Export as Market Component and Development Perspective of NWFPs Sector in Central Serbia

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Abstract

Although non-wood forest products (NWFPs) are traditionally linked to local communities, they are becoming increasingly involved in the international trade. Identifying the multipurpose character of NWFP is contributed to intensifying their commercial exploitation. The increasing of global demand has enabled the enterprises from Serbia, in accordance with its capabilities, more oriented towards exports of final products of organic food. Fragmented non-standard production in the past, Serbia could not have a significant participation in foreign markets, however, the establishment of different forms of association with the implementation of standards, also including appropriate marketing activities, opportunities for the enterprises to expand significantly. In order to gain insight into the developmental tendencies of local enterprises involved in the purchase, processing and marketing of NWFPs, it has been conducted a survey in order to define trends in their placement. The purpose of this research has been to determine trends in the exports of certain types of raw and value added NWFPs, on the basis of the study samples located in Central Serbia. The goal of this article is to study marketing activities of chosen small and medium enterprises (SMEs) engaged in purchasing, processing and marketing of NWFPs, as well as presenting of current marketing activities of surveyed SMEs and providing of some recommendations for more efficient export in the sector. The main subject of the research is amounts of placed NWFPs in the foreign market. The applied methodology is based on the analysis of time series by trend, which defined the movement in amounts, realized on foreign markets and made projections of exports in the future. The primary method of this study was modelling, while the statistical techniques were used as a method of trend analysis, with the use of regression and correlation analyses. By this study it has been shown the role of efficient market activities in the surveyed enterprises, as one of the important instruments for achieving economic goals.

Key words: non-wood forest products, exports, market, Serbia, enterprises

Introduction

Starting from a significant share of food in the overall structure of exports from Serbia, the role of non-wood forest products (NWFPs) in international trade is increasing. The interest to NWFPs, as alternative products in the forestry sector, has increased dramatically during the last decade, in the world (Hansda 2009). People have been using the forest resources over many centuries to fulfil their daily needs (Hart 1997). However, only in the last decades the NWFPs have gained more attention in the world trade (Mousavi 2012). In that case, small and medium enterprises represent an innovation in the sector for the collecting, purchase and processing the NWFPs (Keča et al. 2009, Keča et al. 2011, Keča et al. 2012a). The NWFPs have played a dual role in forest dweller's livehoods, as subsistence products to meet daily and seasonal needs and to cover demand in years of poor harvest, and as commercial products that contribute to the household cash economy (Shackleton and Gumbo 2010).

Products derived from nature by its properties belong to organic products, and as such are increasingly in demand, both domestic and foreign. As a result, the NWFPs could be one of the main vehicle for economic growth, especially when there are no other resources (Greene et al. 2000).

The development trend of the need for NWFP products is the future economic prosperity of forest-based economic organizations, which have existed in the past almost exclusively on the production and sale of wood as the only forest products (Anon. 2012a). The Western Balkans has a rich biodiversity with a long history of collection and use of NWFPs and an increasing level of commercialisation. (Keča et al. 2013a). The favourable climate and high biodiversity of central Serbia is the opportunity to develop basis for sustainable production and processing of the NWFPs, with continuous alignment of economic and environmental goals and principles.

From the trade point of view, it is important to note that production is labour intensive, but products

have low value in the forest (Simula 1999). Most products need low-cost technologies that are locally known, and can be modified in line with what the market demands (Richman 2007). Using the potential of NWFPs is still relatively low due to the lack of information and knowledge of the population about its trademarks, processing techniques, lack of marketing activity in order to successfully implement the commercialization of this product group. The full market potential of NWFPs has not yet been reached (Luostarinen 2005). Their intensive use, while respecting the principles of sustainability, opens the possibility of developing small and medium enterprises to encourage employment and rural development.

In Serbia, the collection of NWFPs in nature is performing by the "quota" system given by working group of representatives from Institute for Nature Conservation of Serbia and relevant Ministry of Agriculture and Environmental Protection. Quotas are determined on the basis of materials collected last year, according to production needs of producers (entrepreneurs or legal entities). At determining the quotas it is necessary to have information such as: how much quota of wild flora and fauna and fungi approved last year, log-designed and implemented this year (Keča et al. 2012b).

Drawing on current knowledge and research, it can be concluded that a significant part of NWFPs realized in the market as a generic product, with no technological processing and value addition. For this reason, absence of financial results that would be achieved by adding the value in the higher stages of processing.

Some of the enterprises in this sector are specialized for the storage and packaging of the NWFPs, but collect them without adequate equipment and procedures for cleaning, processing, and packing of harvested to frozen products. This fact becomes a challenge when trying to export to other countries (Anon. 2012b). NWFPs export from Serbia in the past has been accompanied by numerous barriers, primarily due to complicated customs and administrative procedures, which is more expensive and slow, and the inconsistency of domestic and foreign regulations. Fragmented production non-standard quantities of raw and unstable, but the final NWFPs, in the past Serbia could not significantly participate in foreign markets. However, it is evident that there is increasing demand of the European market for high-quality natural products originating from Serbia (Antevski et al. 2012). As long as there is access to foreign markets, one of the main tasks of the manufacturer is to increase production quality and quantity at competitive prices. Serbia should use the potential for the development of NWFPs sector, natural resources, proximity to raw materials, and favourable geographic position there. The development of the economic structure in the transition is based on the development of small and medium-sized enterprises (Birovljev et al. 2011). Exactly, these two categories are the dominant in the sector of NWFPs in Serbia.

The **goal** of this article is to analyse the marketing activities of chosen small and medium enterprises (SMEs) engaged in purchasing, processing and marketing of NWFPs in Central Serbia. Main **subject** of the research is amounts of placed value added NWFPs in the international market. The applied methodology is based on the analysis of time series by trend, which defined the movement in amounts, realized on foreign markets and made projections of exports in the future.

Material and Methods

For the study, 9 enterprises in Central Serbia were surveyed. Three of them are categorized as small enterprise, and six ones as of medium size. Categorization was only based on the number of employees (micro enterprises: less than 10 employees, small enterprises: less than 50 employees, medium enterprises: less than 250 employees).The surveyed enterprises engaged in purchasing, processing and sale of medicinal herbs, mushrooms and berries. A criterion for the selection of enterprises in the sample was carried out on the basis of the existence of export orientation. There is 146 SMEs engaged in purchasing, processing and sale of NWFPs in Serbia.

The three enterprises are surveyed in Ivanjica, two ones were surveyed in area of Kruševac, two ones in Belgrade, and by one of them in Leskovac, Brus, Kraljevo and Svrljig (Figure 1).

Data collected during the survey were the basis for further analysis based on the trends that are lean in manufacturing and export of finished products, the interdependence of phenomena and projections for the future. To be as clear as possible to review the changes and understood the legality of certain operations included the interval from 2004 to 2010.

In this paper, a variety of general and specific research methods have been applied. The primary method of study was modelling, while the statistical techniques were used as a method of trend analysis, with the use of regression and correlation analyses. To verify the obtained regression models trend correlation coefficient *(R)*, *t*-statistics derived estimates of parameters and *F*-statistics (to assess the significance of the correlation coefficient) were used. For all tests of statistical significance was $\alpha = 0.05$ (level of error is equal to or less than 5%) (Ranković 2009). The data

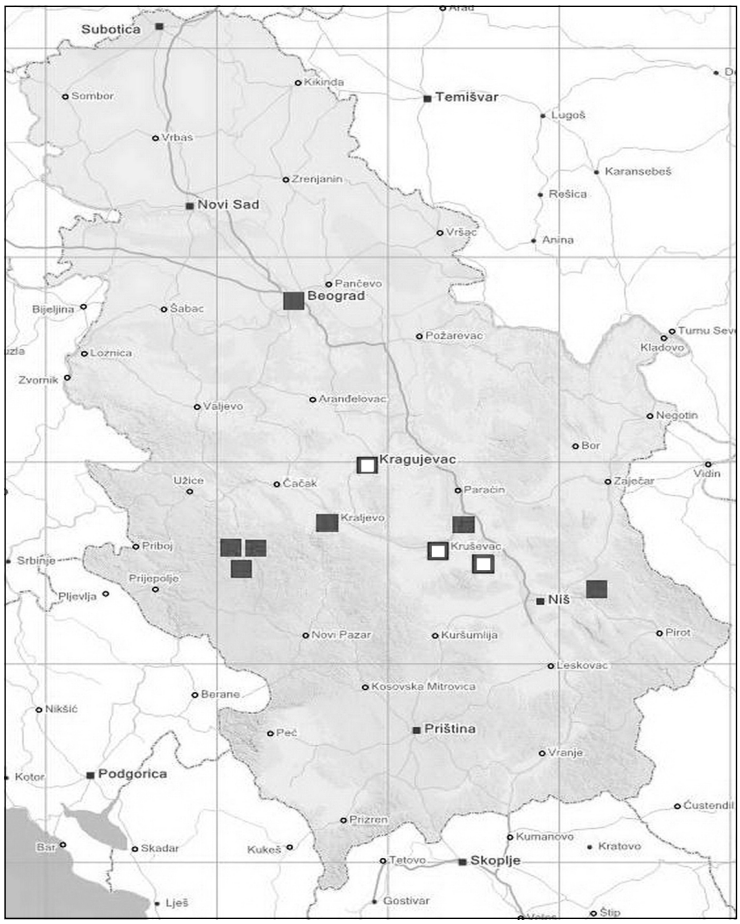

Figure 1. Locations of surveyed enterprises
■ – medium enterprises, ◘ – small enterprises

in the paper were collected through surveys, by direct communication with entrepreneurs, who were engaged in purchasing, processing and marketing of NWFPs in Central Serbia.

There were applied technique known as "moderate oral interview" (Appendix 1), which involves oral questioning and verbally responding to direct communication between the interviewer and the interviewee (Yin 2009, Glaser and Strauss 2012). Interviewing was done personally, by going to the company and conversation of competent persons in the companies. Making models and trends and their analysis were based on the amount of purchased and disbursed NWFPs surveyed enterprises located in Central Serbia on the international market for the period of 2004-2010 (Table 1 and 2).

During the period from 2004 to 2010 the surveyed enterprises mostly purchased raspberries and dog rose. Purchase recorded a moderate increase or decrease, depending on the product, and there were no drastic differences in observed years (Table 1).

Table 2 presents the quantity of final products exported by the enterprises for the period of 2004-2010 on the international markets. As in the case with the purchase of raw materials and the export moderate growth or decline in the quantity exported, without significant fluctuations by years, was recorded.

Raw materials are purchased from several municipalities in Central Serbia (Figure 2).

Table 1. Purchase of raw of NWFPs during the period 2004-2010

Product	Quantity (kg)						
	2004	2005	2006	2007	2008	2009	2010
Boletus sp.	60,000	110,000	160,000	180,000	190,000	100,000	100,000
Raspberry	600,000	550,000	700,000	550,000	630,000	120,000	110,000
Dog rose	20,000	20,000	30,000	40,000	50,000	4,000	5,000
Medical herbs	160,650	180,650	200,650	201,200	201,900	202,500	203,000

Table 2. Export of value added NWFPs during the period 2004-2010

Product	Quantity (kg)						
	2004	2005	2006	2007	2008	2009	2010
Boletus sp.	60,000	80,000	255,000	330,000	273,000	254,000	387,000
Raspberry	400,000	300,000	508,000	340,000	408,000	108,000	105,000
Dog rose	30,000	27,165	36,171	60,158	38,868	130,785	83,008
Medical herbs	160,000	180,000	200,000	200,500	201,600	202,300	202,000

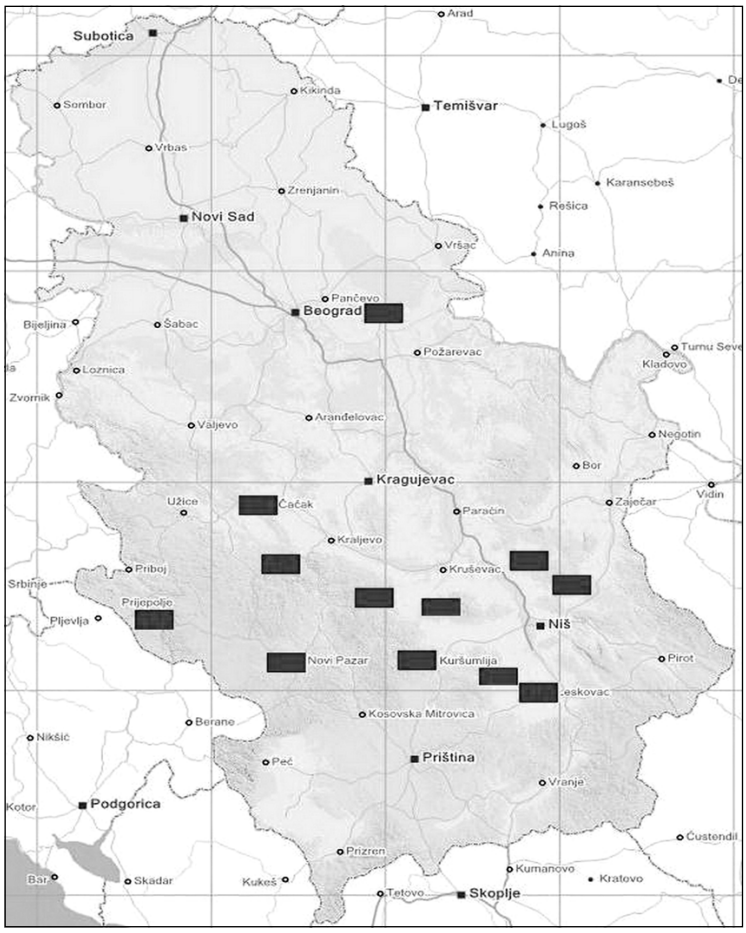

Figure 2. Locations of the purchase of raw NWFPs

Medicinal herbs are purchased in Bavanište and Svrljig, boletus is purchased in the area of Kuršumlija, Kruševac, Ivanjica, Čačak, Predejane, Blace, Prijepolje and Novi Pazar, dog rose is purchased in Brus, and raspberry in Ivanjica (Figure 2).

Results

The regression function was used to calculate the results. A criterion for choosing a regression function is the value of the parameter and the correlation coefficient and statistical significance. After statistical analysis (Table 1 and 2) in the appropriate statistical package model elements, their trend (Table 3 and 4) and graphical presentations (Figure 3 and 6) were derived; this helps to perceive apparent size of the observed trends in a given period.

Figure 3 shows the trend in the purchase of four analyzed types of products. In addition, the linear trend was used for processing the purchase of raspberries

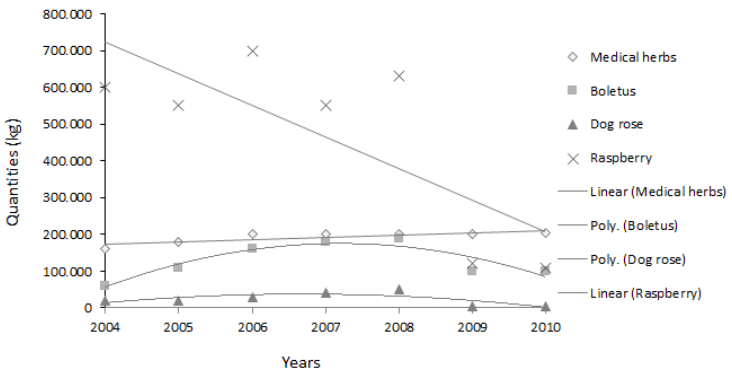

Figure 3. Trend of raw NWFPs purchase in enterprises during 2004-2010

Table 3. Basic elements regression analysis of trends in the NWFPs purchase during the period of 2004-2010

	Medicinal herbs					
	Parameter	***t***	***R***	***F***	**Y= 6142.9x - 1E+07**	
a	-1.2E+07	-3.08551	0.8140	9.8255		
b	6142.857	3.134568			Exponential seasons growth rate (%)	3.34
	Dog rose					
	Parameter	***t***	***R***	***F***		
a	-1.32E+10	-2.19861			**Y= -3273.8x² + 1E+07x - 1E+10**	
b	13139036	2.198955	0.7597	2.7301		
c	-3273.81	-2.1993			Exponential seasons growth rate (%)	-24.5
	Raspberry					
	Parameter	***t***	***R***	***F***	**Y= -85714x + 2E+08**	
a	172494285.7	2.58754	0.7557	6.6592		
b	-85714.28571	-2.58056			Exponential seasons growth rate (%)	-29.4
	***Boletus* sp.**					
	Parameter	***t***	***R***	***F***		
a	-46523518810	-4.43292	0.9154595	10.3507	**Y= -11548x² + 5E+07x - 5E+10**	
b	46356785.71	4.432487			Exponential seasons growth rate (%)	5.41

and medicinal herbs, while for the processing data on the dog rose and *Boletus* sp. it was used polynomial of the second degree (Figure 3).

Positive movement of the average annual growth rate was achieved in the purchase of medicinal herbs (3.34%) and mushrooms (5.41%), while the negative movement recorded in the purchase of dog rose (-24.5%) and raspberry (-29.4%) (Table 3).

An average annual purchase of *Boletus* sp. is 128,571 kg. There is a very strong correlation between the parameters (R = 0.915) and the correlation coefficient is statistically significant at the significance level α = 0.05 (*Significance F* = 0.02). The parameters are also significant at the α = 0.05 (t calculated > $|t|$ in tables), and the corresponding *P-value* indicates an error of approximately 0.01 (Table 3).

An average annual purchase of raspberries is 465,714 kg. There is a strong correlation between the parameters (R = 0.755) and the correlation coefficient is statistically significant at the significance level α = 0.05 (*significance F* = 0.04). Parameters are significant at α = 0.05 (t calculated > $|t|$ in Tables), and the corresponding *P-value* indicates an error of approximately 0.04 (Table 3).

An average annual purchase of dog rose is 24,143 kg. There is a strong correlation between the parameters (R = 0.759) but the correlation coefficient is not statistically significant at the significance level α = 0.05 (*significance F* = 0.17). The parameters are not significant at α = 0.05 (t calculated < $|t|$ in tables), and the corresponding *P-value* indicates an error of approximately 0.09 because of the results need to take with caution (Table 3).

An average annual purchase of medicinal herbs is 192,936 kg. There is a strong correlation between the parameters (R = 0.814) and the correlation coefficient is statistically significant at the significance level α = 0.05 (*Significance F* = 0.02). Parameters are significant at α = 0.05 (t calculated > $|t|$ in tables), and the corresponding *P-value* indicates an error of approximately 0.02 (Table 3).

An average of purchase price (in 2010) of medicinal herbs was 2.9 €, boletus 2.5 €, dog rose 0.8 € and raspberries 1.4 €.

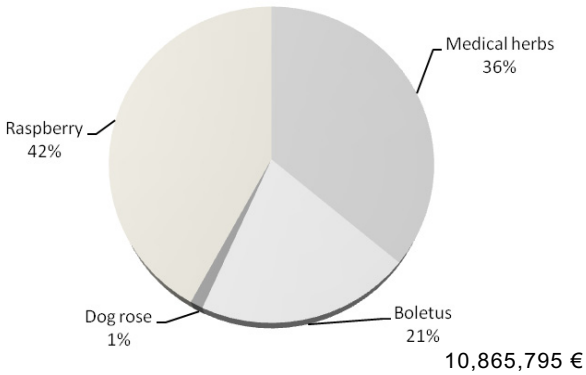

Figure 4. Cash value of investing in raw products by the surveyed enterprises

The total expenditure incurred by purchasing four analyzed types of products is 10,865,795 € (Figure 4). Of these 42% (€ 4,564,000) representing expenditure for the purchase of raspberry, purchase medicinal herbs 36% (€ 3,916,595), and for the purchase of *Boletus* sp.

is 21% of the total amount (€ 2.25 million), and the dog rose 1% (€ 135,200).

Figure 5. Export markets of NWFPs in surveyed enterprises

International markets, which enterprises sell their products to, are mainly in Germany, Austria, France, Switzerland, Belgium, Spain, Croatia and Bosnia and Herzegovina (Figure 5). The greatest amounts of final NWFP are sold in Germany and Austria. All of surveyed enterprises are emphasized their competitiveness by price on the export markets. Products that are placed alongside the domestic and the foreign market are: medicinal herbs, raspberry, dog rose and *Boletus* sp.

The trend of the total volume of loans NWFPs to the international market for the period 2004-2010 (Figure 6), where the *x*-axis shows the year and the *y*-axis quantity of product placements in a given year, shows the change of trend marketing of NWFPs in the international market i.e. sub-periods of growth or decline trend.

An average annual export of boletus is 234,143 kg. There is a very strong correlation between the parameters (R = 0.853) and the correlation coefficient is statistically significant at the significance level α = 0.05

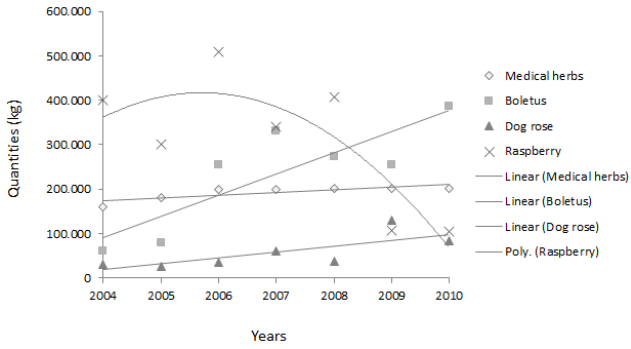

Figure 6. Trend of NWFPs export of surveyed enterprises during 2004-2010

(Significance F = 0.01). The parameters are also significant at α = 0.05 (t calculated > $|t|$ in tables), and the corresponding *P-value* indicates an error of about 0.01 (Table 4).

An average annual purchase of raspberries is 309,857 kg. There is a very strong correlation between the parameters (R = 0.829) but the correlation coefficient is not statistically significant at the significance level α = 0.05 (Significance F = 0.09). However, parameters are not significant at α = 0.05 (t calculated > $|t|$ in tables), and the corresponding *P-value* indicates an error of about 0.17 (Table 4) because of the results are taken with a caution.

An average annual export of dog rose is 58,022 kg. There is a strong correlation between the parameters (R = 0.756), and the correlation coefficient is statistically significant at the significance level α = 0.05 (Significance F = 0.04). The parameters are significant at α = 0.05 (t calculated < $|t|$ in tables), and the corresponding *P-value* indicates an error of about 0.04 (Table 4).

An average annual export of medicinal herbs is 192,343 kg. There is a strong correlation between the parameters (R = 0.813) and the correlation coefficient is statistically significant at the significance level į = 0.05 (Significance F = 0.02). The parameters were significant at α = 0.05 (t calculated > $|t|$ in tables), and the corresponding *P-value* indicates an error of approximately 0.02 (Table 4).

Positive movement of the average annual growth rate was achieved in the sale of medicinal products (3.36%), dog rose (22.39%) and *Boletus* sp. (28.47%), while the placement of raspberries had a negative average annual growth rate (-22.4%).

Total gross revenue generated by exports of analyzed four types of products is approximately 23,472,817 € (Figure 7). Of these 38% (€ 9,014,500) represents income from the export of *Boletus* sp., raspberry exports in total income has a share of 31% (€ 7,157,700), medicinal herbs 29% (6,732,000 €) and dog rose 2% (568,617 €). An average annual gross income of the export of *Boletus* sp. is approximately 1,287,786 €, raspberries 1,022,529 €, medical herbs 961,714 € and dog rose 81,231 €. The difference between the expenditure of raw materials and gross income is 12,607,022 € and indicates a positive operating result of the surveyed enterprises.

Five companies have plans to expand the range of products that will be placed in the domestic and international markets. Each of enterprises have adopted HACCP, two of them ISO 9001 and one company has International Food Standard, Kosher and Organic food standard (Figure 8). It also confirmed the improvement of the business after the adoption of standards in all enterprises.

Table 4. Basic elements regression analysis of trends in the NWFPs export for the period 2004-2010

Medicinal herbs						
	Parameter	***t***	***R***	***F***	**Y= 6150x - 1E+07**	
a	-12150707.14	-3.0751	0.81314	9.757998		
b	6150	3.12378			Exponential seasons growth rate (%)	3.36
Dog rose						
	Parameter	***t***	***R***	***F***	**Y= 13177x - 3E+07**	
a	-26388575.25	-2.57746	0.75607	6.672555		
b	13177.17857	2.583129			Exponential seasons growth rate (%)	22.39
Raspberry						
	Parameter	***t***	***R***	***F***	**Y= -18845x² + 8E+07x - 8E+10**	
a	-75811029262	-1.64523				
b	75595892.86	1.646302	0.82919	4.401418		
c	-18845.2381	-1.64737			Exponential seasons growth rate (%)	-22.4
***Boletus* sp.**						
	Parameter	***t***	***R***	***F***	**Y= 48107x - 1E+08**	
a	-96316892.86	-3.65177	0.85338	13.40038		
b	48107.14286	3.660653			Exponential seasons growth rate (%)	28.47

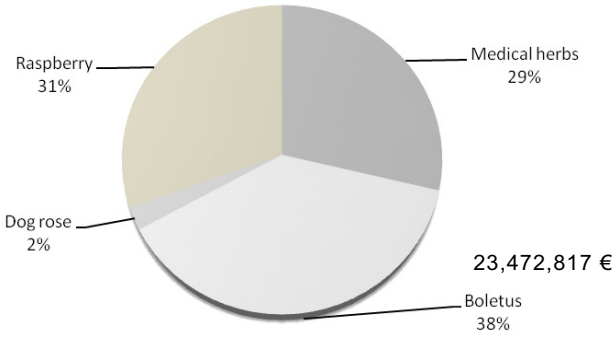

Figure 7. Realized gross income from export of four products analyzed

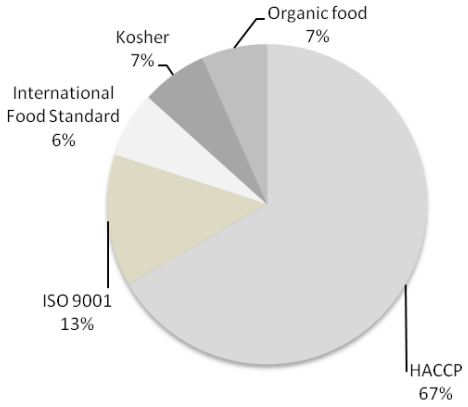

Figure 8. Representation of certain standards in the surveyed enterprises

Figure 9 shows movement of raw materials to the final consumer.

For the collection of products in nature a seasonal workers are engaged. They collected quantities discharged into the nearest collection stations. From there, the enterprises carried out the purchase of raw NWFPs and further logistical handling products perform within their capacity. These are stages such as storage, internal transportation, referral to treatment, storage of finished products and prepare for transport. Products are realized, both in the domestic and international markets, where further distribution takes place through retail or wholesale trade centres (Figure 9).

Discussion

The area of Central Serbia has a wealth of natural resources, as well as a long tradition in the collection of wild medicinal herbs, berries and mushrooms (Źåča et al. 2013a). A precise evaluation of the collected and sold NWFPs is very complicated. The multitude and variety of NWFPs, the multiplicity of interests and disciplines involved in the NWFP assessment, organizational and financial constraints, and the lack of nationally recognised common terminology and units of measurement, all contribute to make the assessment of NWFP and of the resources provided to them a difficult task (Killmann et al. 2003).

However, this does not diminish their generally recognized market significance. Due to the increasing

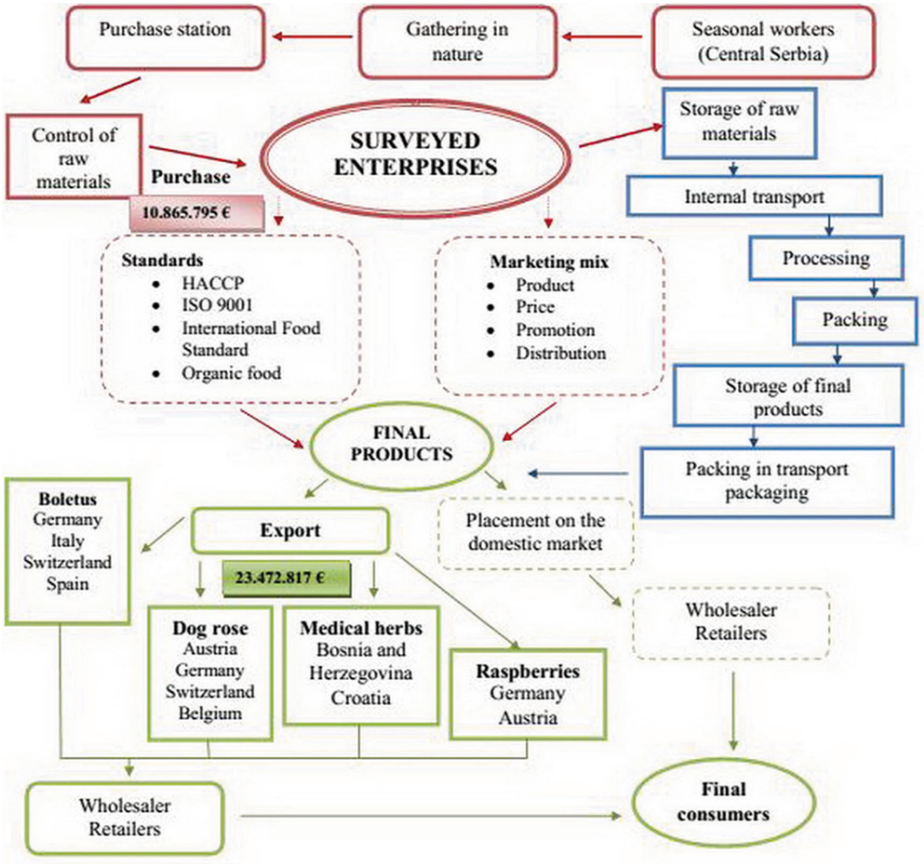

Figure 9. The flow of NWFPs from raw material to final product in Serbia (legend: purchase – red arrow, logistic – blue arrow, placement – green arrow)

importance of the market and the expansion of organic production in Serbia during the 10-years period, the NWFP became very popular (Keča et al. 2012a, Richter and Padel 2007). In such circumstances, these products are becoming increasingly important Serbian export item. The market for products from nature is closely linked with the organic food market (Collier et al. 2004), which opens up a significant commercialization channels for the NWFPs. For Serbia international markets are of particular attraction. There is a great demand for such wild mushrooms in Italy, and for a variety of natural plant products and fruits of the forest in Germany and Japan, and Serbia is a good supplier (Anon. 2006). However, in Serbia, there are a number of limitations that greatly reduce the potential effect of such export.

As a problem in business of NWFPs obtained from the interviews is a high level of perishability. Other problems are associated with the severe field conditions mentioned by the three enterprises, as well as obsolete machinery and unfair competition on domestic and international markets. Charging for products is performed mainly in advance and after delivery, unlike the deferred payment, which is the least represented. Most of the enterprises in its operations did not have some forms of state support in the form of export or producer subsidies, while only three enterprises used short-term loans. In addition, the association of entrepreneurs in the vertical and horizontal system is on very low level, which makes it difficult for small entrepreneurs to penetrate into foreign markets. Other problems include lack of market transparency and insufficient quality standards (Chandrasekharan 1995).

To increase exports and to become recognized as a significant exporter of food in the region and beyond, Serbia needs to seriously work on improving the marketing factors of export competitiveness of food products, through the consolidation of production and conducting an adequate pricing policy, brand building, image building of geographical indications innovation and the transition to higher processing products etc. (Babić et al. 2012, Keča et al. 2013b).

Despite the overall economic importance of NWFPs, studies have shown that enterprises have relatively low returns. As the main reason is the lack of organized systems and insufficient marketing activity, which could help the individual producers in the organization of production and distribution, determining the appropriate price, choice of markets and promotion of goods (Keča et al. 2012a).

The NWFPs differ markedly in ease of collection, required technologies and skills for processing,

strength of demand, etc. (Velde et al. 2006). The lack of processing capacity of businesses greatly reduces the economic impact that could be achieved a greater degree of product finalization. The low percentage of use of existing capacities in the domain of NWFPs, as a result, has inefficiencies in operations and the weak competitiveness of exports. As limiting factors in their operations, the respondent companies have pointed out difficult field conditions, outdated equipment and machinery, heavy collection of products, lack of specialized and skilled workforce, and the like. Lack of skilled labour force in rural areas is a general problem (Niskanen et al. 2007). Middlemen buy products and then move it to the next stage in the marketing channel and provide an important service to the collector, such as: advancing money during periods of food shortage, arranging for transportation, providing post-harvest services, packaging and temporary storage (Anon. 2008).

The benefits local populations receive from the trade in these products are often considered inadequate compared to the benefits received by other stakeholders, and income-generating activities consist mainly of the collection and sale of unprocessed NWFPs (Walter et al. 2003). This greatly reduces the cost but the revenue that would have been achieved a higher level of product finalization. Prices depend on the relationship of supply and demand, operating costs, and the current amount of raw material on the market. The interviewed enterprises price products by the method of "cost-plus", where the starting point is to cover the cost with a certain percentage of margin (Źåča et al. 2013). Each of the surveyed enterprises highlights their price competitiveness in the domestic and international markets, too. This was achieved by low purchase prices of raw materials as well as low labour costs engaged in the collection of NWFPs in nature.

In order to provide access to the international market for the company in the field of NWFPs, it is necessary to fulfil a number of import-export conditions, above all respecting the quality standards, phytosanitary regulations, permits and pay taxes, then the storage and transport, which often involves multiple agents and distributors (Vantomme 2004).

Conclusions

Following conclusions can be distinguished:

• most of the enterprises have been selling their products at the same time on the domestic and the international market;

• products with increasing annual growth rate of purchase are: medicinal herbs (3.3%), *Boletus* sp. (5.4%), and products with decreasing annual growth rate of purchase are: dog rose (-24.5%) and raspberry (-29.4%);

• for all of the purchased products there is a strong correlation in the range 0.7-0.9 and by testing the significance of the resulting correlation coefficient was found that the parameters are statistically significant at the significance level $\alpha = 0.05$, except for dog rose, where the results should be taken with caution;

• an average annual purchase of raspberries is 465,714 kg, medicinal herbs 192,936 kg, *Boletus* sp. 128,571 kg, and dog rose of 24,143kg;

• total expenditure of the surveyed companies for the purchase of four analyzed types of products is approximately 10,865,795 €;

• approximately 42% (4.564.000 €) is expenditure for the purchase of raspberry, for purchase of medicinal herbs has been spent about 36% (3.916.595 €), while for the purchase of boletus is allocated about 21% of the total amount and for dog rose only 1% (135.200 €);

• an average annual expenditure for the purchase of raspberries is approximately 652,000 €, medicinal herbs 559,514 €, boletus 321,429 € and dog rose 19,314 €;

• international markets were enterprises sell their products are the following: Germany, Austria, France, Switzerland, Belgium, Spain, Croatia and Bosnia and Herzegovina;

• products with increasing annual growth rate of export are the following: medical herbs (3.4%), *Boletus* sp. (28.5%) and dog rose (22.4%), and product with decreasing annual growth rate of export is raspberry (-22.4%);

• for all of the exported products there is a strong correlation and amounts of correlation coefficients were in the range of 0.7-0.8. Testing the significance of the resulting correlation coefficients has shown that the parameters are statistically significant at the significance level $\alpha = 0.05$, except for raspberry, where the results should be taken with caution;

• an average annual export of raspberries is 309,857 kg, *Boletus sp.* is 234,143 kg, medicinal herbs is 192,343 kg and dog rose is 58,022 kg;

• surveyed enterprises perform purchase of raw materials from the nearest collection points and then conducted logistic handling, storage of raw materials, processing, packaging, storage of finished products in their own capacity;

• target markets, both domestic and foreign markets are wholesale and retail chains and the largest amount of final NWFPs from Serbia realized on the markets of Germany and Austria;

• it is emphasized that all of the surveyed enterprises are well-known by its price competitiveness in

the international market and the most important export products of the surveyed enterprises are the following: dried medicinal herbs, fresh dog rose, raspberries and *Boletus* sp.;

• five enterprises plan to expand the range of products that will be sold in the domestic and international markets and each of the surveyed enterprises have adopted HACCP standard, two companies adopted ISO 9001, and one of these companies has adopted International Food Standard and Kosher and Organic food standards.

In order to properly manage to the counter competition from imports in the area of NWFPs, it is essential that domestic producers was able to use intensively modern production technologies, introduces standards and continuously work on improving product quality and production processes. This would equalize the mentioned domestic products in prices and product quality to those from the European Union .

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Appendix 1. Questionnaire on commercialization of non-wood forest products for processing companies

PART I - Explanation of the survey participants about the purpose of the survey.

Dear Madam/Sir,

Survey aims to collect information on companies involved in processing non-wood forest products (NWFPs) in the Republic of Serbia. You fill out a survey due to collection of data relevant to testing the market of NWFPs in Serbia. All data will be exclusively used for scientific purposes. Your discretion is guarantied in terms of data that you provide us. Hence, the name of your company and information you provide us will not be mentioned in our work and future research, but you will be cited as company A, B, C, etc. The data will be used solely for scientific analysis. Private data will not be distributed, nor will it be cited names and company names of respondents.

The questionnaire is an integral part of the research of NWFPs in Serbia i.e. Value chain of NWFPs and its importance for forestry sector in Rep. of Serbia. The aim of the project is to identify whether and how actors (entrepreneurs) in Serbia understand/perceive/communicate/implement and conduct business in the field of NWFPs. Concept of NWFPs is adapted by the national forest sectors as policy systems. However, your participation in this research is voluntary. Your answers will be used only for scientific purposes by assuring the respondents anonymity.

PART II - General description of the surveyed companies
1. Company name and the name of the person, who filled out a survey: _____
2. Address and phone number:_____
3. Web address: _____
4. Ownership (please circle): private social state mixed
5. Industry *activity code of your company: _____
6. The main products of the company (according to the physical volume of production) are the following:

_____
_____
_____

PART III - Questions for survey participants
7. The quantities of products in a raw state you purchase annually for the period 2006-2012:

№	Product	Quantity Unit 2006.	2007.	2008.	2009.	2010.	2011.	2012.
1.								
2.								
3.								
4.								
5.								

8. Final products you sell on the **domestic** market:

№	Placement Product	Quantity Unit 2006.	2007.	2008.	2009.	2010.	2011.	2012.
1.								
2.								
3.								
4.								
5.								

9. Final products that sell in **foreign** markets:

№	Placement Product	Quantity Unit 2006.	2007.	2008.	2009.	2010.	2011.	2012.
1.								
2.								
3.								
4.								
5.								

10. In which countries are exporting value added products?

Product	country / quantity	country / quantity	country / quantity	country / quantity	country / quantity

11. Please indicate price of your products per unit:

№	Product	Price	Unit
1.			
2.			
3.			
4.			
5.			

12. Do you accept any of the applicable standards relating to the NWFPs?

- yes_____
- no

13. If so, what are the standards? (you can circle more than one answer)

- Kosher
- HACCP
- Healthy food
- ISO 9001
- "Organic food" standards
- Else _____

14. Whether, in this sense (the period of adoption and application of standards) have noticed an improvement in operations, product quality, etc..?

- yes
- no

Thank you for your cooperation and your time!
If you have any questions please don't hesitate to contact us on the address below!