FOOD CHAIN, AGRICULTURAL COMPETITIVENESS AND INDUSTRIAL POLICY: A CASE STUDY OF THE SERBIAN RASPBERRY PRODUCTION AND EXPORT

Lanac snabdevanja hranom, konkurentnost poljoprivrede i industrijska politika: studija slučaja proizvodnje i izvoza maline iz Srbije

Abstract

The analysis addresses the chosen sector particularities (the raspberry food chain in Serbia) in achieving the agribusiness development in terms of export orientation and competitiveness. Both public policies, including industrial one and business marketing strategies, can contribute overall goal – the sector development from local to globally recognized competitive system. Although Serbia is one of the leaders in raspberry production on global level, measured in terms of quantities, the food chain suffers from low quality of marketing channels. Substantial quantities of raspberries produced in Serbia are exported in frozen form. The projected sector development dynamics is also burdened by the fact that the plants in the country that are intended for processing raspberries are obsolete in terms of technology and faced with a lack of good quality human resources and loans. This especially applies to the accepted standards of production that have become an obstacle for further placement of Serbian raspberries in the European and world markets.

Key words: food chain, local, global, market, raspberries, production, export, policy

Sažetak

Analiza prezentovana u ovom radu odnosi se na specifičnosti uticaja izabranog sektora (kanal snabdevanja malinom u Srbiji) na razvoj agropri- vrede u smislu povećanja eksportne orijentacije i konkurentnosti. Javne politike, uključujući i ekonomsku politiku, kao i poslovne marketing strategije mogu da doprinесu postizanju ukupnog cilja – razvoja ovog sektora od lokalnog do globalno prepoznatog konkurentskega sistema, lako je Srbija jedan od lidera u proizvodnji maline na globalnom nivou, mereno u proizvedenim količinama, ovaj deo prehrambenog sistema još uvek je pod snažnim uticajem niskog kvaliteta organizacije kanala pro- daje. Značajne količine maline izvoze se u zamrznutom obliku. Dinami- ka razvoja ovog sektora dodatno je opterećena činjenicom da je tehnolo- gija proizvodnje u fabrikama koje se bave preradom ove sirovine na izuzetno niskom nivou i da je svaka proizvodna jedinica dodatno opte- rećena problemom kvaliteta radne snage i dodatnih izvora finansiranja. Ovo se posebno odnosi i na primenu standarda u proizvodnji koji po- staju značajan problem za dalje pozicioniranje srpske maline na evropskom i svetskom tržištu.

Ključne reči: lanac snabdevanja hranom, lokalno, globalno, tržište, maline, proizvodnja, izvoz, politika

Introduction

Based on the physical (geographical) distance, food chains can be distinguish as local and global [5]. However, food chains can differ based on other attributes, such as governance and organization issues [8], [11], resources, knowledge and technologies [18], as well as the role of the territory in defining of the identity of the product [7], [2]. The key issue regarding governance and organization is related to control that different actors exert over the supply chain. Furthermore, performance of a food chain heavily relies on distribution of added value within a supply chain. The level of incorporation of local into global food chain depends on standardization of the processes (production...
& quality control mechanisms). Product identity is linked not only to the territory of production, but also to legally protected geographical indications (such as PGO and PGI). All the above-mentioned factors can help identify local food chains that could meet the global demand. In other words, the food chain that can be observed as the export-oriented should be as much as efficiently organized based on different internal and external criteria.

If we observe the export potentials in the practice, the analysis often refers to specific sectors that create a comparative advantage over other countries. In this paper, the analysis is based on an example of the production and export potential of raspberry. Serbia plays an important role in the world raspberry production, giving a fifth of the yearly production of this soft fruit. The main purpose of this paper is to give an overview of the current state of the Serbian raspberry food chain, as well as to point out the main obstacles to further development of the sector competitiveness. Although the raspberry food chain is often nominated as a national market with most significant influence on agricultural export potential, the research results address policy issues and recommendations equally, based on the analyzed data on production, producers and export prices, as well as structure and governance of the raspberry food chain in our country.

Food chains and agricultural competitiveness

Dynamic conditions of market economy, with extremely fast, frequent, irregular and hard to predict changes require from businesses a high level of flexibility in their business operations. At the same time, intense competition, which is becoming fiercer from day to day, along with technological progress, complicates their market positioning even further. Faced with such an environment and forced to change their business strategies and behavioral patterns in the market, the companies' managements are more and more often looking for the source of their competitiveness outside the traditionally used marketing tools. Namely, it has been found that in order to achieve long-term competitive advantage (i.e. that which cannot be quickly, easily and simply copied by the competitors) previously used strategies of product, price and promotion are no longer sufficient. Significant changes are, therefore, expected in the development of competitive advantage through integrated marketing and food trade channels, or specific agricultural products.

Nowadays, the primary responsibility of the management of agricultural enterprises is usually perceived to be the development of marketing strategy. The food supply chain includes all the participants in the system from primary agricultural producers (who produce raw materials), the food industry (whose role is to finalize the products to the form in which they are the most suitable for household consumption), to retailers that can be organized as wholesalers (who resell these products in an unmodified or slightly modified form) or retailers (who sell these products to final customers). The most important task at this stage of increasing the competitiveness of agricultural production is to design an appropriate structure of marketing channels in the domestic and international markets.

Characteristics of fresh agricultural products affect the process of designing marketing channels in different ways. The products whose quality and freshness meet the needs of the final customers are better placed on the market, which is a good enough reason to design direct marketing channels for a number of such products. Product policy should seek to develop finished products for domestic and foreign consumption. Due to the very characteristics of the product, and seasonal production, it is necessary to engage both wholesale and retail traders to store these products in specialized centers, until the time is suitable to market them. Wholesale has solidified its position in wholesale trade due to consolidation of the needs of the retailers, large consumers and processors. Therefore, wholesale trade acts as a rationalization factor in commodity circulation, as well as a stabilizing factor for the trade or production. In order for wholesale trade to fulfill its role of a wholesale dealer successfully, it should have large and technically well-equipped warehouses at its disposal. With this respects, it is necessary to bear in mind the fact that, in recent years, in addition to wholesale traders, there have been other business entities engaged in wholesale circulation of agricultural products, such as various intermediaries – commission agents, agents, brokers.
and other participants. Lately, the trade label method of sale has become more and more prominent. With the development and emergence of market economies in the developed countries, the retail sale of food has taken the key role in the implementation of marketing function, by bearing the risk, organizing and financing the production.

Specifics of the raspberry chain and export potential of the Serbian agribusiness

If we observe the export potential and competitiveness of the agribusiness in Serbia, a specific analysis is often reduced to a simple choice of products in whose production we can achieve a comparative advantage over other countries. This paper analyses an example of the production and export potential of raspberry – a traditional product accounting for half of the total export value of fruits from Serbia. Moreover, measured by the total quantity of exported raspberries, Serbia is the world leader. In the last five years, Serbia’s share in world exports of raspberries ranged from 21% to 23.4%; it was followed by Poland whose share ranged from 11% to 22.6%, and Chile with a share ranging from 16% to 18.9% [17]. However, with regards to the realized value of exports of this product worldwide, Belgium, which occupied the fourth place in 2009, with the share in world exports of 7.8%, is better positioned than Serbia with the export price for raspberries of 2.27 euros per kilo, whereas the exporters of raspberries from Serbia, for example, realized average export price lower by as much as 1 euro/kg in 2010. Large differences in the quantity and value expressed by raspberry export distinctly indicate untapped comparative advantage and unsatisfactory profitability in the production and trade of raspberries, measured in opportunity costs.

The analysis also shows that this is clearly not a well-organized marketing channel, either when it comes to the form of this product which is further processed in the domestic market or to the raw product offered in the global market of agricultural products. It should be noted that the biggest competitors on the global market (Chile and Poland) are working hard to improve the standards in raspberry production in order to fully develop their competitive position in the European and world markets. Therefore, in the context of the topic of this paper, the analysis starts with observation of the possibilities of raspberry production in the three countries, the largest exporters of raspberries – Serbia, Chile and Poland (see Table 1).

Major producers of raspberries in the world are faced with significant problems today. Serbia has registered multi-year decline in yields and a lack of new vines of Wilamette and other varieties of raspberries, as well as a lack of labor during the harvest period. New vines were planted in 2008, successively, which explains the yield of the 90,000 t in 2011. However, the harvest in 2012 was halved and was only 45,000 t. That year, the plantations were damaged by drought. The reason for this situation may be sought in the fact that, for decades, only 1% of raspberries have been irrigated [14, p. 10]. On the other hand, due to demotivation of the producers and extreme aging of the rural population, Chile has been reducing the area under the plantations of raspberries. Due to the lack of labor force, Poland has had more and more problems during harvest (import of the Ukrainian labor force is impossible because of visa regime, and the Polish labor force is migrating towards Western Europe).

Table 1: Comparative analysis of the largest producers of raspberries in the world

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CHILE</th>
<th>SERBIA</th>
<th>POLAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variety of raspberry</td>
<td>Meeker</td>
<td>Willamette, Meeker</td>
<td>Polana</td>
</tr>
<tr>
<td>Possible annual production of raspberry (t)</td>
<td>45,000-55,000</td>
<td>55,000-90,000</td>
<td>45,000</td>
</tr>
<tr>
<td>Form of agricultural land organization</td>
<td>Large fields</td>
<td>Old plantations and some new plantations</td>
<td>Grouped into larger plantations</td>
</tr>
<tr>
<td>Variety of seedlings</td>
<td>Old and new plantations</td>
<td>YUS, GLOBALGAP</td>
<td>New plantations</td>
</tr>
<tr>
<td>Standards applied on the land</td>
<td>EU, USA, Japanese</td>
<td>EU, the beginning of implementing USA and Japanese</td>
<td>New</td>
</tr>
<tr>
<td>Use of machinery</td>
<td>High</td>
<td>Low level</td>
<td>New</td>
</tr>
</tbody>
</table>

Source: [14]
With the decline in production, the prices of raspberries in the world market will grow. Increased prices of raspberries will create a momentum for the re-growth of the sector. Serbia needs to use its predisposition to re-qualify as the most important player in the world market, and give raspberries back the title of “the Serbian red gold”. However, in order to make this possible, all the participants in the supply chain of this product should improve their work efficiency and coordinate their joint efforts within the system for the sake of achieving the desired results. This also includes, without doubt, creation of a suitable environment for the development of market competition.

Total production of raspberries in Serbia in the period 2005-2012 ranged from 70,320 t to 89,602 t (see Figure 1). At the same time, it can be observed that during this period, the number of fruit-bearing vines does not change significantly. The average number of fruit-bearing raspberries in that period was 15,105 million, while the yields per fruit-bearing tree were in the standard range of 5-6 kg. Since 2008, the area of land planted with raspberries has recorded a slight upward trend, but the yield of raspberries is largely dependent on the weather. For example, in 2008, due to drought, the yield was significantly lower, as it was last year as well, which explains the increase in the producer prices (see Figure 2).

In order to increase the production of raspberries, the Ministry of Agriculture uses a range of incentives in terms of subsidy funds for mother plantations and production plantations of raspberry. This policy has been particularly significant since 2008. In addition to the systemic measures, due to the protests of producers in the harvest period, the Ministry has also often arbitrarily included in the producer price regulation, in a way that is not beneficial for market mechanisms. Thus, for example, as a result of inconsistent policy, the quantities of stocks of raspberries that were formed during 2010 (at the end of the year up to 10,000 t were left in cold storage) resulted in lower producer price of raspberries in 2011. The decline in producer prices indicates a lack of organized trade that should provide a supply of goods in the quantity and range that the market demands, at a time when it is demanded and at the prices and other terms and conditions which the consumers are willing to accept. Already in 2011, which in terms of production and technology was the third fruit-bearing year from the new vines (in the first fruit-bearing year, the yield is 30% of fruits, 60% in the second, and 100% in the third), there was an increase in the quantity of raspberries offered in Serbia. This demonstrates once again that the agricultural sector, due to its specifics, must always count on long-term sector development strategy and that all ad hoc measures are highly unlikely to contribute to the sustainable development of the sector. Unlike previous years, in 2011, special attention was paid to verifying the safety and health safety
of the fruits (the Norovirus detection assays). Among other things, these conditions contributed to the fall of the producer price, because Serbia has not fully implemented the standards required in the targeted export markets. Also, since 2011, the market, phytosanitary and agricultural inspections have intensified their activities related to the preparation of purchase points for raspberries and, in terms of preventive control, education of both producers and cold storage operators, as well as spot checks in accordance with the Regulations on minimum technical requirements for retail purchase points.

Although Serbia is the leader in raspberry production, measured in terms of quantities, this does not mean it can dictate the export price, because it does not have properly organized marketing channels. The prices of raspberries, which are realized in the foreign and domestic markets, are also affected by the supply of the producers from other countries. In 2011, Poland had a record harvest of 110,000 t, which resulted in a huge supply of raspberries in the market. On the other hand, our country is facing the consequences of the last year’s drought and is currently applying the necessary agro-technical measures to save the
plantations. However, although there was a drastic fall in production in 2012 due to drought, domestic prices did not drastically change, in part because there were transition supplies of raspberries from 2011, partly due to specific market structure of the sector. On the other hand, the result of undeveloped product quality assurance policy, the sector suffers significant consequences in terms of reduced export opportunities, particularly in the European market.

If we observe realized export prices, there is a marked year-on-year variability, resulting from the situation in the domestic, as well as in international markets for this product (see Figure 4). On the other hand, we conclude that the trends in purchase and export prices are not proportional. Insufficient awareness of the market conditions has resulted in a disproportionate increase in the producer prices as compared to the export prices. An additional contributor to the stated price imbalance is the government, which stimulates exports by subsidizing the processors, while primary agricultural producers remain deprived of such support. The above discrepancy in prices results in a decrease in the production of fresh raspberries, because the producers are not stimulated to further develop their activities. The solution might lie in a better organization of the fruit marketing channels in Serbia.

In terms of the producer price in the domestic market, there are two methods of price formation. The daily price includes payment of the purchased goods on the same day, while the final price policy implies that the price is to be paid at the end of the harvest. Some producers choose to be paid daily prices, while others wait for the final price, which is always more favorable than the daily price. For example, on the first days of the harvest of cherries, the price is usually 18 RSD/kg, and on the last days, it is 30 RSD/kg. For many years, the producers have been deceived and cheated by a variety of dealers who have never or have only partially paid the producers. Well-functioning market relations that encourage the producers to higher production of goods are the basis for economic development policy in terms of prices of fruits and fruit products. To ensure the security of payments to the producers and to control tax collection from fruit purchases, it is necessary to change the payment method, while the purchase price should follow the trends of export prices.

Substantial quantities of raspberries produced in Serbia are exported in frozen raw form. A smaller share is processed in local factories and offered to the consumers in the domestic and international markets. The projected sector development dynamics is also burdened by the fact that the plants in the country intended for processing raspberries are obsolete in terms of technology and faced with a lack of good quality human resources and loans. This especially applies to the accepted standards

![Figure 4: Realized average producer and export prices for raspberries in Serbia in EUR/kg in the period 2005-2012](image)
of production that have become an obstacle to further placement of Serbian raspberries on the European and world markets. The sector is also suffering because there is no cluster that would enable the processing plants to concentrate their purchases of raw and processed materials, technology, and human resources and thereby to accelerate the improvement of standards, as well as to influence the development of this sector through common policies.

An evidence that there is no common export policy for raspberries can be found in the fact that there is no serious grouping of cold storages, and therefore no common policy of sales, purchases and development, since each cold storage works independently. It is obvious that the complexity of the business environment and competitive pressures will lead to horizontal and vertical integration within the sector.

Retail is the last link in the movement of agricultural products from the producers to the consumers. As a sales channel, retail should be an active agent who is directly engaged in the reproduction process, affecting both the producers and the final consumers of raspberries. It should also be added that about 15% of the trade in raspberries in their raw form or in the form of craft products is realized in the green market. Unlike the situation in the developed countries, the retail trade in our country has modest capacities in which it is impossible to organize sales on modern principles. Small areas of stores designated for the sale of fruits indicate that most of the trade of these products is executed in green markets. We should expect the development of strategies still to be based on price-competition, but also on the range of products. Market globalization is well underway, so that market saturation in national markets will encourage further internationalization of trade. The development of the sector may be affected by the development strategy of trade mark for agricultural products. The consumer demands and the consumption structure will influence the formation of the production structure and the various institutional forms of marketing channels. The advantage of such form of marketing enables higher exports of raspberries, because foreign wholesale trades promote their brand in all of their shopping centers, where they are located. This method of sale of fruit is an opportunity to promote Serbian brand of raspberries in the world market. In the French wholesale trader called “Legave” there is the name “Raspberry from the Drina Valley” (Framboises de la Vallée de la Drina) on the package of rollend raspberries.

The role of the state in promoting the development of agricultural competitiveness

The agricultural sector requires government intervention, and the main reasons for this are the following: food security, income protection for agricultural producers, increasing the efficiency of agricultural production, food safety, and environmental problems. The objectives of our agricultural policy are not in line with the above concepts, which are the backbone of the activities of the government in the food sector. An ideal agri-food system should provide: adequate food for all, cheap food, food availability throughout the year, safe food and appropriate way of life for the farmers [19, p. 10]. However, agribusiness development policy practiced in our country has not allowed the free operation of market principles, which has led to the low competitiveness of domestic agricultural products both in the domestic and foreign markets. Increasing incentives for agriculture without proper distribution of these funds will not lead to increased competitiveness. The effects are just the opposite — it increases the budget burden and places the burden on the consumers through already high food prices. Namely, it is common and widespread belief that local farmers cannot compete with their products in the world market because foreign producers enjoy much greater support from their governments. However, a counter-argument may be the fact that the sectors that have the least support are far more competitive because they are forced to adapt to market demands. This is the first sign of politically induced problems. A mistaken belief regarding proportional relationship of support and efficiency has created an equally mistaken agricultural management policy. Therefore, the production is still far below its potential. The efficiency of utilization of domestic resources depends significantly on social welfare. Low efficiency of the domestic resources utilization leads to increased costs and low productivity factor, which results in the loss of price competitiveness. The non-price
competition factors such as product quality, international quality seals, certificates, design, services related to the product, warranty periods, can hardly make up for the relatively high costs. In addition, the efficiency of resource utilization is promoted through specialization and division of labor. The bases for the specialization are corresponding agreements on production and marketing, which have not yet been developed to a sufficient degree in our conditions. Therefore, the role of the state in the further development of agriculture and increase of agricultural competition is directly related to the general economic development policy.

The best long-term strategy is not to develop comparative, but competitive advantage. A strategy, which would create a competitive position for Serbia, should include changes in the field of production and technological innovation, branding promotion policies that would facilitate the performance in both domestic and foreign markets, improving the quality of business operations, and business and market orientation of all the stakeholders in the food supply chain. In the area of building marketing strategies, it is necessary to have stronger support for marketing orientation and strategy [10], [5, p. 10]. Changes in the producers’ market orientation (targeted segmentation, branding, etc.) must necessarily be accompanied by further changes in the ownership structure (consolidation of land, market orientation of farms, etc.) and the production structure that should adopt high environmental standards. In fact, given the size of the domestic market, it would be an illusion to create national rules, which are not in accordance with international regulations. The state should, therefore, encourage the adoption of international standards. In this context, the agreements with the WTO are important, particularly the agreement on the control of goods before shipment and the agreement on technical barriers to trade, as well as the EU regulations. In order for agricultural and food products from Serbia to meet all the terms and conditions that are required in the EU market, it is necessary to harmonize our legislation with the European legislation. A stronger presence in these markets involves the strategic development concept of agriculture oriented towards development and export, higher competitiveness of the goods of agricultural origin, improved quality and commitment to further liberalization of international trade, as well as providing the necessary concessions in the WTO accession process. In addition to a stable and sustainable growth of production, the concept of increasing exports of agricultural and food industries also requires an adjustment of the export structure to the import demand requirements, and higher competitiveness of exports, through the use of comparative advantages in exports, which are, apart from agro-ecological potential, based on technological modernization, improved concept of education, management and organizational skills and experience.

Strengthening the competitive position not only in the international, but also in the domestic market, means encouraging the development of related industries towards the production of goods, which, in their structure and quality, meet the consumer needs. It is necessary to constantly develop the image as a common marketing tool because this trend is imposed by the development of the international fruit market. The current situation in the markets of the developed countries shows that food has become a commodity of trust (among other things, it is paid by the consumer when the desired item is selected), and trust in the country of origin of a product. This means that when a customer chooses an item, from a very wide range of products, he/she does not take into account only the specific physical characteristics of the product, but subjective factors such as his/her impressions of the country – the origin of the manufacturer. This is particularly important in the case of highly processed and high value added products. Food chains thus can have an impact not only on the economically measured costs and benefits, but also on the societal, environmental, human and ethical dimensions. Both public policies and business marketing strategies can contribute to the further agricultural sector development toward sustainable food systems.

References


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