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Livestock and the development of organic livestock production in hilly and mountainous areas on the basis of available resources in Serbia¹

Abstract: Serbia has extraordinary conditions for considerably bigger herbal and livestock organic production. The constant growth of the demand for the organic products in the world points to the fact that this method of production can be extremely profitable if natural resources, knowledge and productive experience are used in the right way.

Most of natural meadows and pastures in Serbia are situated in hilly and mountainous areas. Agricultural activities were extinguished due to the depopulation trend. Therefore the development of intensive production wasn't achieved.

The aim of this paper is to point out the possibility and perspective of livestock development, according to the existing conditions, and the necessity of realization of planned investment programs on the state level. Also, its aim is to underline the possibility of development of organic production in rural areas. Considering the preservation of nature and existing economic aspect, there are possibilities for organic production of meat, milk and dairies. The results of statistic data of livestock fund are also presented in this paper, as well as percentile share of meadow and pasture participation in total usage of agricultural areas in the counties of the Republic of Serbia.

The Law of organic production and related regulations were adopted by the state and subsidies for the production of this type were given as well. The result was that first

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producers were converted to this kind of agricultural production. Also, the analyzed state of organic livestock production in the world and Europe (EU) points to the institutional and natural conditions for the organic development in Serbia, and to the basic recommendations for its development

Keywords: *The Republic of Serbia, rural areas, livestock, meadows and pastures, organic production*

Introduction

Conditions in hilly and mountainous regions in Serbia are not actually suitable for the development of all branches of agricultural production. Farming, truck farming (the production of vegetables), fruit growing and wine growing are present in low-lying areas, but there is an actual chance for an intensive development of livestock farming in high-lying areas as well, especially in sheep breeding, goat breeding and cattle breeding production.

There is a significant potential for organic livestock production development, especially in hilly and mountainous regions. Because of depopulation trend, partial cessation of agricultural activities had occurred and therefore development of intensive production hasn't been achieved. The existing breeding structure and traditional cattle breeding on pastures, related to cattle breeding and sheep rising in households, are favorable for organic livestock production.

An expressed resistance of autochthonous breeds (cattle, sheep and goats) enables breeding without large investments in health protection and medical treatment which results in the production of special quality food products that do not contain antibiotic residues or residues of plant protection products.

Over 80% of land in Serbia isn't contaminated, which is a very important prerequisite for a successful development of organic production. If we add soil quality with high humus content to the above mentioned, it could be concluded that all natural conditions have been achieved to justify organic production and development.

Large areas covered with pastures and meadows in these regions, which have not been used for several decades because of constant cattle number fall, also represent the potential. These regions, being undeveloped, have avoided chemization and pollution and therefore nature has been preserved.

In the recent years, interest in organic (ecological) agriculture has been significantly growing, as a reaction to more and more expressed concern over environmental degradation, then food quality worsening and growing endangerment to public health.

Constant growth in demand for organic products worldwide points to the fact that this production method could be very profitable if natural resources, knowledge and experience were used properly.

Considering that Serbia has large areas in rural environment at its disposal, which haven't been exploited, organic agriculture could contribute to the optimal use of natural resources, production growth (within local communities/regions), and especially to the improvement in population status on the whole in mountainous regions.

Material and working methods

Results of statistical analysis of percentage share of use of meadows and pastures, within total use of agricultural land in relation to districts, are presented within this work, as well as cattle stock of the Republic of Serbia. These results could serve as a serious base for making certain predictions about possibilities and perspectives of organic production development in those areas, considering the preservation of nature and ecological aspects. Also, contrastive analysis shows the data related to the development of organic production within the world and in Serbia.

For that purpose, material published by Federal and Republic Bureau of Statistics, as well as by Ministry of Agriculture, Trade, Forestry and Waterpower Engineering, Food and Agriculture Organization (FAO) was used, together with various professional literature.

State and development of organic farming throughout the world and in Serbia

Organic farming becomes more and more present and economically significant throughout the world. The significance of this type of production is proved by the fact that it has been carried out in 140 countries, on 32.2 million of hectares, on 633,891 farms which is 0.7 percent of agricultural land on the planet and it is worth more than 25 billion dollars. Organic products in Serbia have been grown on 6,000 ha and 3,000 ha are being prepared for organic production as well, while 6,000 ha are being under research which is 15,000 ha in total. These results are unsatisfactory. In relation to the total arable area which is 4.2 billion ha, it is only 0.3% (it is 24% in Europe).

According to the data acquired from the Ministry of Agriculture and approved by certification organizations, related to the period up to February, 2009, total number of agricultural households dealing with this production was 224. From that 37 producers had agreements with official certification organizations. The remaining 187 producers worked in co-operation with the following companies: Sirogojno, Berry Frost, Bio-cooperative farm Miletićevo, Bio-cooperative farm Bašaid, Žitothem and Eko Telecka. Accord-

ding to the same source, 330 ha of 595 ha dealing with organic farming had certificates. Within those 330 ha, 89 ha was used for growing specific types of plants and 240 ha were meadows, pastures and woods. The remaining 265 ha were in the process of conversion. An increase up to 18,000 ha was planned until 2011. The Ministry of Agriculture planned 50,000 ha dealing with organic farming until 2014.

Most of the countries introduced organic farming, popularize it in a certain way, implement appropriate regulations, stimulate it through certain measures and carry out necessary control. Especially distinguished are Australia, EU countries and Latin American countries. This type of production is present in Serbia but in small range. There are also regulations which are in accordance with the EU regulations. However, there are more producers in plant than in livestock production, but there is no precise documentation about total number of producers within this field. For now, 400 of farmers have been registered that deal with this kind of production, although there are also those who have not been registered.

Plant production is more developed in Serbia, while livestock production has been regressing. There are only 0,30 conditional heads of cattle per hectare. The reason lies in the fact that cattle breeding has been declining during the last 20 years in Serbia in 2 to 3 percent annually. This results in slow development of organic farming in relation to plant production. Serbia has favorable conditions for the production of those types of food and has an excellent chance for expansion of this type of production.

According to the data noted by foreign scientists in 2007, more than 1.2 million of producers run 32.2 million of organic agricultural land. During the same year, there was an expansion in the area devoted to organic production globally. It accounted 1.2 million hectares more in relation to the data from 2006: 4% more in Europe and 27% more in Africa. There is about 900,000 hectares of certified organic agricultural land and 530,000 producers in Africa, 2.9 million hectares and 230,000 producers in Asia, 7,800,000 hectares and 200,000 farms in Europe, 6,400,000 hectares and 220,000 producers in Latin America, 12,100,000 hectares and 7,222 producers in Oceania (Table 1.).

Table 1. Continents with largest land areas devoted to organic agriculture in 2008

Countries	Land area (in million ha)	% in total world organic land areas
Australia	12.1	38
Europe	7.8	24
Latin America	6.4	20
Asia	2.9	9
North America	2.2	6
Africa	0.9	3

Source: <http://epp.eurostat.ec.europa.eu/tgm>

Together with the expansion in the area devoted to organic production, the value of organic farming on the global organic market was increased, so the value in 2003. was about 23 billion dollars, in 2005. - 33 billion dollars, in 2006, - 40 billion dollars and in 2007 - 60 billion dollars (Yang and Jie, 2008).

Leading EU countries, according to profitable organic land areas in 2008, were Spain (1.3 million hectares), Italy (1.0 million hectares), Germany (0.9 million hectares) and Great Britain (0.7 million hectares). Total organic products turnover was about 16 billion euro, and largest markets were Germany with 5.3 billion euro, Great Britain with 2.6 billion euro and France and Italy with 1.9 billion euro. During 2008, organic land area was primarily used for meadows and pastures (44%), as well as for grain growing (37%) and perennial planting - in other words fruit and grapevine (10%) in the EU.

Serbia has started to carry out food safety reforms since October 2005 by implementing the Veterinary Medicine Regulations. These regulations deal with animal well-being, conservation and improvement of health. The regulations introduce contagious animal diseases and conservation measures, veterinary medicine control, sanitary control and requirements for livestock production and sales, for the production of products of animal origin, for food of animal origin, for animal food, as well as the requirements for veterinary medicine activities. High standards in the production of food were required by the regulations and transitional period of three years for complete implementation of HACCP principles was given. In 2006, the Government of the Republic of Serbia passed the Law on Organic Farming and Organic Products. The Law distinctively defines conditions under which it is possible to produce organic food as well as other products produced using organic farming methods. The Law regulates all questions related to the field of processing, storage, transport, labeling, declaration and sales of these products. The most significant progress in law coordination was made in 2009. Food Safety Regulations, as well as many other regulations for protection of specific components of the system as well as in standard protection and procedure protection were adopted. Very important questions were also regulated by special Books of Regulations dealing with organic farming whose aim was to regulate questions related to products with certified production procedure, consumer protection, labeling, that distinctively points to the production methods and many other methods. Special attention was paid to the protection of natural resources from pollution, then to long term maintenance and increase in land fertility, preservation of biodiversity and, as a positive result of all activities, sustainable social and economic rural development has also occurred.

According to the data from 2009, sent to the Ministry of Agriculture of the Republic of Serbia by four authorized certification organizations, total land area devoted to application of organic farming methods was 2,876.5 ha. Although less than 4,000 ha is under organic certificate, organic farming sector is important for Serbia because about 90% of organic production is exported.

Serbia has favorable climate, great experience in farming and land potential, which is a good foundation for dynamic development in organic farming.

Serbia is mostly rural country, which is exactly the area where agricultural production is usually concentrated. Natural resources are found usually in rural areas, especially in hilly and mountainous areas, which could fulfill the requirements for establishment of long-term organic agricultural production.

Large part of hilly and mountainous area (29%) in Serbia are pastured and deserted meadows with weeds, as a result of migration to cities and drop in number of domestic animals in rural households. Pasture resources in Serbia have immense importance for total economic development of the country and are practically the only support to rural economic development in hilly and mountainous regions (Table 2.).

Table 2. Used agricultural land between 2000-2009 (thousand ha)

Year	The Republic of Serbia		Central Serbia		Vojvodina	
	Meadows	Pastures	Meadows	Pastures	Meadows	Pastures
2000	587	815	552	703	35	112
2001	588	821	552	708	35	113
2002	590	817	554	711	36	106
2003	594	826	557	713	38	113
2004	598	823	561	711	37	112
2005	609	832	571	723	38	109
2006	610	838	571	731	38	107
2007	620	835	578	729	42	106
2008	621	833	580	727	41	106
2009	625	834	584	732	41	101

Source: Statistics Annuals of the Republic of Serbia for 2010.

Once in these areas agricultural production took place without any chemical or other means, and growth promoters. Reproduction in cattle with natural mating took place and shows that even then organic production was in the best sense of that meaning.

This is not the case today because these regions are in the process of de population and inhabitants are very old persons. Recovery of at least few of these mountainous regions is possible through adequate developing plans, one of which is an intensive use of these areas by starting with organic livestock production.

Natural Resources and the Development of Organic Farming in Serbia

There is about 5,111,000 hectares of agricultural land in Serbia, in other words 239,000 hectares of orchards, 3,333,000 hectares of plowed fields and gardens, about 67,000 hectares of vineyards, 625,000 hectares of meadows and 834,000 hectares of pastures.

According to the statistical data from 2009, in the Republic of Serbia 613,630 hectares of meadows and 810,916 hectares of pastures were harvested (Table 3.). These are the data for AP Vojvodina for the same year: there are 37,960 hectares of meadows and 89,285 hectares of pastures. Regarding the whole area of the Republic of Serbia, land areas with meadows and pastures are relatively stable during the last ten years and range about average values given. There are about 27% of grassy areas and according to land area this is most spread plant production.

Table 3. Production of important crops - fodder (in thousands ha)

Year	Meadows The Republic of Serbia			Pastures The Republic of Serbia		
	Total			Total		
	Harvested area, in ha	Production, in t	Income per ha/t	Harvested area, in ha	Production, in t	Income per ha/t
2000	582364	640749	1.1	805297	262435	0.3
2001	587637	1121936	1.9	812408	405899	0.5
2002	585482	1089012	1.9	808493	384762	0.5
2003	590592	901167	1.5	811527	35912	0.4
2004	595884	1197218	2.0	805383	452711	0.6
2005	604626	1163824	1.9	813582	475357	0.6
2006	601152	1139837	1.9	826834	489375	0.6
2007	613907	906404	1.5	739588	360413	0.5
2008	590999	1048117	1.8	761805	424474	0.6
2009	613630	1126239	1.8	810916	471043	0.6
2010	590927	1214606	2.0	659387	509636	0.8

Source: Annual Statistics of the Republic of Serbia, 2000-2010.

Mountainous region is the largest rural region in Serbia; it covers 29% of the territory. Height above sea level is above 500m for the largest parts of that region, so it could be described as hilly and mountainous region, which contributes to making conditions for gradual application of organic agricultural production in Serbia.

Most of regions are covered with meadows and deserted pastures with weeds. One of the possibilities for prevention from further land impoverishment lies in organic agricultural production.

The only alternative for cattle breeding in almost 63% of the territory of Serbia lies in the application of models based on sustainable way of using pastures. Base of the organic farming in hilly and mountainous regions in Serbia could represent small ruminants breeding, considering material shortages for bigger investment. Considering slow economic development in the past and relatively preserved natural resources, variety of species and traditional cattle breeding, difficulties related to the economic justification for agricultural production could be overcome by aiming cattle breeding towards high value food products: meat, milk and dairies (autochthonous products and food products with geographic origin). High value food production is one of options for agricultu-

ral production which includes environmental protection and raises living standard in economic and social sense. Characteristic aroma of autochthonous products, especially dairies, in the regions where they are still being produced in a traditional way, could be preserved and developed by ecologically sustainable exploitation and restoration of deserted pastures. Introduction of a model of organic agricultural production in Serbia also represents a long term requirement for health preservation and promotion of environmental protection, as well as many other problems that have appeared during the last decade which could be partially or completely overcome by organic farming development program.

In that sense precise aims are:

- Making plans for short term or long term organic agricultural development in specific regions in Serbia, especially in hilly and mountainous regions like: Stara planina, Vlasina, Pešter, Kopaonik, Zlatibor, Golija etc.,
- Gradual economic integration of these regions through planned development of organic farming,
- Solving existential problems of unemployed, especially young people-encouraging young people to stay in this country,
- Promotion of regional development,
- Improvement of local or regional infrastructure organization,
- Prevention from migrations from rural to urban regions,
- Increase in income in rural regions,
- Improvement of production capacities and organization in rural regions,
- Prevention of further social and cultural degradation, especially in less developed regions,
- Return of the old and development of new ways of cattle breeding and growing crop,
- Initiation of various forms of production in organic farming (bio gardens, organic farms etc.),
- Restoration of deserted farms

There are 35 ideal locations for the production of organic food in Serbia: Fruška gora, Đerdap, Tara, Kopaonik, parts of Šar planina, Prokletije, Kamaraš, Palić, Tikvara, Begečka jama, Vršачke planine, Ponjavica, Golija, Sićevačka klisura, Stara planina, Grmija, Subotička peščara, Zobnatica, Kompleks Panonija, Klisura reke Gradac, Raja, Rogot, Klisura reke Resave, Ovčarsko - kablarska klisura, Sokograd, Ozrenske livade, Park šuma Ivlje, Klisura reke Mileševke, Miruša, Dolina Pčinje, Avala, Kosmaj, Mokra gora, Radan i Vlasina.

Only 10% of mountain regions are in use, although all fulfill basic requirements for sheep and goat breeding like relief; physical, chemical and biological characteristics of land; botanical composition of pastures, irrigation, weather conditions and epidemiological situation. Many grassy areas are not in use, there are many deserted pastures and meadows suitable for fodder production. Sheep and goats are more efficient than cattle in conversion of fodder into final product. Initial investments in breeding are relatively low. Expensive shelters and stables are not necessary. Already existing buildings could

often be used as dry, clean shelters for goats and sheep. Sheep production is not restricted only to meat production, because milk and wool also bring significant part of income. Goat production includes meat and milk.

Table 4 shows that in hilly and mountainous regions there are more sheep than cattle, as well as the number of goats per 100 ha of agricultural land.

According to statistical analyses on the number of cattle and sheep regarding districts, the biggest number of cattle is in the District of Zlatibor (8,8%), Mačva (8,3%) and Kolubara, while regarding the number of sheep the District of Zlatibor is on the top of the list (14%), Šumadija (9,5%) and Mačva (8,7%). The smallest number of head of cattle is in the District of Pirot (1,6%), Bor (1,6%) and Toplica (1,7%), (Table 4).

Table 4. Total number of sheep and cattle and their percentage share in Serbia

District	Cattle – state on the day 1.12.2007.		Sheep – state on the day 1.12.2007.		Cattle per 100 ha of agricultural land area	Sheep per 100 ha of agricultural land area
	Number of head of cattle	%	Number of head of cattle	%		
The Republic of Serbia	1087077	100	1606156	100	22	32
Central Serbia	818528	75.3	1374851	85.6	25	42
Vojvodina	268549	24.7	231305	14.4	15	13
Belgrade	56016	5.1	67092	4.2	26	31
North Bačka	47268	4.3	15841	1.0	30	10
Mid Banat	41101	3.9	47343	3.0	15	17
North Banat	30164	2.8	31134	1.9	15	15
South Banat	34969	3.2	63049	3.9	10	19
West Banat	30686	2.8	9271	0.58	15	5
South Bačka	38318	3.5	34671	2.1	12	11
Srems	46043	4.2	29996	1.9	18	12
Mačva	90089	8.3	139175	8.7	41	63
Kolubara	71130	6.5	151958	9.5	42	89
Podunavlje	28427	2.6	36869	2.3	28	36
Brańičevo	43481	4.0	97620	6.0	18	41
Šumadija	46059	4.2	152888	9.5	28	92
Pomoravlje	32920	3.0	67051	4.2	20	41
Bor	17123	1.6	33487	2.1	10	20
Zaječar	30784	2.8	52956	3.3	15	26
Zlatibor	95381	8.8	225966	14.0	28	66
Moravica	43597	4.0	104934	6.5	24	59
Raška	57359	5.3	64713	4.0	30	34
Rasina	60860	5.6	59094	3.7	39	38
Niš	27907	2.6	30568	1.9	16	18
Toplica	18867	1.7	16073	1.0	16	14
Pirot	17097	1.6	32926	0.2	11	21
Jablanica	48117	4.4	15317	0.9	32	10
Pčinj	33314	3.0	26164	1.6	17	14

Source: The Republic Bureau of Statistics, *Annual Municipal Report for 2008*.

According to analyses of meadows and pastures in relation to the agricultural land area of the district the largest share of meadows is in the District of Raška (30.1%), Zlatibor (29.4%), Bor (28.0%) and Moravica (27.6%). The highest percentage of pastures is in the District of Pirot (45.5%), Pčinj (40.4%) and Raška (40.0%).

Regarding meadows and pastures only at family households, most meadows are in the District of Raška (29.4%), Zlatibor (28.2%) and Moravica (26.4%); most pastures are in the District of Raška (27.5%), Zlatibor (25.5%) and Moravica and Pčinj (18.3%), (Table 5.).

Table 5. Structure of agricultural land areas in districts in the Republic of Serbia

Districts	Agricultural land areas	% Household share in total agricultural land area	% Meadow share in agricultural land areas economic org. and family households	% Pasture share in agricultural land areas economic org. and family households	% Meadow share in agricultural land areas family households	% Pasture share in agricultural land areas family households
Republic of Serbia	5096646	49.5	12.3	16.3	11.0	8.9
Central Serbia	3315890	54.6	17.6	22.1	16.2	1.3
AP Vojvodina	1780756	39.9	2.3	5.7	1.2	1.8
Begrade	218064		5.9	4.2	5.4	2.4
North Bačka	160271	46.4	0.6	1.4	0.5	0.5
Middle Banat	283800	26.0	4.0	11.2	2.8	4.4
North Banat	207917	29.5	2.7	8.6	1.8	3.3
South Banat	342019	31.2	2.7	6.6	0.6	0.7
West Bačka	204210	36.5	2.4	3.0	1.2	0.7
South Bačka	325914	63.8	1.7	3.6	0.6	0.7
Srem	256625	43.3	1.2	3.3	0.9	2.0
Mačva	219907	47.8	3.9	8.3	3.9	7.1
Kolubara	170517	37.1	14.4	14.5	3.5	13.4
Podunavlje	102276	64.0	4.1	1.5	3.4	1.3
Braničevo	240225	26.3	15.2	11.4	14.3	9.2
Šumadija	165618	59.5	11.2	8.7	11.0	8.5
Pomoravlje	163679	45.4	10.8	9.5	9.6	5.9
Boi	169107	30.2	28.0	22.1	23.0	10.7
Zaječar	206391	22.8	22.7	24.2	16.7	12.2
Zlatibor	340640	29.0	29.4	43.4	28.2	25.5
Moravica	178732	41.6	27.6	22.5	26.4	18.3
Raška	191321	44.5	30.1	40.0	29.4	27.5
Rasina	164482	48.5	12.6	18.2	11.9	7.9
Niš	173310	73.8	9.1	20.5	7.5	7.4
Toplica	116772	29.0	21.5	24.5	21.1	12.8
Pirot	153328	25.2	21.7	45.5	19.3	16.2
Jablanica	149253	49.1	21.9	18.5	20.4	10.0
Pčinj	192268	33.4	16.7	40.4	16.5	18.3

Source: The Republic Bureau of Statistics, Annual Municipal Report for 2008.

Summarizing the data it could be concluded that land areas which have significant natural resources and where cattle breeding has already been developed should represent starting point of total agricultural production in our country in future. Increase in the number of head of cattle, rise in productivity, accomplishment of significant production range, as well as higher level of product finalization would result in increase in economic potential of cattle breeding. It is necessary, however, to aim future development in a right way. Experience of other, developed countries is, in that sense, of great use.

Regions which have sufficient quantities of raw material must be aimed toward further finalization of products, especially if we talk about high quality products, which are demanded and with protected geographical origin like numerous dairies (cheese from Sjenica, cheese from Zlatibor, kachkaval (hard cheese) from Pirot, kajmak from Kraljevo etc.). Raw material procession in organic farming would result in complex benefit. For this kind of production it is necessary to engage additional labor. However, through realization of these products on the market, a producer would gain bigger profit because the price of these products is higher for 30 to 40%. Almost 90% of organic products from Serbia have been exported to the markets in EU countries.

It is interesting that in Serbia about 1000 villages are engaged with rural tourism exactly in hilly and mountainous regions. One of the ways of organizing the production of safe and healthy food is organic household (eco farm) which can be used for recreation and tourism.

Based on presented data it is evident that, considering the potential we have, development of organic agriculture could be a new quality in the life of local communities and our country on the whole.

Development of organic farming in Serbia

Organic agricultural production in our country is still in a phase of development. Considering the potential in natural resources that our country offers, this kind of production is not only one step forward from the standpoint of rural development, environmental protection and health improvement, but from the standpoint of economic prosperity as well.

Development of organic farming as well as other forms of sustainable agriculture depends on knowledge, awareness of the need to preserve natural resources and environment, but also on economic factors, market as well as on organic farming and environmental protection stimulus measures.

In July 2009, National Action Plan for the development of organic farming was done, by which activities for the development of organic farming in the Republic of Serbia for the period from 2010 to 2015 were defined. The Law had an aim: making the product with certified production, sustainable social

and economic rural development, consumer protection, labelling in order to distinctively point to the ways and methods of organic production, protection of natural resources from pollution, long term maintenance and rise in land fertility, biodiversity conservation.

The new law introduces some novelties, especially related to certification. It confirms certification by special organizations. The Ministry of Agriculture gives an authority for performing that job, keeps a register of organic farming, inspects certification bodies and proposes measures for the development of organic agriculture. It is required by our Organic Farming Regulations that certified organic product must be labelled as “organic product” with a code of authorized organization and national label. What will the labels and national signs look like is issued by the minister.

It happened very often that beside organizations authorized for certification and recertification, there were some organizations that weren't authorized to issue certifications by the Ministry. From that reason, the Ministry of Agriculture, Forestry and Waterpower Engineering is not able to have insight into the data about land areas engaged in organic farming.

During this year, eight certification organizations were authorized by the Ministry of Agriculture, Forestry and Waterpower Engineering: SGS Belgrade, “Evrocet” Belgrade, “Organic Contol System” Subotica, “Bioagricerta” Belgrade, “Jugoinspekt” Belgrade, “Pancert” Novi Sad, “Ekocert Balkan” Belgrade, “Suolo Salute Balkan” Belgrade.

According to the data of Economic Council of Serbia, there are 80 organic food producers registered in Serbia. Some of them are: “Zdravo organic” Selenča, “Foodland”, “Royal Eco Food”, “Sirogojno Company”, “Zadrugar”, “Radoslovi” Niš, “Mondi”, ITM, Andrija Vozar, Josip Mamuzović, “Hemel”, “Midi organic”, “Biofarma”, “Agrounik”, BMD, “Suncokret”, “Biosil”.

12 companies organic have got certificates for now, while there are 20 processing companies that have “organic certificate” for the procession of food like: frozen fruit, juice, jam, fruit filling, mushrooms and vegetable oil. Serbian companies that produce food have an important position among export-companies because it is the only branch that realizes foreign-trade surplus regarding international trade management.

Municipality of Svilajnac is initiation project bearer of a project “Initiative for organic farming development and application of ISO/DIS 22.000 standard in the region of Šumadija and Pomoravlje” (seven municipalities in partnership - Svilajnac, Lapovo, BAtočina, Despotovac; Velika Plana, Rača and Jagodina) and the project is 66.785 euros worth. The program was made in cooperation with Belgrade University taking Slovenian and Dutch program as a model. It has been started with its implementation since 2007.

The Ministry of Agriculture, Forestry and Waterpower Engineering passed the Resolution according to which Svilajnac became national centre for organization of organic food production related to cattle breeding. The centre started to work in 2010. The centre is not engaged in production, but in project making, organization and farmer education. Projects, for this type of production and for several sub centers which are planned to be opened on the territory of Serbia, have been done in Svilajnac.

Svilajnac, which for more than half a century has School of Agriculture and Veterinary Medicine and since 2010, there is also the Faculty of Agriculture and biologically healthy food, has also an international reputation regarding this field of production and is a member of European associations of Simmental cattle breeders. Similar centers also have Valjevo and Pirot, and new institution in Svilajnac is supported by the American Non Governmental Organization ACD and VOCA through equipment and software supply. Nowadays there are four centers of that kind in the country: in Selenča, Svilajnac, Leskovac and Valjevo.

Basic aim of organic farming is self sustainability. It is very important to have balanced relation between plant and livestock production that will produce enough food for domestic animals and to provide organic fertilizers from cattle breeding. In average, for 1 ha of plant production 1-2 conditional large heads of cattle (it depends on the type and intensity of production).

The Book of Regulations on Organic Cattle Breeding defines all segments. Breeding conditions that will enable natural functions and behavior demonstration must be enabled for domestic animals because domestic animals represent a part of agro ecological system. In average, about 90 % of animal food domestic animals don't use for their functions and products, but return it in the shape of liquid and solid substances - organic fertilizers that are necessary for land sustainability. Within organic farming, appropriate breeding conditions must be enabled for domestic animals, keeping in mind the welfare and health of animals.

In order to start with organic livestock production it is necessary to supply food for animals on pastures or other land area on which fodder is being produced. The food could be provided from other households if they were controlled by certification organization. Inclusion of livestock production into organic production could be started one year at least from the day when land lots were included into organic farming in other words when organic food for cattle from the above mentioned lots had been enabled. Collecting wild plant and animal species at natural residence is considered to be a method in organic farming if residence has not been treated with other measures three years before collecting (except for those measures that are approved by law) and if collecting doesn't affect environmental stability or maintenance of species diversity in the area of collecting.

Organic methods in cattle breeding include conditions and ways of keeping animals, type and quality of objects for keeping animals, the freedom of movement of animals and optimal density. Food for animals must be organic and there is also a list of approved animal food. Regarding health care, special attention was paid to prevention, which includes or hygiene measures.

According to the data of producers dealing with organic farming, only 6 producers were recorded who are engaged in livestock production. One of them is engaged in horse breeding, pig breeding and young bulls breeding; two of them in beekeeping; one is breeding egg-laying hens, which means that he is engaged in organic production of eggs; one is breeding heads of cattle and one more calves and young cows. All six producers are from different parts of Serbia, one is from Vojvodina (municipality of Alibunar), one is from Belgrade, three of them are south east part of the country (Svrljig, Pirot, Dimitrovgrad) and one from Užice. Only two, among all producers, are also engaged in organic plant production (one only grain, and the other grains, fruit and vegetables). In the region of Zlatibor only one bee keeper was registered and in the region of Raška there are no producers engaged in organic livestock production which clearly points out that organic livestock production has been neglected exactly in the regions which are extremely suitable for it.

Considering livestock production, unfortunately breed composition of cattle is not the kind which could enable high livestock production. This is the case with all domestic animal species, except for poultry rising. High dairy or fattened cattle breeds must be kept in appropriate conditions in order to reach production capacities. However, Serbian farmers are not still capable to fulfill requirements which would result in appearance of production characteristics of high productive animal species.

It is an assumption that the basic reason is insufficient information about important aspects of this production. There are only partial data about associations of producers of these products. Data about Association for organic food Terra's from Subotica are available. The Association for organic food Terra's which was founded in 1990, and Non Governmental Organization Union of Ecological Co-operative "Eko plus" with its main office in Kragujevac, aiming to contribute organic production improvement. Thanks to them, peasants, which joined these organizations through land cultivation and growing agricultural species, now apply standards of Canadian Organization Organic Food OCPP - Procert Canada with which the Union "Eko plus" works in close collaboration.

In 2009, National Association for Organic Production Development "Serbiya Organika" was founded aiming to "gather all producers of the so-called organic food and all associations related to that field, all in order to support organic production development and increase in land area with organic certification."

The Ministry of Agriculture gave 10 million dollars subventions to organic food producers and the budget for subventions in organic production has been planned to be twice higher in this year.

In 2010 a new law on this production was adopted and it was started with its application in January, 1st 2011. The producers engaged in organic production can count on significantly higher budget stimulus.

Three models of support were planned: direct payment per hectare of arable land area, direct payment per head of cattle bred applying organic production methods and covering part of certification costs for certification of products produced applying organic production methods.

Certification terms and amount were defined by Regulation, and last year, subventions for organic productions were double in relation to conventional production. Subventions per hectare were 25.000 dinars for husbandry, 35.000 dinars for truck farming and 45.000 dinars for wine growing. Subventions per head of cattle were 15.000 dinars for large cattle, 5.000 dinars for small cattle, 500 dinars per poultry and 2.000 per beehive. Total land area under organic production was 2.876 hectares in 2009, and certification was done on 488 ha, while 2.388 ha were in the period of conversion. Fruit was grown on largest areas, mostly raspberry which has been exported not only to the EU market, but to Japan, SAD and other countries also and apple was grown on certain land areas, as well as plum and blackberry. Also, the production of vegetable was present (carrots, cabbage, tomato, pepper), as well as specific vegetable species. Almost 90% of organic products from Serbia were planned to be exported to EU market, to SAD and Japan. Serbian companies that produce food have an important position among exporting companies because it is the only branch that has surplus regarding international foreign trade.

The most successful country in Europe regarding export of organic products is Hungary, which exports about 80% of products, exactly owing to government stimulus measures. Hungarian government gives 30% of its budget for organic production development. Market is unstable, especially because it is very hard to ensure continuity of delivery and that's one of basic terms for distribution channels to be more engaged in this production. From that viewpoint, livestock organic production has an advantage keeping in mind that it has no seasonal character which is the case in plant organic production. Insufficiency of information about possibilities and advantages, as well as about technology and production process, represents limiting factor in an effort to make faster and higher improvement within this field. Educational activities are crucial for these kinds of problems.

Methods of organic agriculture enable environmental improvement, in other words ecosystem preservation, improvement and preservation of water quality, soil improvement and fertility preservation. Producers could realize high pro-

fits and produce organic products through the application of organic production methods, through the application of natural processes in plant and livestock production, by land parcels isolation, isolation of breeding farms and process plants; by controlling quality of water used for irrigation; by engaging experts who apply their knowledge and follow scientific discoveries and innovations.

There hasn't been much state support recently because of financial situation. Probably that will change in future, but it is very important that Ministries have interest in this type of production.

Serbia could be recognizable for its organic products almost in all agricultural production. Soil is relatively unpolluted or not so polluted that could seriously harm the production, what is necessary is good organization and to unite forces in succeeding on world and European market. The fact that it has been heard about our organic products throughout the world a lot also contributes to organic production development.

Organic agriculture is one of most economical branches in world economy at the moment. Increase in organic production would bring to Serbia:

- Optimum use of agricultural resources
- Higher economic growth rate
- Increase in export
- Increase in local agricultural production
- Improvement in living standard in rural areas
- Village development
- Rural population growth and its preservation

Conclusion

There are extremely abundant and unused resources in hilly and mountainous areas in Serbia. Development of organic agriculture in that region should contribute to optimum use of natural resources, increase in local production and general improvement in the status of population. Development of this type of production should cause an increase in local investments and encourage population to stay in less developed regions. On long terms, organic agriculture could contribute to reducing the differences between rich and poor regions, as well as to stability of production. That would result in foreign investments and increase in organic food export. Consumer awareness of the need for organic food use would also be increased, as well as improvement of food safety.

A conclusion results from all above mentioned that modern markets have been recording continuous increase in production and consumption of healthy, organic products.

In that context, appropriate measures have been taken in Serbia and for the first time Serbia doesn't fall behind the world.

- There are natural conditions for organic farming in Serbia.
- There are 610.000 ha (of 4,2 million ha of total land area) available to be aimed toward organic food production in a short period.
- Nowadays, organic food has been produced on 15000 ha which is just 0,3% of available land area.
- Appropriate enlargement of state system requirements and establishment of triangular partnership (producer-trade-state) could result in large export and income in foreign currency.
- Prices of organic products are higher for 30-40% on domestic and world market in relation to prices of conventional products.
- There is available potential in personnel for that production.
- There is also available potential in domestic planting material.

The richest countries in the world are those that completely made use of their hilly and mountainous regions. There are not so many countries in Europe that, like Serbia, possess hilly and mountainous regions with such a potential. This work points to the fact that this present situation in Serbia could be changed.

It is necessary to work constantly on connecting producers, specialized institutes and science. Also, in promotion activities, educate and inform market and consumers about the worth of organic food regarding health, preservation and revitalization of the environment.

Finally, there are natural resources, cattle stock and personnel for that type of production, it is just necessary to define development strategy for this type of economic activity.

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