

## ACTIVITIES IN THE MAP SECTOR IN RURAL AREAS OF SERBIA

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### Abstract

Natural resources are an important component in the economic development of the state and society. The resources of Serbian rural areas can be of far greater significance than they are today for business operations of the MAP sector and economic development of these areas. The main opportunities involve organized buy-back of these plants, expansion of MAP plantation production to hilly-mountainous areas, value added processing of the collected MAP, improved marketing strategy in the sector, accompanying certifications (organic, ISO, KIA, HACCP). Strengthening of the MAP sector's market connections in the country and abroad would bring about better utilization of the existing resources, while better horizontal and vertical association of all participants in the value chain would lead to increasing demand for herbal raw materials and expansion of the production and processing facilities. Better integration of the MAP sector in the economy of rural areas would result in increased employment level of a part of the labor force.

**Key words:** *resources, medicinal and aromatic plants (MAP), sector, rural areas.*

### Introduction

Serbia, being a part of the Balkan Peninsula, is rich in biological resources, both natural (autochthonous flora and fauna) and anthropogenic (determined by effects of diverse factors). Extensive biodiversity of the region is associated with the geographical position, orographic and edaphic factors, climate, as well as historic factors of the wildlife development. A general characteristic of biodiversity in Serbia is genetic, species and ecosystem diversity. The foundation of agricultural activities consists of natural resources utilization. Extensive use of agricultural areas (meadows, pastures, arable land enclosed by hedges) generates positive effects on agricultural development. Due to above mentioned, Serbian rural areas possess comparable advantages of medicinal and aromatic plants (MAP) collecting, production and processing. The advantages mirror themselves in a rich raw material base with respect to diversity and amounts, the existence of agricultural land, tradition of MAP growing and collecting, building structures that can be adapted to the needs for herbal product processing and production. Besides that, it is possible to provide financial resources, plant product market development is under way in Serbia, and production and processing equipment and technology is well known and available.

### Resources of rural areas in the MAP sector

From the viewpoint of topography and resources exploitation in agriculture, the territory of Serbia can be divided into the flat area of the Pannonian Plain (Vojvodina region), characterized by intensive agricultural production, and the hilly-mountainous region with dominating extensive agricultural production. The prerequisite of economic activities at the

level of rural communities and regions is based on resources evaluation: natural, human, infrastructure and current facilities. Rural areas resources represent a significant potential that local community can make use of to promote a broad spectrum of agricultural products: medicinal plants, forest fruits, handicrafts, tourism services and the like. Plant resources potential is of critical importance for the economy of rural areas (woods, pastures, meadows). In order to improve these resources utilization, it is necessary to view them from a number of angles: biodiversity (quality and quantity), soil types, climate, water resources, infrastructure, human resources etc. A prerequisite for plant resources exploitation is their optimal utilization (sustainable exploitation).

Serbian rural areas cover 85% of its territory with 55% of population living in these areas. The economic structure of rural areas is still based on natural resources exploitation and primary sector business operations. A majority of natural resources (arable land, woods, water etc.) are located in rural areas abounding in ecosystems and biodiversity. An important component of rural areas is natural, cultural and historical heritage.<sup>1</sup> Small family-owned holding is present to a significant extent in the socio-economic structure of Serbian rural households.

The area covered by the Republic of Serbia has outstandingly favorable conditions for agricultural production (climate, soil, water resources). The Republic of Serbia manages soil area of about 5 093 000 ha<sup>2</sup> of agricultural land accounting for 3 602 000 ha of arable land, of which fields and gardens cover 64.8%, orchards 4.7%, vineyards 1.1%, meadows 12.2% and pastures 16.4%. Geographical position of Serbia is specific for its geomorphological, geological and pedological diversity, influences of diverse climates that have resulted in abundant genetic, species and ecosystem diversity. Therefore, Serbia can be considered one of the most significant biodiversity centers in the Balkans. Medicinal plants are among the most important economic plants in Serbian flora.

The activities of the MAP sector are partly based on agricultural production (plant growing and collecting) that is largely going on in rural areas (collecting in hilly-mountainous areas and growing in flat areas). This way of raw material supply provides revenue acquisition for a part of rural population, for both households involved in plant production and seasonal workers hired for the job. Considering the fact that buy-back is organized in the areas of MAP picking (examples are enterprises *Betula* in the village of Zitkovac and *Sanicula* in Gornja Mutnica)<sup>3</sup> where, apart from pickers, a certain number of people are employed in processing plants (permanent and seasonal workers), the development of rural areas is thus supported. There are much more examples of such enterprises because the majority of them are located in rural areas.

The low level of farm mechanization equipment is a limiting factor in agricultural production, so that many producers turn to the production that does not require specialized mechanization. In Serbia, a small number of households possess specialized machinery and equipment for the production of MAP. However, this is not a limiting factor for the MAP plantation production because the production of most species does not require any additional equipment. Besides, small-sized holdings and adverse sowing structure in Serbian agricultural production aggravate and reduce economic utilization of the existing farm machinery. Such small-sized areas characteristic of family holdings are acceptable for medicinal plant production. Medicinal plants can be grown in most regions of Serbia, provided that irrigation is practiced, a very important prerequisite for steady and high yields and production of quality raw material.

<sup>1</sup> [\\_www.minpolj.gov.rs/download/ruralnirazvoj-strategija](http://www.minpolj.gov.rs/download/ruralnirazvoj-strategija).

<sup>2</sup> Statistical Annual Report, (2009.), RZS, Belgrade.

<sup>3</sup> Turudija Ž. S., (2009): Market development and marketing channels for MAP, Master's thesis, University of Belgrade, Faculty of Economics Belgrade.

In Serbian rural areas (as defined by OECD methodology) there are 1 365 million households, which accounts for 54% of the total number of households in Serbia. There are 328 thousand households of up to 3 ha in size, or 56% of the total number of households in rural areas of Serbia. Labor force, with human capital objectified in it, represents one of the resources essential to every community as well as one of the key factors of agricultural economy development, and overall national economy. After the 1991 Land Reform land supply of some households was increased, so a large number of households were interested in changing the structure of traditionally grown cultures in their fields, i.e. they wanted to start a new business. Also, a large number of unemployed rural people saw a chance for their household survival and revitalization in the MAP sector related jobs. However, it is evident that organized agricultural products buy-back is missing, because farmers are traditionally used to farm cooperatives as a synonym for organized sale and secured market, therefore there is a strong need for this type of organizational structure of the present cooperatives. Usually, there is no contractual MAP production with buyers and processors. In addition, trading participants (buyers) do not view small-sized rural households as reliable suppliers. The absence of organized marketing channels in agricultural products trade is one of the limiting factors in production specialization. MAP collecting and growing as primary processing of herbal raw materials would assist in establishing economic security and stability of rural households that own scarce agricultural resources. The level of extra knowledge and skills of the family members in rural areas is rather low and most often it can not be used to diversify farm activities. Therefore, households can not identify the possibility of engaging their family members in activities other than traditional agricultural ones in both their household and the environment. Tradition is also a limiting factor of agricultural production diversification. It is difficult for many households to determine to change agricultural production structure on their household, especially to introduce new crops, such as medicinal plants, or to start a new job (additional value to the raw material produced on a holding).

### **Activities in the MAP sector**

Positive effects of various plant products have been confirmed by their long-term use throughout history, but many new active principles were discovered as well as their effects in treating a multitude of health disorders. Such a trend in investigations and application to population healthcare has contributed to commercializing of medicinal plants. A return to natural resources in nutrition and healing along with growing material well-being and humanity cultural level has contributed to paying greater attention to the improvement of MAP production and exploitation, which is supported by the EU planning to have 30% of plant-origin medication by the year 2025.<sup>4</sup>

Plant collecting is a dominant way of herbal raw material supply in the world and with us. Collecting of wild plants, forest fruits and mushrooms is the activity practiced by many members of rural families (especially in hilly-mountainous areas of southeast Serbia). This activity can be seasonal, done in parallel with other household jobs, and all generations can be involved. Most commonly, medicinal plants pickers belong to rural population: shepherds, peasants, pensioners, children and women, earning extra money in this way. They are mainly contractual pickers working for dealers, but not infrequently they do not have an end buyer at all. If there is a contract, in that case a list of plants is defined as well as price and amounts. Also, a long-term tradition of treating diseases with medicinal plants and knowledge of medicinal plants species has transformed many pickers of plants for one's own needs into contractual pickers doing this job to improve their income. Medicinal plants are most often

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<sup>4</sup> USAID Agribusiness project in Serbia (2008): Herbs, mushrooms and forest fruit (medicinal and aromatic plants) value chain assessment, 33, [www.agrobiznis.net/.../Herbs\\_Mushrooms\\_and\\_Forest\\_Fruits\\_Value\\_Chain\\_](http://www.agrobiznis.net/.../Herbs_Mushrooms_and_Forest_Fruits_Value_Chain_).

sold when dry. However, some enterprises organize plant picking in the field. The reason is to ensure picking of the amount needed and to obtain better quality raw material.

MAP growing is by far a more secure method of herbal raw material supply. In Serbia, more intensive growing of medicinal plants started around the mid-20<sup>th</sup> century, when herbal raw materials were produced applying the well-known technology of growing (chamomile, mint, balm, fennel, cumin etc.). In order to meet the demands for plant products, medicinal plants-based industry is developed worldwide. To achieve the validation of use, i.e. efficiency, safety and quality of these products, basic and applied researches should be performed that would help to rank these products as patented pharmaceutical products. Such standards can be met only by organized, controlled and targeted production on agricultural land. These requirements can be fulfilled by introducing medicinal plants into plantation production. Today, this production is organized in the world in compliance with the GAP, HACCP, KIA standards, and organic production is increasingly expanding. From the viewpoint of ecology, Serbian rural areas, especially in hilly-mountainous regions, fulfill most prerequisites for certification of organic production and MAP collecting. This could be an opportunity for some enterprises in this sector as well as for family households willing to change the structure of production on their holdings.

The areas under medicinal plants and their distribution have not changed significantly over the past years. The largest areas are under mint, followed by chamomile, fennel, parsley etc. Some plant species steadily demanded at the market are grown only on a few hectares of land (marigold, mallow, common valerian). Due to limited needs for herbal raw materials and balanced demand and supply, increase of growing areas and structure of medicinal plant species should be planned and agreed, respectively. According to some independent estimates, the areas under MAP cover approx. 5 000 ha and have never exceeded 10 000 ha.<sup>5</sup> The maximum growing areas should cover about 15 000 ha, so that surplus does not emerge at the market.

Data on areas under medicinal plants are rather varying, depending on data source, however, it is estimated that medicinal plants are grown on approx. 1<sup>0</sup>/<sub>00</sub> of arable land (graph No 1-based estimate), which is minor compared to other traditionally cultivated crops with us. Production of some cultures requires engagement of much labor force, which increases the price of production itself. On the other hand, this is advantageous for family households that employ labor force in this way. Intensive plant species can employ family members and provide income for small households in the primary production process as well as for bigger specialized enterprises in the processing and export activities.<sup>6</sup>

However, MAP plantation production has a series of limitations. In some countries (USA) there is increased demand for wild plants in particular, because it is considered they are of better quality. It is evident that all species can be easily cultivated; it takes several years for some plants to achieve technological maturity (e.g. Gentian). In such cultivated plants the return on investment is postponed, which is discouraging for producers. Despite this fact, efforts should be made to promote MAP growing, especially of endangered species. Data on areas under MAP in Serbia differ, as above mentioned, and estimates for the period 2001-2010 are presented in graph 1.

Pickers and producers most commonly do not possess processing facilities, so it is impossible to realize added value to thus produced and picked herbs, respectively. Consequently, MAP raw materials are sold at prices as dictated by the market. Higher prices could be obtained by procurement of equipment for primary processing (drying, chopping, grinding, sorting, packaging, transport). Such a way of organizing could be achieved by

<sup>5</sup> Data provided by the Institute for Medicinal Herbs Research "Dr. Josif Pancic", Belgrade.

<sup>6</sup> Kišgeci J. (2008): Farmer's Agricultural calendar, Dnevnik, Novi Sad, 286-287.

pickers and producers when associating into cooperatives or some other form of societies. Bulgarian model for MAP trade management is highly praised<sup>7</sup> and their experience could be applied to the development of the MAP sector in Serbia.

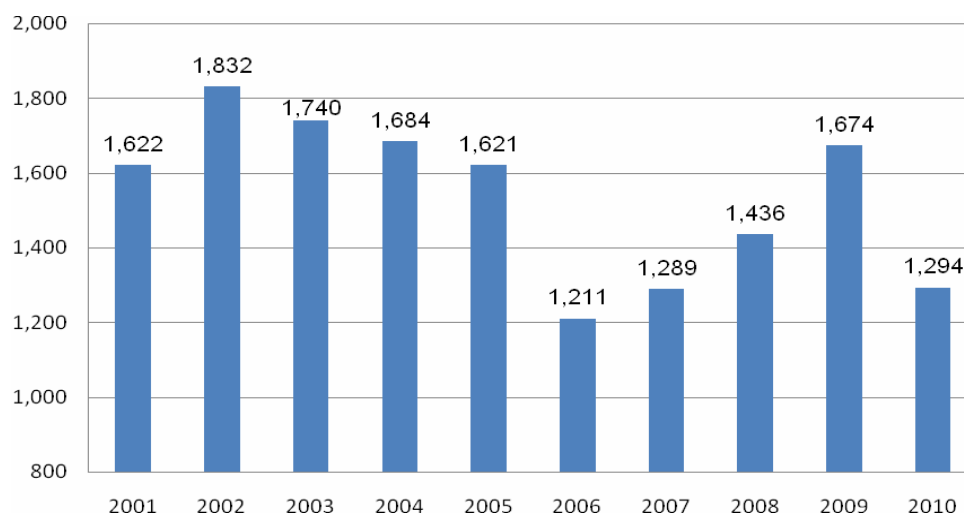


Fig.1. Area under cultivated medicinal plants in Serbia (data obtained thanks to Chamber of Commerce of Serbia)

Enterprises operating business in Serbian rural areas deal with buy-back and primary processing, but they possess facilities for drying, cutting, sorting and packaging that are technologically obsolete and mainly insufficient. This reduces the amounts and quality of MAP, which can not meet the demands posed by domestic and foreign market. A majority of enterprises from this sector are facing the problem of financial resources needed for financing raw materials, processing and storage. It is impossible for many enterprises to use favorable bank loans to invest into processing facilities and end products. Also, MAP export is not stimulated at all as is the case in some countries in the Region. In Serbia, there is no national association to take care of this sector's interests, except for the association within Serbian Chamber of Commerce. For the time being, it is only USAID that assists the MAP sector in Serbia, and the 'Srboflora' association has been founded under its sponsorship. The aim of 'Srboflora' is to support the MAP sector development, primarily to increase export of medicinal herbs.

Serbia possesses comparable advantage for organizing MAP primary production and processing. The advantages are its rich raw material base, abounding in diversity and amounts, building structures that can be adapted to the needs of proposed production, sufficient quality soil for MAP plantation growing, possibility to provide financial resources for the production, developed market for all end products, technology has been conquered and is available to all future producers etc.<sup>8</sup>

### Serbian state's activities in the MAP sector

In Serbia, there is no development strategy for the MAP sector at the state level. To improve business operations of the sector, business climate should be created, where it is possible to play the role of an 'honest' mediator in establishing straight trade arrangements

<sup>7</sup> Lange D. i Mladenova M. (1997): Bulgarian model for regulating the trade in plant material for medicinal and other purposes. U: Bodeker, G., Bhat, K.K.S., Burley, J. and Vantomme, P. (eds) Medicinal plants for Forest Conservation and Healthcare. Non-wood Forest Products 11: 135-146. FAO, Rome.

<sup>8</sup> Kišgeci J., S. Jelačić i D. Beatović (2009): Medicinal and aromatic plants, 9-13, University of Belgrade, Faculty of Agriculture, Belgrade.

founded on precisely defined profit distribution relationships. Therefore, permanent cooperation should be established within the value chain, continuous market monitoring, transparency of prices, testing of potentials for developing local brand, and placement of products at the local and foreign market.

To eliminate the risks and utilize the advantages of MAP plantation production, the following measures should be undertaken: to initiate the establishment of agricultural cooperatives and other forms of interest societies and associations of producers and collectors, to establish the Agency or Directorate for Development, with the help of state institutions, which would provide services for interested producers and investors, ranging from project preparation to finding financial resources and project promotion, to solve infrastructure problems by reconstructing the roads and building new ones, because primary production and buy-back are organized in rural areas, to develop, in cooperation with consulting firms and professional services, the educational program for producers and pickers to get familiarized with and apply standards relevant to the MAP sector.

In order to increase the amounts of cultivated herbs, the structure of production on agricultural holdings should be changed in favor of MAP, taking into account the psychology of producers and their attachment to a certain type and method of production, its stereotype nature and total involvement in traditional method of agricultural production. This phase implies a larger number of activities aimed at improving the present production levels, with lesser investment in infrastructure, mechanization and the other. All this can be achieved by establishing a professional service to assist the producers (education, information, field demonstrations etc.), by founding associations or cooperatives or by activating the existing ones, by promotion of agricultural production (irrigation, protection, preservation technology, intensification etc.), by introducing new plant species in current plant production and the other. Producers are highly aware of the need for market-oriented production and for production structure change and increase by education level increase, whereby costs reduction and profit rise is achieved. The role of education is prominent because it raises awareness that introducing new plant species in agricultural production (and novel technologies too) is one of essential prerequisites for conquering the market and survival at it.

### **Conclusion**

The existing rural areas resources, such as soil, climate, biodiversity, labor force, tradition of plant growing and collecting, current market, as well as increasing demands for herbal raw materials can contribute to the MAP sector development and economy of rural areas of the Republic of Serbia. Viewed long-term, there is a problem of financing in the sector, unorganized buy-back, absence of cooperatives or enterprises to organize MAP buy-back and production in a broader area of Serbia, inadequate marketing activities, and lack of organized program of local economic promotion in Serbia. Today's enterprises and rural population need a more efficient support. This type of support should be oriented to strengthening of entrepreneurship through active assistance in administration issues at business setup, training for business plan development, financial management and marketing knowledge, support for rural households in production and services diversification. Production diversification should be stimulated towards introducing new production lines, standards application and products value increase (processing, packaging). Easier access to the market of goods and services should be ensured for small-sized rural households, through various forms of association. Improvement of living standard for people living in mountainous areas can be achieved by stimulating the creation of sustainable market, as well as social and environment sustainability. Improvement of institutional capacities is required at

the local, regional and national level, and support for programs focusing on participants' needs.

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