⁹ The apples produced in Serbian are mainly exported to Russia. In 2008, the export of apples to this country accounted for 88,07% of Serbia's apple exports (exports from Serbia in 2008 totalled 35.200 t, of which 31.000t was imported by Russia). Poland exported 150.000 t to Russia in 2008 and France exported 59.000 t.

2.4.3. Challenges to the production and sale of apples

The investigation identified numerous problems facing apple producers, which led to this sector's lack of competitiveness in terms of productivity and fruit quality. By improving knowledge and production practices, introducing innovations aimed at creating new products and adopting new production processes through the increasing of productivity and improving of quality, it is possible to improve production in the following directions:

• **Fresh apples on the domestic market in the off-season period**

Beside the fact that domestic consumption of apples has recorded growth in recent years – noting that values are far below European consumption – apples appearing on the market in the off-season period are mainly imported. The reason for this is insufficient storage capacity that would preserve apples until May and June, as well as the tendency to offer apples for sale immediately after harvest – a result of producers not expressing an interest in holding on to their produce and, thus, realising a better price, due to a lack of knowledge of the market and short-term contracts with buyers that present a risk to generating income and recouping investments. Domestic consumption of apples in the off-season can be increased by improving the quality of fruit produced, through proper handling during harvesting and preservation in appropriate storage facilities and conditions.

• **Fresh apples for foreign markets**

Recent years have seen a growth in Russian imports of fresh apples, which is one of the reasons why the Zlatibor County recorded growth in exports of fresh apples – most of which find their way to Russia's market. However, for fresh fruit from the Zlatibor County to endure and prosper on the Russian market it is necessary to increase productivity and quality, modernise

production and bring it into line with standards of quality, as export to the Russian market requires the achieving of phytosanitary demands set by Russia and defined in the Memorandum of safety of plant products originating from Serbia. According to this, every food product of vegetable origin, and therefore fruit, must be accompanied by information on pesticides used during their production and storage, stating the last date of treatment.

• **Value added apples**

A lack of finances, lack of knowledge of domestic and foreign markets that represent risk for investments in processing, as well as the closing of cooperatives in the transition period (through which it is possible to achieve greater commercial fruit processing), have led to a lack of processed apple products on the domestic market (jams, preserves, compotes, purees, fruit concentrates, fruit juices). The Zlatibor County exports fresh apples intended for industrial processing and imports fruit products made from fruit originating in our regions. Aiming for the reduction of this practice is essential.



2.5. Plum

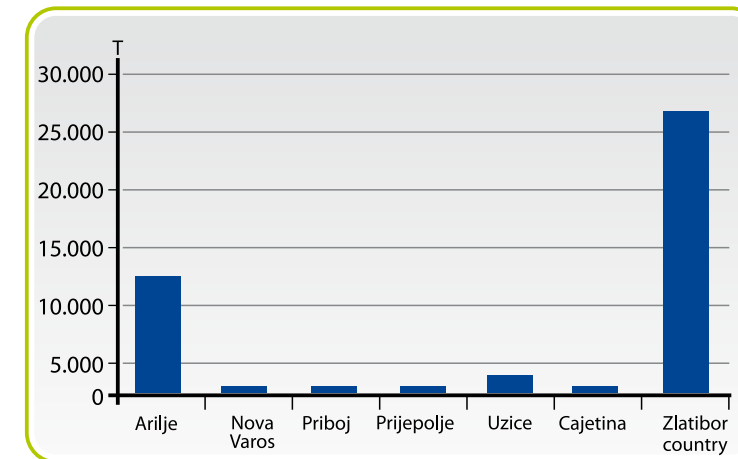
Plums, according to the number of trees and surface area devoted to this crop, represent the most abundant fruit crop in the Zlatibor County, which is home to 7,89% of total fertile trees in the country and accounts for 4,52% of total production in the country – bearing in mind that the average yield is significantly lower than the national average (14.5 kg). Production in the Zlatibor County is characterised by small orchards and extensive farming, though there are also a small number of farmers that produce plums intensively and achieve production yields of up to 40 t/ha.

2.5.1. Plum production and yields in the selected Zlatibor municipalities

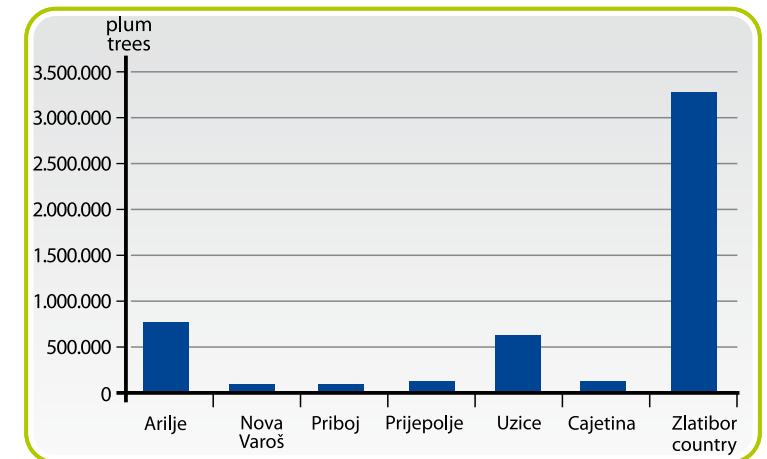
The Zlatibor County's greatest concentration of plum trees are grown in the municipality of Arilje (Overview 9), which accounts for almost half of the Zlatibor County's total production. The average plum yield for a mature tree in Arilje is among the highest in Serbia, which indicates intensive commercial plum production, though it is estimated that there are around 800ha of extensive plum orchards. The average surface area devoted to plum production in this municipality is 0.5-1 ha/farm, while the biggest plum orchard covers around five hectares.

In Uzice, despite the large number of trees and enviable area devoted to plum production (530 ha, of which only around 100 ha are

Overview 9 - Plum production, number of trees and average plum yield per municipality

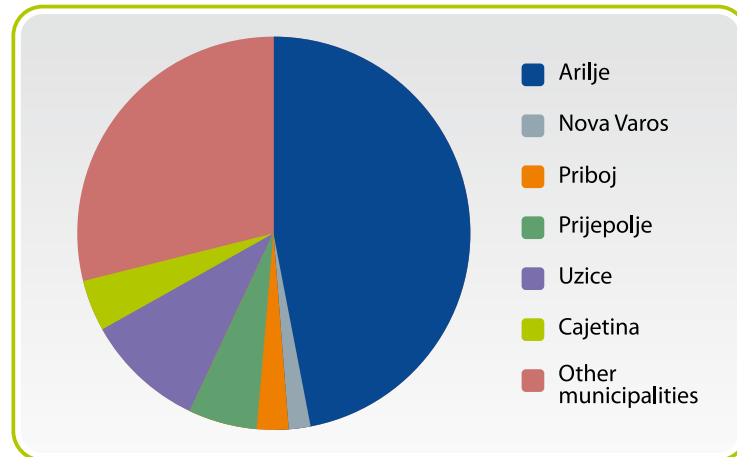


Graph 1 - Plum production (T)



Graph 2 - Number of plum trees

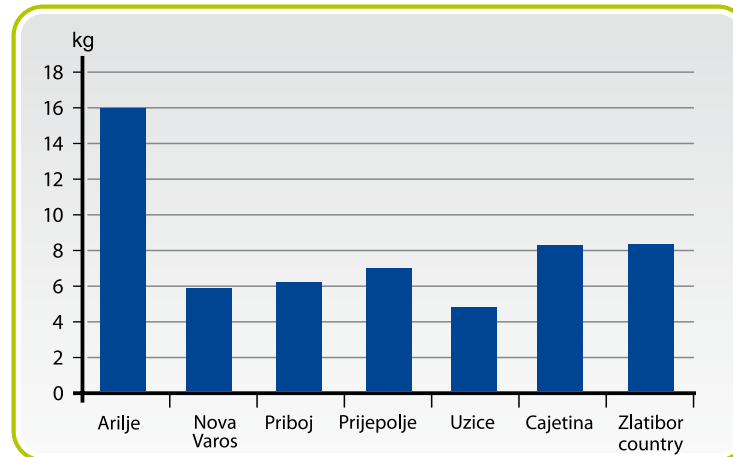
Graph 3 - Share of production in County (%)



Statistical Office of the Republic of Serbia (2008)

new plantations), significantly lower production levels are achieved compared to other Zlatibor County municipalities and the national average. The root causes are old and/or diseased plantations and failure to adopt agro-technical measures. Nova Varos, Priboj, Prijepolje and Cajetina account for just 12% of total plum production in the Zlatibor County. Estimates suggest that the surface area devoted to plum production ranges from 200 ha (municipalities of Nova Varos and Priboj) to 380 ha (Prijepolje) – noting that in these areas most plum orchards cover just 0,2 to 0,3 hectares. Production in these municipalities is extensive – farmers usually apply one to two chemical treatments per year, alongside the application of basic agro-technical measures (cutting, ploughing, fertilising etc.). Old plum varieties are most commonly represented: “pozegaca” and “ranka”. New commercial plum orchards that include varieties like “stenley”, “cacak’s fruitful” and “cacak’s beauty” are only cultivated in Arilje.

Graph 4 - Average yield (kg/tree)

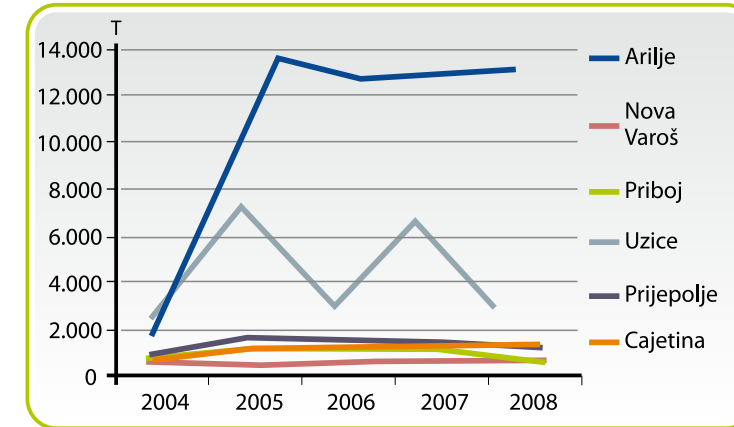


The highest growth in plum production, around seven-fold, was recorded in the period from 2004 to 2008 in Arilje (Graph 7). This is also the only Zlatibor municipality that didn’t record a fall in production in 2007 (drought), which supports the fact that this relates to intensive production. Difficulties in the remaining municipalities, beside inadequate production practices and the age of orchards, include the high price of investing in the establishment of new orchards, but also the long period required for trees to reach fruition (7 years), which has led to the production of plums in the selected municipalities falling/stagnating.

2.5.2. Markets and competition

There is no organised bulk purchase of plums in the County, though the cold storage firms that carry out bulk buying of raspberries do occasionally buy certain amounts of plums (value chain displayed

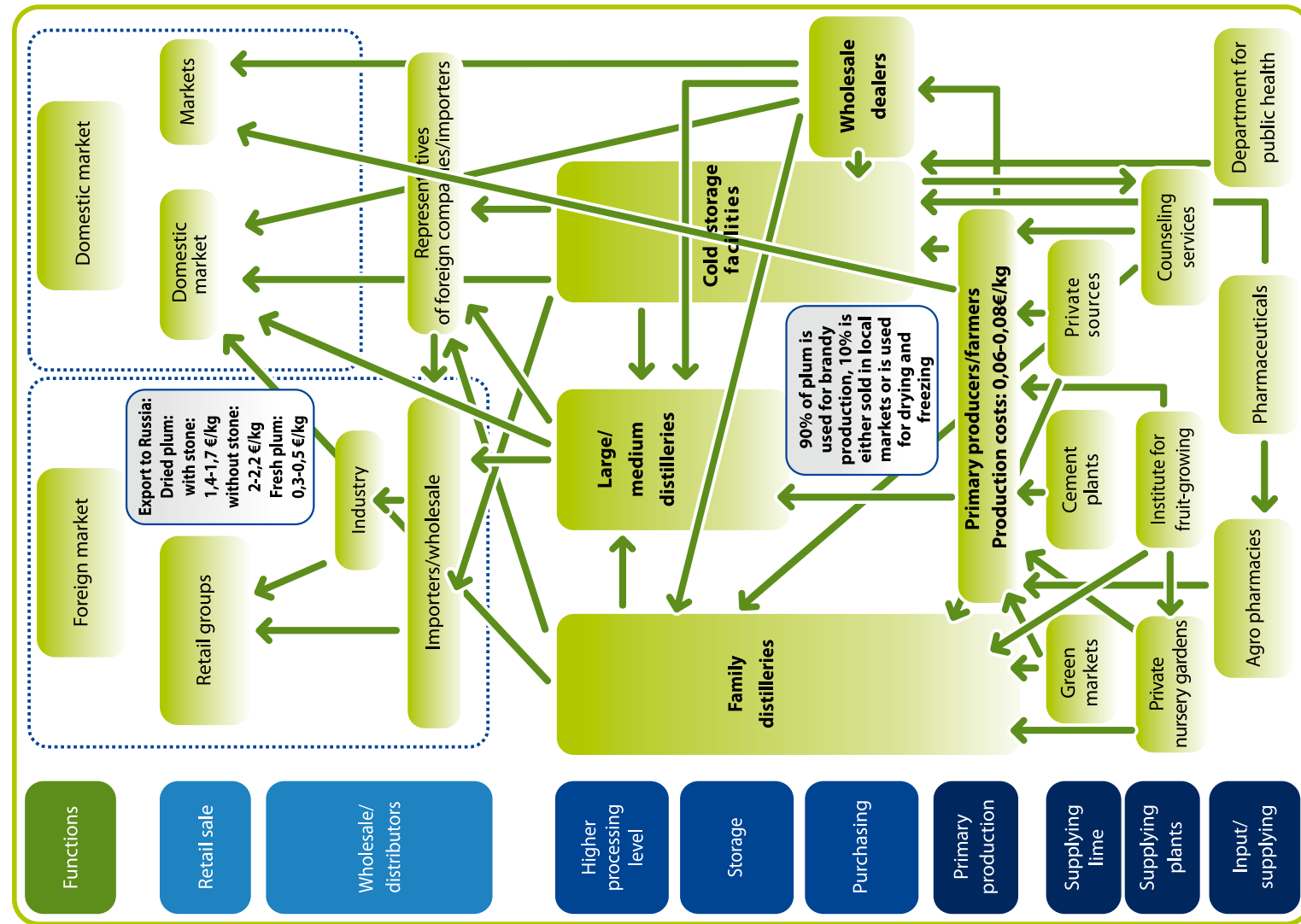
Graph 7 - Plum production trend (T) in selected municipalities



Statistical Office of the Republic of Serbia

in Overview 10), thus placement problems are not so pronounced. We can view the reasons in different ways, though undoubtedly the most common problem is that plums are traditionally grown for use in the home: making sweet preserves, jams, compotes, brandies – according to estimates, as much as 90% of plums are used to make this alcoholic spirit, thereby providing households with additional income, regardless of the fact that distilling capacities are generally not registered. A few households and businesses have registered distilleries and, in addition to purchasing plums, they purchase brandy and standardise it by re-distilling, bottling and selling on the market. The remaining 10% (according to estimates from Arilje) either find their way to the local green market (fresh plums) or are sent for drying.





Overview 10 - Value chain Plum

Year	Fresh plums		Dried plums (prunes)		Total	
	T	\$/T	T	\$/T	T	\$/T
2008	386.928	472.85	674.577	1.532,61	1.061,505	1.146,32
2009	876.710	370.23	707.863	2.242,45	1.584,573	1.206,59

Table 5 - Export of plums from the Uzice region by product type

Regional Chamber of Commerce in Uzice

The export of plums from the Uzice region is displayed in Table 5. In 2008 it accounted for 4,67% of total plum exports from Serbia.¹⁰

Besides exports, imported fresh and dried plums also appear on the domestic market, mainly sourced from Italy, Argentina, Chile and Bosnia's Republika Srpska. In the period from 2004 to 2009, plum imports to Serbia grew significantly, almost 13-fold in terms of quantity¹¹. The reason for these imports is a lack of domestic plums out of season, due to insufficient storage capacities and the

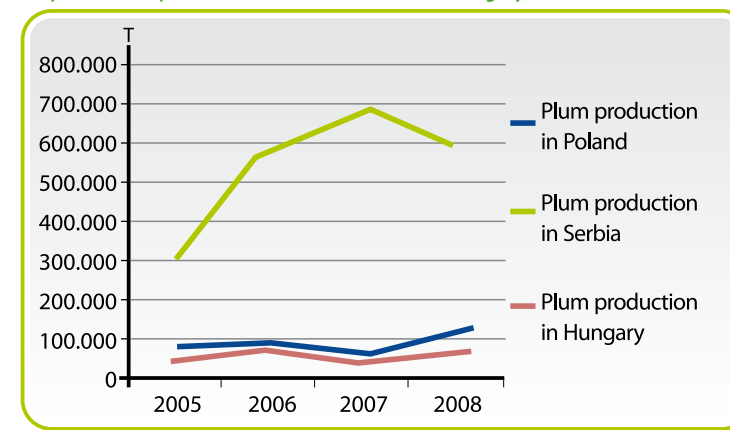
forementioned processing practices (brandy, sweet preserves, compotes, jams etc.).

Serbia's export competitors are Poland and Hungary¹². With the exception of 2007, Serbia marked the highest growth in the production of plums in the period from 2005 to 2008 – as much as 99,67%, while Poland recorded growth of 24,29% (Graph 8). During the same period, plum production in Hungary rose by 55,67%.

2.5.3. Challenges to the production and sale of plums

Observation of plum production in the selected municipalities clearly shows this is an insufficiently competitive sector, primarily in terms of fruit quality and productivity. This has led to the sector facing numerous problems, such as: old orchards and inadequate assortments, fragmented yields, low level of knowledge and poor production practices, particularly regarding the applica-

Graph 8 - Plum production trends (T) in Poland, Hungary and Serbia



National Statistical Offices (Poland, Hungary, Serbia)

¹⁰ Export from Serbia in the period 2004-2008 went up by 85% in tons, and 116% in \$. The highest export item was the one for Belarus 0,97 \$/kg, Germany 0,78 \$/kg and Russia 0,48 \$/kg. However, the largest quantities of plum were exported to Russia (12.250 t in 2008), B&H, Bulgaria, Germany. In the Russian market, Serbia holds the first place in terms of quantities of the imported plum, and the second place in terms of export value (6,9 million \$).
¹¹ In 2004 Serbia imported 55.056,70 kg of plums, and in 2009 import of plums was 690.216,19kg.

¹² In 2008 export of plums from Serbia to Russia was 53.97% of total Serbian plum exports (export from Serbia in 2008 was 22.700 t, and Russia from our country imported 12.250 t). Poland exported 7.140 t of plums in 2008 to Russia, and Hungary 6.120 t.

tion of modern technology, high financial investments required to establish new orchards and invest in processing, a lack of market knowledge. Overcoming the problems and obstacles facing plum production lead to the following challenges:

- **Dry plums (prunes) for the European market**
The top consumer of dried plums (prunes) produced in the Zlatibor County is the Russian Federation, where consumption increases year-on-year. In order to maintain current markets and conquer new ones, it is necessary to work on improving quality and productivity by applying knowledge and adequate production practices, as well as improving production based on market information.
- **Value added plums**
Plums are traditionally exposed to higher levels of processing – though such products do not end up in the market, except brandy, and are intended for personal consumption, due to a lack of funds and a lack of information regarding domestic and foreign markets, which creates an investment risk due to the closure of cooperatives that could have enhanced capacity and represent the easiest possible way to process and sell processed fruit products.

HEALTHY FOOD, HEALTHY FAMILY

Women from rural households launched the "Zdravica" (Little Health) Cooperative which produces sweet preserves – made from cherries, wild strawberries, plums, blackberries, sour cherries, blueberries, quince, apricots and raspberries; sugar-free jams – made from plums and Italian plums; regular jams – from whole plums, apricots, peaches, rose hip, cornel berries – and compotes and winter preserves. The cooperative is currently not functioning due to a lack of funds to purchase of raw materials.

2.6. Who holds support functions in the fruit production sector?

- **Agricultural Advisory Expert Service Uzice (PSS)** is part of a network of the Serbian Ministry of Agriculture, Forestry and Water Management offering professional support on the territory of the municipalities of Uzice, Cajetina, Kosjeric, Bajina Basta, Priboj, Prijepolje and Nova Varos. The PSS's main task is to improve agricultural production, plant and livestock, introduce new varieties of agricultural plants and breeds of domestic livestock, as well as introducing modern technologies to agricultural production. Funding is partially provided from the agricultural budget of the Ministry of Agriculture, Forestry and Water Management and partly from market income through the provision of professional services to commercial producers. PSS Uzice includes services for: crop protection, animal rearing, fruit production and animal husbandry. Considering the territory covered, number of registered farms and the fact that PSS's professional activities include all segments of agriculture, not just fruit production, it can be concluded that PSS's major problem is a limited number of experts (a total of 6 employees are qualified agriculture engineers) that cannot be present on the ground to the extent necessary. Their work is supported by selected farms that should serve as an example of disseminating good practices in the vicinity. Since PSS is, justifiably, unable to cover all requests for advisory services, some district municipalities have established their own methods of providing various forms of such services (Innovation Centre Arilje, Agricultural Centre Priboj, advisory services within local government offices).
- **Agricultural Innovation Centre Arilje (ICP)** was established by a donation from the European Agency for Reconstruction and provides advisory services in the field of agriculture. ICP Arilje

offers the following services: agrochemical analysis of land - the basis for recommendations for the cultivation of certain crops, hosting cattle breeding to be introduced into evidence in order for users to be able to access subventions provided by the Ministry of Agriculture, Forestry and Water Management. It also has 10 meteorological stations for the automated measuring and reading of data regarding temperature, light and rainfall, which provide opportunities for forecasting plant diseases. ICP Arilje monitors and works on adopting new technology related to the production of berries in half-closed spaces. The Innovation Centre has considerable experience and knowledge in the field of fruit growing, but its work is mainly orientated to the territory of Arilje, where manufacturers show great interest in these services. No other municipality has an institution of this kind and ICP Arilje can play a major role in the distribution of knowledge and good production practices in other targeted municipalities provided they increase the number of experts employed, as they currently engage only four such experts.

- **Agricultural Centre of Priboj (ACP)** was founded in 2003 as an association of experts in the field of agriculture, economy and tourism, whose activities contribute to improving knowledge in the field of agriculture, with the aim of producing healthy food and maintaining a healthy environment. The Agriculture Centre has displayed great success in work on agriculture projects (their main source of income), as well as in the provision of expert advice through TV and radio shows, and various lectures in villages around Priboj, Nova Varos and Rudo. This area has no advisory services for agriculture and rural development, thus farmers are deprived of the professional help required during production, as the aforementioned association, despite all the effort it exerts, lacks sufficient financial resources and capacity (two employees) to be engaged to provide expert assistance in the field throughout the season.

- **Regional Chamber of Commerce** represents an interesting, independent and commercial-expert organisation of companies, entrepreneurs and other organisations that conduct business activities in the area of the Uzice region and linking common interests. The activities of this chamber are reflected in the provision of technical assistance and organising members to enhance and improve their business; in monitoring the economy of the Region and studying issues related to industry; in promoting and establishing economic cooperation with foreign countries; in organising business and tourist information material, fairs, commercial exhibitions and other promotional activities for its members, representing the economy of the Region in the country and abroad, with the aim of enhancing and easing access to world markets; in providing timely and quality information to its members and other interested parties in order to find potential partners for their mutual connections; in organising seminars, specialized courses for training and training of personnel in the agriculture sector. This institution operates a professional service for agriculture, which employs professionals from the agriculture sector. The chamber's cooperation with fruit producers and processors is reflected in the regular provision of information on trade fairs, seminars, presentations and other promotional activities in the field of agriculture. A more effective role for the Chamber can be achieved following implementation of the new Law on Chambers of Association, which omits the fee currently required for the chambers system and, thus, the more effective engagement of professional staff employed in the chamber, with representatives of the SME sector, entrepreneurs etc., can be expected.
- **Office for the support of rural development:** plays a significant role in supporting the development of the fruit production sector through the Ministry of Agriculture, Forestry and Water Management which, through regulations and competitions,

provides adequate subventions and resources to encourage the development of agriculture. Every year sees the government adopt regulations on the use of incentive funds to increase the planting of fruit orchards, grapes and hops. Incentive funds are used to compensate the cost of buying fruit seedlings and to compensate for the cost of acquiring support equipment (paling, anchors, pillars, wires). The right to use these incentive funds are offered to private individuals - heads of commercial family farms, entrepreneurs, companies, agricultural cooperatives and other legal entities. The Ministry of Agriculture, Forestry and Water Management has formed a network to support rural development which comprises fifteen regional centres (RDC) nationwide. The Zlatibor County is covered by RDCs, RDC Kraljevo (covering Arilje, Uzice, Cajetina, Nova Varos, Priboj, Prijepolje and Sjenica), RRC Loznica (covering Bajina Basta) and RDC Ljig (covering Kosjeric and Pozega). Each centre has established branch offices in all municipalities that employ one person. Key activities of these offices are: providing information about subventions and other incentive measures provided by the Ministry, preparing applications for funds, training in the field of planning and preparation of projects for rural development, achieving better communication with local authorities and the Ministry. The problems that arise when it comes to subsidies are twofold: unregistered farms cannot apply and those who can or do not have appropriate information (whether they are not interested or information is not forwarded properly, the question remains as to what the PSD project will face during the intervention), or they are unable to personally respond to demands and do not know where to turn for help.

- **Local Government:** in the departments of municipal government services for agriculture are carried out by government regulation, supported by organizing lectures, seminars, and offer consulting services in the field of agriculture. The role of

these offices could be the provision of municipal agricultural land lease, but the only municipality to lease land for the performance of fruit production in the territory of Zlatibor County, is the municipality Arilje. Other municipalities set aside certain funds annually to purchase plants raspberries, plums and apples, which are based on the principle of subsidies granted to agricultural producers.

- **The Public Health Department Uzice (ZZJZ)** is an independent health facility that performs a specialized preventive health activity in the area of Zlatibor County. The Institute has an accreditation for laboratory testing of the Accreditation Body of Serbia (accredited via 200 methods), and also has introduced and certified Quality Management System ISO 9001:2001. Department for questioning and hygienic quality of drinking water, the quality and health safety of foods of plant and animal origin, the analysis of pesticides, chemical analysis and microbiological analysis of almost complete raspberries (listed accredited method), analyzes the correctness of general use items (packages and packaging supplies). Half the funds (55%) provided by the Ministry of Finance, and the rest earn on the market, so that employees of this institution shows great commitment and willingness to work and not only in the district, but outside of (work and analysis of in Montenegro). ZZJZ also shows the willingness to invest in new equipment, provided this new analysis covers constant demand on the market which would guarantee the profitability of investment for you. Testing the quality and health safety, refrigeration work if they commit to that foreign buyers, thus realize the passage of their market. Little interest in these services by manufacturers, because these services are an additional and expensive cost of production, that customers do not commit them.
- **Institutes:** the Zlatibor County does not have a single institution engaged in scientific research in the field of fruit growing.

The nearest institution of this kind is the Fruit Research Institute in Cacak, which has a main activity of carrying out scientific research in the field of fruit production in the study of varieties of fruit and continental fruit types, creating new varieties, applying new technologies to breeding, studying methods of protection against diseases and pests, studying the system of producing fruit and testing the technical value of fruit. A complementary activity of the Institute is nursery production. For this purpose, the nursery has its own cells and vegetative buds coil base for their own use and for sale. It produces seedlings for almost all continental tree and berry fruit varieties. An important activity of the Institute is to provide advisory services in the field of fruit growing. However, the use of these services is relatively low, since their engagement requires significant financial resources that farmers alone can not set aside. Only producers in the municipality of Arilje show an interest in using these services, because production based on acquired knowledge and proper production practices can achieve profitable fruit production.

- **Local offices** are present in most villages and represent places where residents can exercise their rights and present their own problems. However, the transition period, which adversely affected rural areas, led to the closure of local offices in some villages. Local offices could play a particularly important role in supporting the expansion of all types of information related to the production of fruit, whether that relates to government subsidies, local government activities related to fruit growing, by organising training for producers in order to spread knowledge and good production practices.
- **Associations:** on the territory of the selected municipalities there are nine registered associations that bring together fruit producers. A number of associations have emerged as a result of previous projects that were implemented in the field of individ-

ual municipalities (Prijepolje, Nova Varos), while others ceased to exist as a result of a lack of institutional support to local governments. However, the functionality of most of these associations is low and activities are mainly achieved through individual initiatives. The main problem leading to a lack of high-quality associations is insufficient public awareness about the importance of association. By combining forces, producers could gain large and significant benefits – from the purchase of machinery, equipment and plant material. In addition to associations of producers, there are associations of entrepreneurs, such as the Association of Entrepreneurs of Arilje, which includes a section of cold storage firms bringing together almost all the main cold storage players in Arilje. Although this section includes about 40-45 cold storage firms, there is no common, united approach to the market – rather most perform alone.





3. How can fruit production become more competitive?

The previous chapter described the fruit production market and the dynamics of fluctuations and trends in the last five years, which showed that there is a difference in the competitiveness of fruit types: "Arlje's raspberry" is set apart because of its competitiveness on both domestic and foreign markets, thanks as much to quantity as quality and taste, while plums and apples lag behind. Fruit production faces various challenges that influence market positioning and the increasing of competitive potential. Regardless of differences in the production of raspberries, plums and apples, there are some common causes that prevent, firstly, increased competition and, secondly, conquering markets. This chapter will cover discussion of the causes impacting on productivity, the (non-)functioning of cooperatives and innovation. Other problems and causes that affect the competitiveness of the fruit sector identified during the research are presented in Annex I of this report.

3.1. Productivity and the quality of production

QUALITY PRODUCT + OPTIMISED VOLUME = GOOD PROFIT

When observing raspberries, the question may arise: How is productivity a problem when we are the biggest exporters in Serbia? It is clearly a problem for plums and apples, but raspberries?

It is true, that raspberry yields are above the national average, but one should consider that these are 'average' values and that lead-

ing manufacturers achieve yields that significantly exceed the average. Besides leading producers, there are those whose yield are average or below average, together with the fact that they all have markets, because cold storage facilities have the capacity and need to buy almost all raspberries, which indicates that there is room to improve the productivity and sales of raspberries and, thus, increase the profits of agricultural households. The root cause of the lack of productivity is a lack of knowledge and failure to apply proper production practices, which represents a prerequisite for successful fruit production. The knowledge and production practices of the majority of producers is relatively low and is mainly based on experience – family tradition that has not sufficiently changed in accordance with advances of new technologies and knowledge now used in fruit production. The problem of the quality of fruit produced and the volume of yields is directly based on a lack of knowledge among producers regarding proper fruit production techniques. Bad production practices are reflected in a lack, or inadequate implementation, of all available agro-technical measures ranging from selecting location and land for establishing an orchard, through selecting appropriate species and fruit varieties, through irrigation, weed control, pruning, feeding plants, fight diseases and pests, all the way to handling fruit during harvesting and storage. The aforementioned problems are particularly pronounced in the municipalities of Priboj, Prijepolje and Nova Varos, where the population engages in fruit production sporadically, extensively and in an inappropriate manner, with the aim of generating additional rev-

enue or meeting their own personal needs for fruit - as fruit production is not their primary activity.

A lack of applied knowledge or proper production practices is inextricably linked to underdeveloped models of mutual cooperation and exchange of knowledge, information and experiences – both between producers and between producers and cold storage firms, as well as insufficient use of advisory services.

Advisory and professional services in the field of fruit production are offered by the Agricultural Expert Service of Uzice and the Innovation Centre of Arilje. In addition to these, a support function in the fruit production sector is offered by agricultural services within the municipalities and the NGO Agriculture Centre of Priboj. All noted services work to provide primary producers with knowledge and information to a certain extent. However, on the other side, they lack sufficient capacities in the form of experts able to be sufficiently active on the ground in order to transfer practical examples of knowledge to producers and thereby gain their trust. As such, the services they provide mainly relate to the provision of information through printed leaflets, brochures, flyers etc., which is not enough to allow the transfer of knowledge that could be practically applied on the ground. Nevertheless, primary producers do not sufficiently access the mentioned services – either because they are unaware of the importance of their use, they distrust the providers of knowledge or because the applying of new knowledge and technology to fruit production requires a financial investment that hinders their distribution and yield. On the other side, producers are satisfied with their cooperation with processors, who supply them with fertilizers, chemical protection equipment and useful information regarding proper ways of dealing with fruit production. Larger fruit processors include experts who, when required, will visit fruit suppliers and provide advisory services. However, due to the large number of subcontractors and a lack of such advisory service providers, the distribution of knowledge and good production practices is limited.

3.2. Processing and adding value to fruit through cooperatives

Rural households almost always have excess apples, plums or other fruits that are not sold on the market, but are used for further processing. Higher levels of fruit processing do not necessarily require large financial investments in processes and equipment – rather rural households can produce products like compotes, sweet preserves, jams and jellies. These are quality products made according to traditional recipes and generally sold in a disorganised way, ad hoc, with no labelling in as part of the grey economy. In previous times such products were promoted through cooperatives, which have a long tradition in this county and represent hubs where members can acquire all necessary resources for fruit processing, as well as being supplied with cheaper raw materials – provided acquisition is carried out in a single purchase for all members of the cooperative. Such cooperatives now operate poorly or do not function at all, due to a lack of funds. Their failure came during the transition period, as a result of undefined property relations and imprecisely defined goals. One of the ways to promote the recovery of cooperatives that are still functioning is to provide financial resources via the Ministry of Agriculture, Forestry and Water Management, which offers financial support through open competitions to apply for incentive funds for rural development by supporting activities aimed at created added-value products. Cooperatives are able to apply and thus obtain certain financing, as well as accessing the finances of other funds that stimulate cooperatives. Unfortunately, those resources are not sufficiently used because, firstly, information does not reach potential members of cooperatives and, secondly, when they do receive such information they do not know which institution to turn to (rural development offices, municipal agricultural services and local community offices) for application assistance.

Cooperatives are particularly important for rural areas that are represented by small estates and small scale production that does not yield significant income and, as such, the processing of fruit to create local products is better able to achieve greater returns for their households.

3.3. Innovation: increasing the competitiveness of the fruit production sector through the sale of fruit products with added value

During research conducted in the selected Zlatibor municipalities, we observed a lack of higher levels of fruit processing that could lead to added value products and, thus, enhance the competitiveness of the sector. One of the ways of achieving better pricing is to sell fresh fruit (e.g. Raspberries are mainly sold as frozen produce on the international market, while the placement of fresh raspberries is poorly represented). Deep frozen raspberries, which have been sold on foreign markets for years, are the main source of income for all cold storage companies. They have been present on the frozen raspberry market for a long time and occupy an important position. Accordingly, they do not see the need, or lack sufficient information, to invest in new processes and new products that would expand the product range and thereby increase their competitiveness on foreign markets. Advances that are realised in cold storage facilities in terms of innovation are mainly related to the improvement of the efficiency of existing production processes, the introduction of machines such as SORTEX's, which serve to separate on the basis of quality, or the packing of frozen raspberries. Meanwhile, investments in new processes and products are rare.

One aspect of value-added products that could replace frozen raspberries to a certain extent is the sale of fresh raspberries on foreign markets, which cold storage companies are increasingly considering. One reason why fresh raspberries are still not sold on foreign markets is the risk of financial investments in these kinds of

production, due to ignorance of the potential markets that these products could be exported to. Raspberry is a very sensitive fruit and, as such, must be delivered to the buyer within three days, in order to preserve freshness and quality. However, the introduction of new ozone-based technologies ensures that raspberry freshness can be maintained for up to 10 days, which facilitates the large scale transportation of raspberries. Moreover, exports of fresh raspberries require good cooperation between cold storage firms and producers, as it is necessary to additionally train producers: proper breeding, changing varieties to extend the season, but also additional organisation within cold storage facilities. All activities necessary for the placement of fresh raspberries on foreign markets could be carried out fairly quickly – provided there is accurate information about demand on these markets.

Thus, one of the main reasons for a lack of innovation that would lead to the creation of products with a higher degree of processing or the placement of fresh raspberries, as an added value product, is a lack of information relating to the market. Information available to cold storage companies is the result of communication with wholesalers and buyers, as well as information from trade fairs or via the internet. However, they do not represent a critical mass of information that would provide the basis to decide on investments in new processes and products. The question that arises is why information is lacking? Cold storage companies represent small and medium-sized enterprises that do not have budgets allocated for research and development and lack sufficient human resources to be able to perform such tasks. On the other hand, there are no institutions in the Zlatibor County offering information based on fundamental analysis of domestic and foreign markets, which is related to supply and demand for new fruit produce, dynamics and fruit market trends, future projections on the state of the market etc., which would not only help to ensure existing market positions are maintained, but would also enable investments in higher levels of fruit processing, thereby improving competitiveness through the placement of new products.



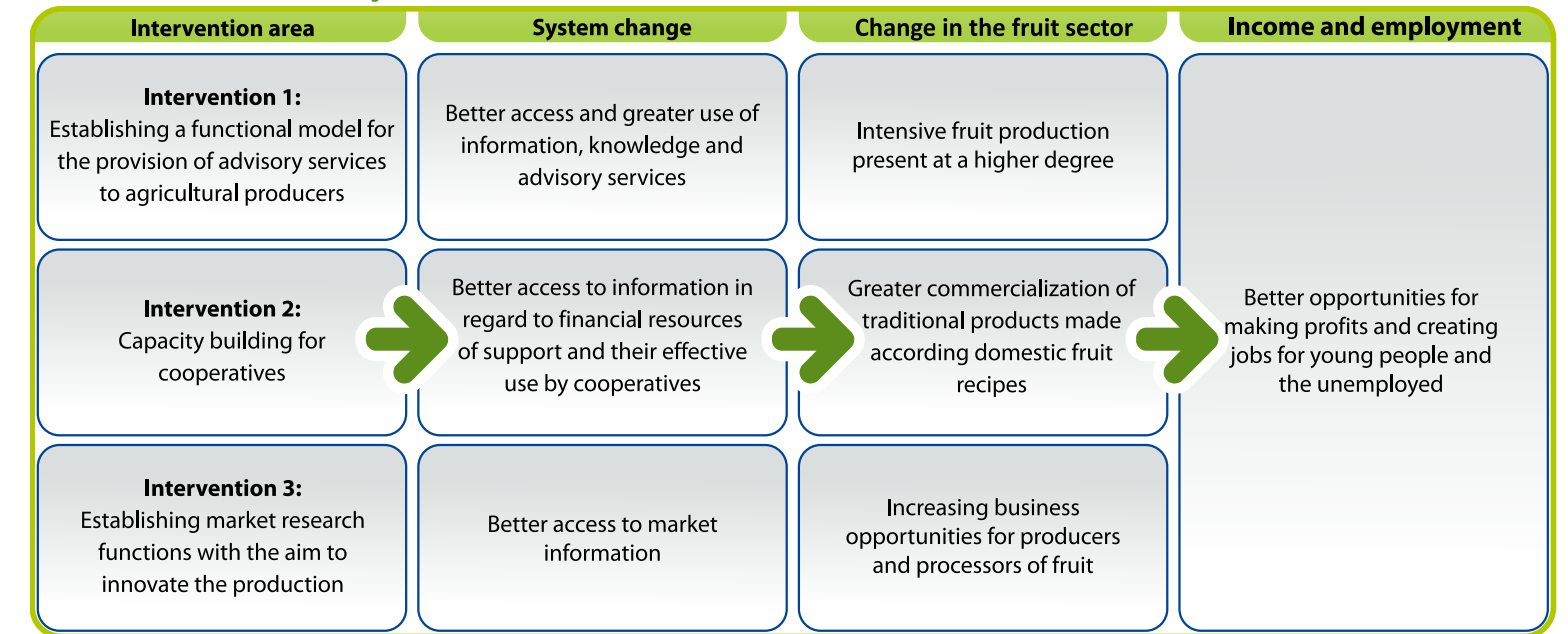
4. Intervention strategies

The previous chapter dealt with some of the key root causes hindering and slowing the development of the fruit production sector in the municipalities covered by the project. Improving the development of fruit production would create opportunities to generate income and employment throughout the Zlatibor County. The next chapter will see the presentation of the vision and logic of development interventions in the fruit production sector.

4.1. Vision and logic of interventions

The aim of the PSD project is to create lasting systemic changes on markets subjected to intervention, in contrast to other development initiatives that provide direct solutions by addressing symptoms. By focusing on root causes that slow the development of fruit production, areas of intervention are defined – through which

Overview 11 - General model of the logic of interventions



the project seeks to achieve systemic change with a significant and lasting effect.

By influencing the functioning of existing markets, the PSD project seeks to achieve long-term, systemic change that will enable a different approach to the primary production of fruit, the engaging of SMEs and associations in the processing sector and the fruit production sector as a whole, by increasing yields and quality of fruit as a result of the greater availability and use of advisory services aimed at the dissemination and use of knowledge and information regarding proper techniques and ways producing fruit, as well as through increased availability and use of market information for the purposes of bringing innovation to the production process. By implementing interventions, the project seeks to achieve a broad impact on creating employment and increasing income in the fruit production sector.

The data contained in Overview 11 illustrates the PSD project's general model of logic of intervention.

4.2. Establishing a functional model for the provision of advisory services to agricultural producers aimed at achieving a more intensive level of fruit production

As observed during the research, in order to solve problems of low productivity, increase production quality, select an adequate assortment and monitor the economic aspects of fruit production, it is necessary to apply the kind of knowledge and good production practices that fruit producers are currently lacking. Production based on knowledge and the application of good production practices is the basis for the development of intensive fruit production, which leads to higher yields and high quality crops able to meet consumer demands. This project seeks to raise the degree and transfer of knowledge, as well as the applying of good production

practices in the selected municipalities, in order to improve fruit production.

In order to achieve this, it is necessary to improve and consolidate the model of mutual cooperation between primary producers and all stakeholders that provide information and services related to fruit production in any way.

The intervention will include expert advisory services, agricultural services within local government offices, private sector representatives from the fruit processing sector, institutes engaged in fruit production research, as well as representatives of primary producers that are intensively involved in fruit production. By organising roundtables to include all aforementioned stakeholders, exchanging ideas and proposals necessary to define a functional model of providing consulting services based on real needs, it will be possible to identify the capabilities and possible roles of potential partners. Following adoption of the model, it will be necessary to work on its practical application, through interventions on the ground that will meet the defined needs with the aim of achieving tangible results through improved production practices that increase yields and fruit quality.

Raising knowledge and production practices will lead to the overall improvement of fruit production, increasing income and, thus, leading to greater investments in fruit production by farmers. Improving the quality and quantity of production would built trust towards agriculture experts and simultaneously see producers recognise the need for their involvement, thereby leading to an increase in demand for agriculture experts that would create the space for employment.

4.3. Capacity building for cooperatives

The production and sale of fruit products with added value requires major financial investments and, thus, one of the perceived

problems in the fruit production sector of the selected municipalities is a lack of said funds. However, there is another way of organising small-scale production of fruit products with added value: cooperatives, which have a long tradition in this county, especially in rural areas, and represent a place where farmers can process and/or sell their products in the simplest way. One example of such a cooperative is "Zdravcica", which was formed by women from rural households who produce sweet preserves, regular and sugar-free jams, compotes and winter preserves, but which is currently dysfunctional as a result of financial problems. Improving the work of this cooperative, and providing a good example of its functionality through the introduction of clearly defined rules, could represent a good example and trigger others to launch a new, and revive old, cooperatives in rural areas. Building the capacity of this cooperative would create opportunities for the greater commercialisation of fruit products and enable a rise in profits, as well as the greater employment of women in rural households – which represent a segment of the population that is generally difficult to employ, due to their educational structure and status.

The fact that cooperatives are not forgotten is supported by the competition, announced by the Ministry of Agriculture, Forestry and Water Management, to access incentive funds for rural development through the support of activities aimed at creating added value products, in which cooperatives have the same right to use funds as other companies. Activities should focus on creating better and greater access to this and all other information relating to the cooperative, which would increase the possibility of cooperative members to apply for and receive funding to support the raising and strengthening of the capacity of cooperatives. Achieving the access to information needed to build the cooperative's capacity requires intensive cooperation with the rural development offices, local communities, municipal services and non-governmental organisations – locations where interested customers can obtain all necessary information.

The potential exists to link the production and sale of homemade fruit products to another sector covered by this project: the tourism sector. Connecting the cooperative with households engaged in rural tourism and hotels would, firstly, enable the sale of products and, secondly, complement services with products from the county.

4.4. Establishing market research functions as a precondition of innovation

One of the prerequisites of a successful business is market research in general, with special reference to supply and demand, which represents the basis for development necessary for improvement to fruit production and, thus, increasing the competitiveness of the sector. Any change identified on the market represents an indicator that change is necessary in the fruit production sector, through the creation of new products and applying of new production process. One of the directions for development of the fruit production sector that would help create products with added value, as a form of innovation, is the placement of fresh raspberries, which will be one of the directions of this intervention. Establishing the functions of research and development is only possible if the needs of the private sector are clearly defined and articulated. Following presentation of the report, it is necessary to establish communication with fruit producers and processors, in order to define the information necessary for the innovation and improvement of their development. On the basis of the mentioned need, work will be carried out to connect and establish models of cooperation with relevant institutions, research agencies and fruit wholesalers who are able to provide information in accordance with defined requirements.

What next?

The report on fruit production in the Zlatibor County not only analyses the current situation, problems and root causes influencing its development, as well as offering suggestions for improvement, but also represents the foundations for continuing project activities – in order for the final outcome to be the creation of a competitive fruit production sector in the Zlatibor County. The report will be presented to fruit producers and processors of fruits, representatives of agricultural advisory services, regional chambers of commerce, representatives of agricultural services within local government, public health departments, members of agricultural associations and agricultural workers cooperatives etc. The first meetings will be held with fruit producers and processors, representatives of agricultural advisory services and potential future project partners, which will result in the promotion and initiation of interventions providing activities that are flexible and driven by the situation on the market.



Annex I: Another look on issues

Old orchards

These are characterized by low yields and poor quality fruit, but aging orchards still dominate the selected municipalities. The average yield of apples and plums (maximum of 30-40t/ha in intensive plantations and only in Arilje) are far below the average yields of competitor EU countries and countries of the northern hemisphere (average 40-60t/ha). Productivity can be improved by rejuvenation of old orchards, but the low profitability of fruit production discourages farmers.

Fragmented holdings

The small size of areas set aside for fruit cultivation are a major obstacle to raising competitiveness in relation to the quantity and quality of products. They restrict the buying / selling power of farmers, preventing the possibility of reducing production costs and increasing production revenue.

Outdated assortments

The assortment of varieties in the Zlatibor County does not follow global market dynamics, which is related to the creation of new varieties of apples and plums that will improve the quality of products, fruit's resistance to disease and parasites, and extend the seasonal characteristics of the fruit. The prevalent varieties are outdated and are not suitable for fresh consumption. Currently, domestic manufacturers compete only in relation to price, not on the quality and variety of products.

Limited production of planting materials

Fruit Producers can obtain seedlings from the fruit research Institute or from agricultural schools and colleges. However, the Zlatibor County has no private nurseries supplies producers with high quality planting materials. The purchase of planting materials at local green markets is still present.

Sensitivity to weather conditions

Late frosts, long droughts and storms are more common, due to global climate change. As a result, the quantity and quality of fruit production varies from year to year, affecting the competitiveness of Serbian products. For example, the late frost of 2008 (-4 C° on 20th March) had a major influence on the production of fruit in the Zlatibor County and saw producers achieve yields that were 20-40 percent lower than expected.

Dependence on weather conditions

Very few producers use the anti-ice network, while nobody has an anti-frost system. Irrigation is also rare. Better protection against unpredictable weather conditions can be provided by the creation of an anti-ice network over orchards and the installing of a system for drip irrigation. With irrigation, the yields of even very old apple orchards can be increased by up to 40 tons per hectare and provide 90 percent top quality apples.

Low level of agro-technical knowledge, particularly in the context of applying modern technology

There is still insufficient crop protection and insufficient awareness of the adoption of new technologies in relation to fruit production. Fruit producers most often complain about the lack of experts in the field. The illiteracy rate among producers is quite high, which ensures that recommendations given by experts on the proper use of protective chemicals is insufficient to support their work.

Poor knowledge of management among farmers

Fruit producers have a low level of knowledge on cost management skills and financial resources.

High financial investment required to establish new fruit plantations

In order to be competitive, producers must use high quality planting material, which is characterised by its high cost. In addition to high financial resources needed to invest in the establishing of orchards, producers are also discouraged by the long period (from 5-7 years) needed for new plantations to bear full fruit capacities and, thus, being to repay the investment. In addition to the fact that additional costs of buying fruit saplings can be realised through the incentive funds of the Ministry of Agriculture, Forestry and Water Management, a limiting factor for the non-fulfilment of conditions of competition are farmers whose farms are unregistered and farmers who do not pay pension and disability insurance.

Lack of international quality standards that meet the demands of end customers

Introduction of HACCP and GlobalGAP standards is a necessary prerequisite for access to EU markets, but this process is going very slowly, especially when it comes to the GlobalGAP standard.

The quality control of fruit production, especially after harvest and when it comes to storage and processing, is still low.

Quality system

Services for the introduction of systemic quality is provided by private consulting firms that provide services for the introduction of quality management system ISO 9001:2001, management of food safety and environmental ISO 14001. Processors and cold storage firms are particularly interested in the introduction of HACCP, as this is required of them by customers. When it comes to the implementation of the Global Gap standards, which apply to primary agricultural production, there are no producers who have introduced this system. On the one hand, the reason for this is the significant investment needed to meet prerequisites for the introduction of this standard, while on the other side they are still not obliged to apply this standard.

Losses during the fruit harvest

Producers should have knowledge about the optimal time for harvesting, as well as regarding the proper handling of fruit during harvest, to avoid bruising and damage to the fruit. Fruit must have reached a certain level of development before they make his store. Immature fruit can never achieve their full potential after harvesting, in terms of sugar content and taste. On the other hand, too much ripe fruit continues to mature rapidly, which can lead to deterioration of fruits during storage.

Losses after the fruit harvest

Fruit losses that occur after harvesting are highly evident, due to irregular handling techniques, as well as the lack storage facilities with modern technology, which would otherwise preserve the character of seasonal fruit.

Losses during fruit storage

The degree of losses of high quality fruit during storage is relatively high compared with those in developed countries. Adequate expertise in ULO / CA storage technology would greatly reduce losses, improve product quality and extended the deadline for storage. People lack knowledge about storage conditions (appropriate temperature, humidity, concentration of oxygen and carbon dioxide). For example, Chile has established its own comprehensive control system for growing, packing, handling and transporting fruit. These standards are even stricter than international standards, but ensure that Chile manages to sell fresh produce to over 70 countries around the world.

Inadequate storage capacities in the municipalities of Priboj, Prijepolje and Nova Varos

On the territory of these municipalities there are only two working cold storage firms that bulk buy fresh fruit and are mainly orientated towards the purchase of raspberries – though they do occasionally buy other fruit species, especially plum, albeit in insignificant amounts. These municipalities lack any specialised cold storage for apples, which greatly impedes placement of the fruit and ensure they are mostly sold on local markets immediately after harvest, because there is no possibility for the delayed sale and storage of fruit in order to preserve its seasonal characteristics. As such, producers are mainly orientated towards extensive fruit production methods.

Lack of appropriate packaging for preserving fruit

Fruit is stored in wooden crates that create many losses, which increases production costs. Investment costs for imported pallets are too high for Serbian peasants, but on the other hand they are a necessary prerequisite for the implementation of GlobalGAP's.

Short selling season

Extending the selling season is primarily limited by a lack of appropriate storage facilities for fresh fruit. The storage of fresh fruit (especially in the ULO/CA) is important not only for exports, but also to reduce imports of fresh fruit that are especially pronounced when it comes to apples and plums, from March to August (when stocks of apples and plums from the Zlatibor County have ran out). Unfortunately, the high cost of building new cold storage facilities prevents further expansion.

Inadequate Packaging and Labelling

Packing is a very important step to the entire value chain and for the competitiveness of finished products. The EU market demands high quality, certified packaging. There are not enough domestic producers of fruit packaging certified according to EU safety standards. It is also necessary to develop small commercial packages of fruit.

Organic production

There is great potential for indigenous apple and plum varieties to be verified and promoted as organic products. Fruit producers do not display trust in the organic products market because, among other things, production itself demands a higher price compared to standard production.

Lack of export promotion and sale of fruits

Domestic exporters have focused on competition with one another, rather than focusing on competitors from Poland, Greece or Chile. In these countries there is a coordination body for monitoring private and public efforts to promote exports. Exporters need to ensure their continued presence in target international markets through promotion and consolidated sales. For now there is no advertising campaign on export markets to promote Serbian fruit and its products.

Weak branding

Fruit from our county performs on the international market under the brand of the buyer, while it is only noted on the reverse of packaging that the product was sourced from Serbia.

Weak or non-existent links with customers

In Serbia sales take place via dealers, while long-term market links are still in their very infancy. Direct connections with foreign distributors are very rare.

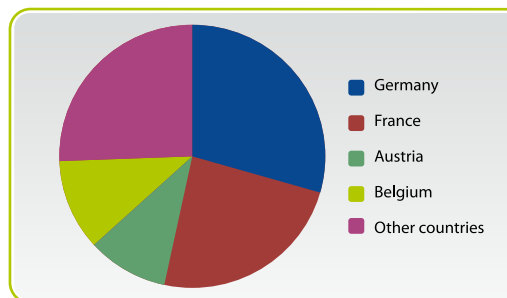
Focus on a small number of markets

The leading export market for our apples and plums is the Russian Federation, while the county's frozen raspberries are mostly sold in the countries

of Western Europe. It is necessary to diversify export markets, i.e. export fruit to the countries of Africa, Asia or the Middle East. Fruit here is mainly based on inadequate knowledge of the market, thus it is necessary to gather process and place all useful market information at local, national and international levels.

Quantity, quality and continuity of production

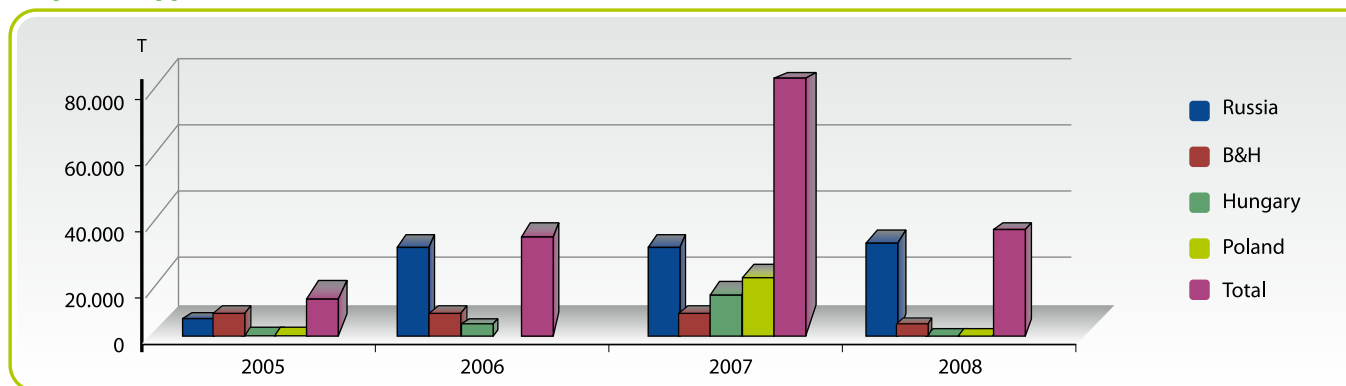
The biggest problem of local producers is the inconsistency of production. Producers can barely provide continuity, quality and sufficient quantities of fruit to meet their customer requirements. Improving the organisation of production therefore becomes a critical issue for our producers.

**Annex II: Export of raspberries, apples and plums from Serbia****Export of raspberries from Serbia**

Export of raspberries from Serbia in 2008 (T)

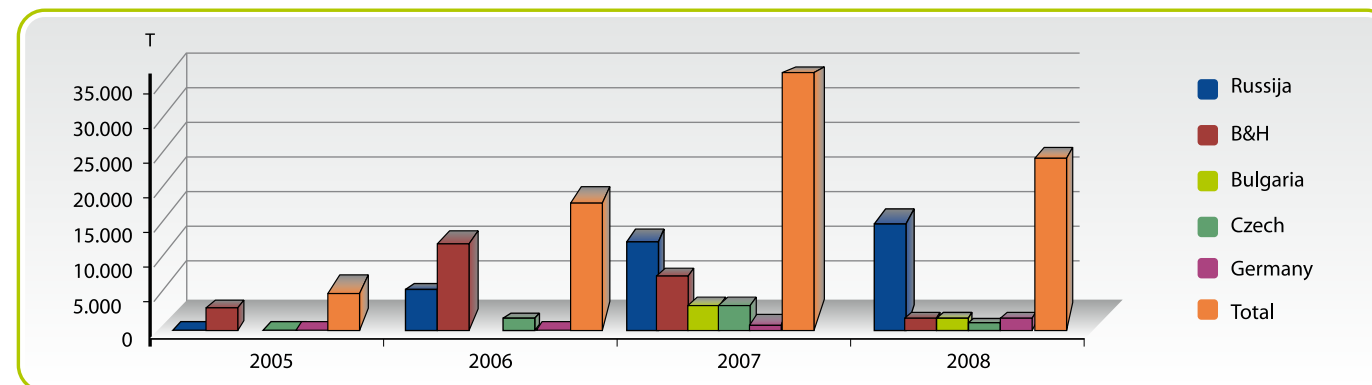
Germany	18.530
France	14.217
Austria	6.841
Belgium	5.741
Other countries	16.272

Statistical Office of the Republic of Serbia

Export of apples from Serbia

- Exports fell by 74.200 t in 2007 to 35.200 t in 2008
- Russian volumes stayed the same, fall of exports to Poland (by 19.600 t) and Hungary (by 16.000 t)
- Average value per unit grew by 0,32 \$/kg '07 to 0,41 \$/kg '08
- Largest value per unit for Russia 0,43 \$/kg
- Imports to Serbia 17.000 t in 2008 (90% from FYR Macedonia).

Export of plums from Serbia



- Exports from 2004 to 2008 grew annually 85% in tons and 116% in \$
- In 2008 exports fell by 30.500 t to 22.700 t, mostly to Russia (by 4.000 t) and Bosnia (1.200 t)
- Highest export unit value for Belarus 0,97 \$/kg, Germany 0,78 \$/kg and Russia 0,48 \$/kg



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