

**EDUCATION OF PARTICIPANTS IN MAP SECTOR WITH AN AIM TO  
IMPROVE MARKET COMPETITIVENESS AND RURAL  
DEVELOPMENT IN SERBIA**

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**Abstract**

There are many problems appearing in MAP sector during collection, growing and marketing of medicinal and aromatic plants, such as: decrease in number of plant collectors, absence of licensed plant collectors, decrease in the surface under medicinal and aromatic, absence of subventions in large-scale production, ignorance and restrictiveness of the low regulations that treat this field, etc. All of these directly influence concurrency of the MAP sector on domestic and foreign market and indirectly slow down rural development of Serbia. Special attention in education of MAP sector participant should be devoted to the low regulations. It is normatively regulated by many laws and low regulations (more than 130 different low regulations). However, the environment and nature protection is the field where many regulations are not yet harmonized with European Union regulations. Following adoption of the law on the nature protection the application of Decree on control of use and turnover of wild flora and fauna ("Službeni glasnik RS", no. 31/2005 from 8.4.2005).

**Key words:** MAP, education, resources, low regulations, market.

**Introduction**

Traditional use of medicinal plants is well preserved throughout the history and in the last decade it is in expansion. Trend known as a "return to the nature" and an increased application of phytopreparations (herbal remedies and plant-based

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products) in prevention and treatment of various ailments is also recorded. Field of medicinal and aromatic plants (MAP) belongs to economic activities that for a longer period of time have no great significance for economy of Republic of Serbia. However, there are all preconditions to change such a situation and to improve use of MAP field potentials what will also bring about an increase of MAP export, more efficient use of MAP processing equipment as well as rural developmet of the country. Pararell growth of MAP consumption, apart from pharmaceutical industry working with plant row materials, it is also recorded in food and dietetic product industries. Industrialization of the agricultural production (application of additives, chormones, antibiotics, pesticides, etc) brought about discontent of food consumers in European Union. In order to improve the entire situation in EU coutries the new legislation is implemented in the system of food quality control, started from the year 2002. (General Food Low; Farmers Guider to GLOBALGAP 3.0). Qonsequently, GAP principles were "reshaped" into integral protection, control and inspection. It is also developed the concept of organic production. According to the low, standards in agriculture production are not obligatory but they are very important if we want to export on EU market. In order to adapt to all EU market requirements it is very important for us to educate all actors in the MAP sector (pickers, purchasers, processors and consumers). Last fifteen years, in accordance to ecological trends in the world, we also started implementing some protection measures for natural resources, better-known as "Concept of sustainable, rational usage of biodiversity" (Kovačević, 2008). Further, the Ministry of Environment and Spatial Planning, according to a certain Decree that regulates usage and trade of wild flora and fauna (*Službeni glasnik RS no.31/05, 45/05–correction and 22/07*), every year announce an open competition in order to issue permissions for collection of protected species.

### **Resources in MAP sector**

Serbia represents a rich source of a number of plant species. In flora of Serbia, medicinal plants are of greater economical significance. MAPs also represent very important row material for pharmaceutical, cosmetic, food, alcohol and beverage industries. Also, they are important export articles that may bring about significant foreign currency income to our economy (export of dry herbs, extracts, essential oils and phytopreparations). This wealth made possible their exploitation but also imposes necessity for protection from their irrational exploitation. In the flora of Serbia, 420 medicinal plant species were registered (belongs to 89 families) out of which 280 species are in trade (Prodanović and Šurlan Momirović, 2007). In Serbia, there are ca. 50 species that we use grow and ca. 250 are collected from the nature (few thousand tons of plant material, annually). This quantity might be significantly increased without jeopardizing

biodiversity. However, quotas that might be obtained only with permission are far below real state in the nature. Also, the number of pickers gradually decreases from year to year, since this job use to do mainly old people (Helberg, and Dajić. 2001a). Our pickers do not hold appropriate license (certificate on picking skills) since it is not required by our legislation (as it is case in EU countries). Very soon, it might present one of limitations for exporting MAPs in EU countries. Also, pickers with their nonprofessional picking (picking of reproductive organs) or excessive collection (picking all plants found at a natural stand) sometimes endangers survival of some species, especially the most demanding ones on the market. Well-known example of nonprofessional collection of Yellow Gentian lasts more than 60 years. This plant almost disappear from this area and its collection from the nature is forbidden. Apart from the control of collection by the law, the best choice to protect natural resources is orientation to cultivation of endangered species with high economic importance (eg. Yellow Gentian, Calamus, Yarow, Plantain, Marsh Mallow, etc, Institute for Medicinal Plant Research, „Dr Josif Pancić“). Some of these plant species are already introduced into culture (small scale production), their growing technologies are known and reproductive material is available (seeds and or nursery plants). Rural village inhabitants in hilly-montaneous region of Serbia that are already engaged in collection of wild growing medicinal plants might also take part in cultivation of these endangered MAP species and increase their incomes.

### **Low regulations as a factor for MAP resources preservation**

In order to be allowed to collect certain MAP species from the nature it is obligatory to obtain permission. The right to apply for permission have juristic person and/or entrepreneurs that commercially deal with collection of wild flora, fauna and fungi, provided that they have no penalty regarding this subject. The applicant, apart from registration form, is supposed to submit following informations: data on protected plant species with their latin names, quantities of plant material to be collected (fresh weight), how collection of protected species is going to be organized, localities of collection (name of community and the neighbouring settlement), number and distribution of purchase stations, data on objects, installations and machinery for plant material storage, processing and turnover, degree of processing of protected species as well as certificate on registration obtained from the Serbian Business Register Agency. The right to apply for permission have juristic person and/or entrepreneurs that have plantations, nurseries or other types, as well as collection of protected species due to scientific research purposes (paragraphs 5. and 7. of the Regulation). Integral part of an open competition is a table presentation of protected MAP species and their quantities that are to be collected.

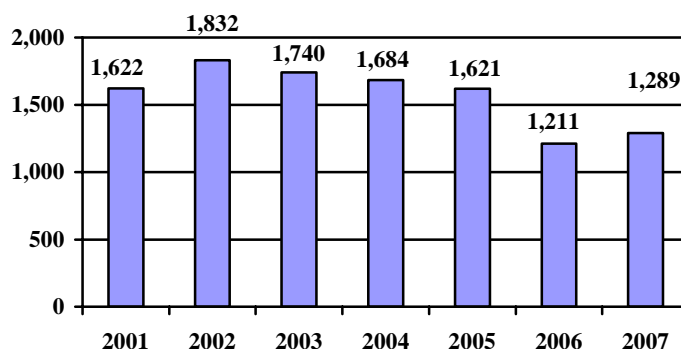
Some field purcesers have no respect for the legislation, weather due to an inexperience or an extra benefit they may gain his way. Also, plant growers are not always well informed on their obligations when they grow protected MAP species. They are supposed to register their plantations to the Institute for Nature Protection and that is checked up by the expert who visits the plantation and gives an opinion on possible yields from the plantation. This is the only way to obtaine permission to legaly put cultivated MAP species that is under low protection on sale.

### **MAP market in Serbia**

MAP market in Serbia is supplied by collection from nature, by cultivation and importing. Wild collection and cultivation supply the greatest part of market demands. Our country imports only MAP species that do not naturally exist in our region, are in deficit in given period of time or their price is higher then on the foreign market. Market surplus are exported in EU and some other countries (USA, Canada). Intensification of MAP growing in our country started by the middle of previous century. Serbia is rated as an exporter even before the first World War and following the second World War MAP were one of the first goods exported. Already, in the seventies, greater quantities of some fifteen plant species were produced (Chamomile, Mint, Lemon balm, Fennel, Caraway, etc). Increased demand for MAP row materials all over the world lead to expansion of organized large-scale MAP production (Helberg, U. and Dajić Z. 2001b). Besides, scientific achievements enabled determination of numerous biologicaly active substances from MAP as well as their therapeutical implementations and imposed high standards for evaluation of the quality of MAP row materials. These standards may be achieved only in well organized, controlled and aim–leaded MAP cultivation. GAP is a legal good agricultural practice that was launched by the Organization for food and agriculture that belongs to UN-FAO ([www.fao.org/prods/GAP](http://www.fao.org/prods/GAP)). In Serbia, GAP is not distinguished as a separate document but it is incorporated in the low and in the book of regulations on agricultural production. Since 2005., application of GAP is a legal obligation and precondition to join market of EU and other world contries.

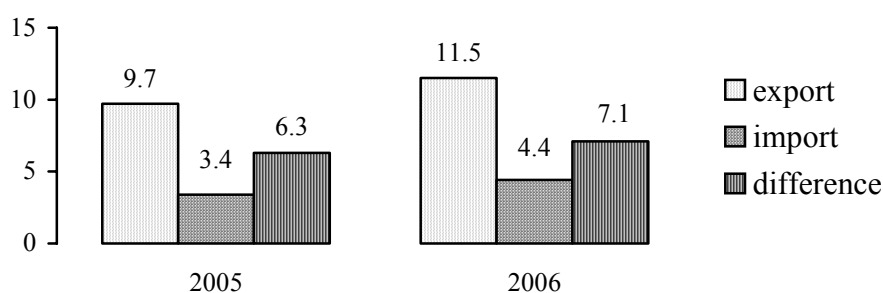
Chart 1. represents surfaces under MAP in Republic of Srpska. It may be observed tendentious decrease in surfaces despite all idices that there are demands for MAP row materials. One of the possible reasons is decrease in competition at foreign market since the export prices of the goods we are exporting are quite higher. Our market demands are satisfied with the quantities we produce. In order to increase export it is necessary to introduce stimulations for large-scale MAP cultivation.

Chart 1 Surfaces under MAP in ha



Association for Medicinal plants that belongs to Serbian Economy Chamber already works on this subject for several years. Unfortunately, these demands up to now did not meet with understanding in our the Ministry of Agriculture, Forestry and Water Management of the Serbian Government. It might me useful to persuade our Ministry for Environment and Spatial Planning to gather incomes from taxes for wild MAP collection and to invest them in subvention for large-scale MAP production. Countries that export MAP and are the main competition gain subvention for their MAP cultivation and their incomes do not depend on the market yields and prices.

Chart 2 Export-import in 2005-2006 (in million \$)



From the Chart 2., it can be observed export-import tendencies during the years 2005 and 2006. It can be concluded that the import was really great. It would be wise to re-examine list of imported MAP species and reconsider if some of them

might be introduced in our agro-ecological region. Also, wild collection or cultivation of market demanding MAP species should be stimulated. It is well known that MAP that derive from our country possess better quality.

Chart 3 Export of MAP for the period 1998-2008 (\$)

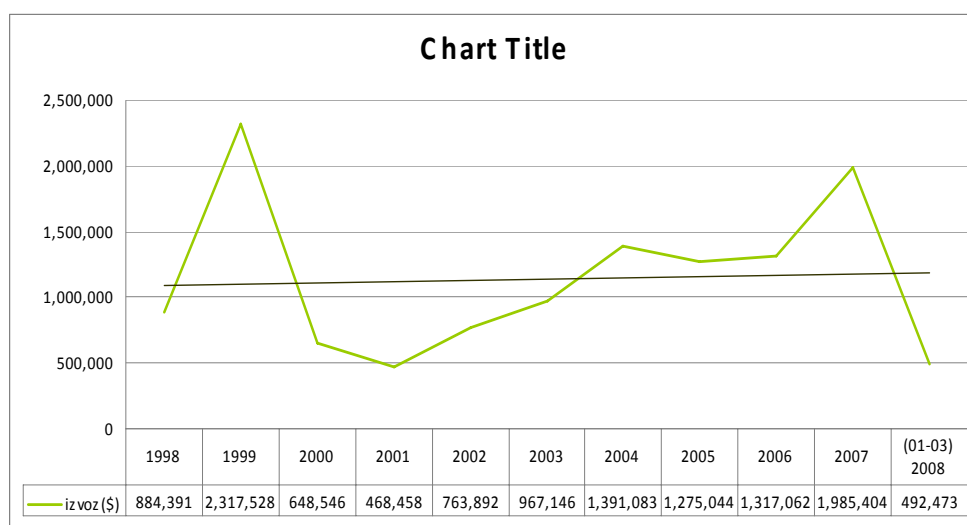


Chart 3. presents export in ten years period (2008, first quarter of the year, only). There are obvious oscillations in income realized in MAP sector but also a small increase in comparison to the years 2000 and 2001. Based on existing MAP field resources of Republic of Serbia it is quite expectable to keep and even increase MAP exporting level and this may be achieved primarily by widening exploitation surfaces from the nature and surfaces under cultivated MAPs in Serbia (Turudija Živanović, 2008a i 2008b).

### Education as a way to improve MAP sector business

Out of all the facts outlined so far it can be concluded that MAP sector is limited by a numerous factors, started from the absence of proper legislation up to the louse knowledge on the rules to be followed during some procedures (wild collection, purchasing, processing and cultivation) in order to possess good quality MAP row material. Also, purchase is not well organized in all regions of Serbia, such a way obstructing possibility to increase the entire quantity of wild collected MAPs, to increase number of pickers so as their incomes from this kind of job.

There are communities in Serbia that have long tradition of MAP collection (Southeast region of Serbia: Sokobanja, Knjaževac, Svrljig, Pirot, Surdulica, Aleksinac). In order to solve some problems the education of all the participants in this sector is of great importance. The first level includes education of MAP pickers. Training should encompass few segments, such as: knowledge on MAP species that are of interest for purchasers, skills how to collect (exact part of the plat, exact phase of plant vegetation, precise timing for collection as well as a proper management of collected plant material – how to transport, dry and store collect it) and prerequisite quantities of plant material in a given season. MAP association “Dr Jovan Tucakov” from Sokobanja, gathers a great number of members. It has its own center for education of MAP pickers and producers and its activity has been carried out for a long period of time under financial support of some international organizations. In order to organize collection and purchase it in other regions of Serbia it is very important to educate pickers and purchasers or to gather all local pickers and connect them with purchasers from the nearest region.

The next phase of education has to encompass purchasers as mediators in MAP turnover, since they are supposed to satisfy requirements of the MAP processors. They also have to be informed on legislation in purchasing of protected MAP species and on MAP row material quality requirements. Education of MAP producers has for its aim to encourage producers to increase number of grown MAP species and surfaces under MAP species that are demanding on market and enable stable supply of market by the good quality MAP row material. Counseling services that exist in many regions of Serbia should provide this kind of education, together with the agronomist from the Institute for Medicinal Plant Research „Dr Josif Pančić“ who were pioneers in introduction of the most MAP species into culture in our country. Following the education they will be mediators between purchasers and MAP processors, since they are very often on terrains in rural regions of Serbia. Also, it would be necessary to educate MAP processors that deal with packaging and disposal of MAP goods. They would need a help from pharmacists and technologist during process of production, from referent laboratories for quality control, and as well they would need a knowledge in marketing (which are the most demanding MAP products on market, how to produce, pack and distribute them, etc., Turudija Živanović, 2008a i 2008b)

### **Conclusion**

Traditional use of medicinal plants is well preserved throughout the history and trend known as a “return to the nature” and an increased application of phytopreparations are recorded. MAP sector belongs to economic activities that have no great significance for economy of Republic of Serbia, regardless the

existence of great potentials (rich plant biodiversity, organized purchase, large-scale production, great number of MAP processing enterprises, an increase of consumption of phytopreparations) which are to be better used. That would bring about an increase of MAP export, more efficient use of MAP processing equipment as well as rural development of the country. The limited factor is control of MAP collection from the nature. Possible as a best method for protection of MAP resources is orientation towards cultivation and introduction into culture of certain MAP species that are of great economic importance (eg. Yellow Gentian, Calamus, Yarrow, Plantain, Marsh Mallow, etc). Scientific achievements that enabled determination of numerous biologically active substances from MAP and their therapeutical values have imposed high standards for evaluation of the quality of MAP raw materials which can be achieved only in well organized, controlled and aim-led MAP cultivation, following GAP standards. MAP sector is limited by no proper legislation as well as with a lousy knowledge on the rules to be followed during wild collection, purchasing, processing and cultivation of MAP species that would provide good quality MAP raw material. Also, it is very important to educate all actors in the MAP sector (pickers, purchasers, processors and consumers). Education of MAP processors, apart from the processing methods have to encompass disposal, marketing and quality control.

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