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POSSIBILITY FOR DEVELOPMENT OF ORGANIC LIVESTOCK BREEDING IN AREA OF GOLIJIA MOUNTAIN¹

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Abstract

Given to the structure and characteristics of the terrain, which is reflected in the large areas of grassland and grassy meadows, the area within the park of nature „Golija“, there are excellent conditions for development of agriculture and livestock breeding, and therefore the production of milk and milk products. Organic livestock enables sustainable development of human communities in the regions covered with the modes of protection of natural resources, while providing the proper exploitation of existing agricultural areas and preventing further degradation of natural meadows and pastures. The subventions granted by the state for organic production, caused the appearance of the first manufacturers who choose to switch to this type of agricultural production.

The aim of this paper is to indicate the possibility and prospects of its development in Golija based on the current situation in livestock breeding, as well as the possibilities and prospects of development of organic production due to the preservation of nature and environmental aspects that exist.

Key words: *livestock breeding, milk, organic production, possibility*

Introduction

In all branches of livestock breeding there is a significant potential for the development of organic livestock production, especially in the hilly and mountainous terrains, such as the site of Golija mountain. Thanks to the depopulation trend,

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agricultural activities have been partially neglected in this area, so that an intensive development of production has not been accomplished. The prevailing racial structure and traditional cattle keeping in the hilly-mountainous regions in cattle breeding and sheep raising, as well as the preserved traditional production of autochthonous sorts of dairies (cheese and a special kind of cream called „kajmak“) in the households, serve in favour of the development of organic livestock production.

Also, the presence of large areas of meadows and pastures which are not used in these regions due to the multi-decade decreasing of the head of cattle, represents a great potential. These regions have often, precisely because of underdevelopment, evaded chemization and pollution which accompany the development, so that these natural communities are preserved. Highly expressed resistance of autochthonous species enables their breeding without significant investments into the medical care and treatment, so, in that way, animal products of special quality for human nourishment are produced, which do not contain residues of different antibiotics and plant health products.

In recent years there has been a significant increase in the interest for the organic agriculture, as a reaction to the highly-expressed ecological degradation, deterioration of food quality, as well as the growing endangering of the health of human race. Consumers buy this kind of food mainly because of health reasons or because this food has better taste. Constant growth of the demand for the organic products throughout the world points to the fact that this production method can be highly profitable if natural resources, knowledge and production experience are used in the right way.

Cattle breeding conditions on Golija mountain

Based on the „Spatial plan“ (Official Gazette of the Republic of Serbia, no.16, from Mrch, 6, 2009.) Golija mountain has been labelled as Natural Park – a region of special purpose, with the total area of 93866 ha (938,66 km²). The mentioned area of Golija mountain is situated within the borders of three administrative districts (Moravicki, Raski and Zlatiborski), within which the important administrative centers are the following towns: Novi Pazar and Kraljevo, municipalities: Ivanjica, Sjenica and Raska.

According to the cattle fund during the period from 1991-2002. there has been a decrease on the level of municipalities of Golija: the number of cattle was from 25.6 % (the least) to 44.0% (the most), the number of sheep was 32.0% to 55.0 %. (Literatura 4.) This continuous decrease in the cattle fund, as well as the less number of active „bačičta“ is connected with the highly expressed trend of village and farming desertion, and with the fact that the ones who stay at the country and cultivate the land are mostly elderly people. There exist a small number of registered „Bacista“ on Ivanjica side. Besides, there are two registered farms: „The Golija river“ for sheep breeding and „Preko Brdo“ for summer grazing. On the side belonging to the Raska municipality, there is also a small number of private mini-farms. A well-equipped „ecological“ farm occupies an area of 220 ha in the settlement called Vrujici/ Duga Poljana, which belongs to the municipality of Sjenica. (Spatial Plan Golija, 2009). Private households deal with

cattle breeding for their private needs. The purchase of milk is rarely organized on a large scale and is still on the level of local shops or agricultural pharmacies. (data gained by a personal contact with a researcher from „ecological“farm).

According to the available statistical and literary data regarding the peculiarities of cattle breeding on Golija mountain, apart from the given common parameters, the state of these areas and perspectives for development in relation to the certain municipalities and towns which are, actually, as administrative centers, the skeleton for further development, should be considered.

The total number of agricultural areas on the territory of **Raska** municipality is 33,284 ha. Among that, 24,457 ha are meadows and pastures and 6,440 ha is cultivated land. The total number of rural households is 5,967, among which 4,462 households are dealing with agriculture. Cattle breeding is the most common agricultural branch which is distinguished by a very good breed structure, among which the dominant race is Simmental and Domestic Mottled Beef. The total head of cattle in 2007. was 5,698, among which the number of cows and breeding heifers was 4,527. It is interesting that the number of head cattle is smaller in regard to the area units, and it amounts to 37 per 100 ha of agricultural area.

According to the statistical data, the number of cattle decreased in 2007. for 10.8%, and the number of sheep for 1.4% in relation to 2006. The most common sheep breeds are: Sjenicka, Virtemberg and mixed breeds. The total number of sheep is 10,619, averagely 32 sheep per 100 ha of agricultural area. (Tabele 1.) In recent years, there has been the more and more households dealing with the breeding of Alps goats, which are characterized by high fertility and milkiness.

Table 1. The number of cattle of sheep in the researched municipalities and towns and calculated indexes for 2007 / 06.

Municipalities	Number of cattle Situation from 01.12.2007..		Index 2007/2006 %		Number of sheep Situation from 01.12.2007.		Index 2007/2006 %	
	Total	Cows, Breeding heifers	Total	Cows, Breeding heifers	Total	Breeding sheep	Total	Breeding sheep
Sjenica	20.218	14.061	102.9	108.2	18.946	13.212	106.2	105.0
Ivanjica	11.420	6.625	89.8	92.5	24.319	19.149	105.5	106.2
Kraljevo	25.078	18.183	88.2	96.5	22.265	17.904	98.5	103.5
Novi Pazar	10.377	7.528	89.2	96.4	8.114	5.016	98.6	103.5
Raška	5.698	4.527	89.2	94.4	10.619	8.395	98.6	105.3

The source: Serbian Bureau of Statistics- Municipalities in Serbia 2009.

From the total area of the municipality of **Kraljevo** (1529.5 km² or 150.950 ha), agricultural areas occupy 724.98 ha. Among that, plough-fields occupy 31.7% (23,000 ha), pastures 33.15 % (24,000 ha), meadows 24.8 % (18,000 ha). The allotment of pastures and meadows comes to 57.9% of the total area of agricultural land. This

datum points to the orientation of agricultural production towards the development of livestockbreeding and feedstuff production.

According to the statistical data, the number of the heads of cattle decreased in 2007. In relation to 2006. For 3, 346 heads, or for about 11.8%, while in sheep raising we have a decrease of 337 sheep or 1.5% (Table 1.). In the region of sheep raising, fattening bullocks, milk production and sheep breeding are dominant.

The existing level of agriculture does not satisfy the potential which is offered by the natural conveniences on the municipal territory. There are several reasons for that: first of all, small,pulverized agricultural holdings which do not offer the possibilities for the higher production volume are prevailing; machinery is quite old-fashioned,depopulation of villages and ageing of agricultural population, reduced implementation of agricultural practices, non-existence of industrial capacity for the processing of agricultural raw materials, there is also a problem of the breach of the requested standards of quality in the process of agricultural production as well as weak linkage and organization in the market approach of individual agricultural manufacturers.

On the region of Golija, the town of **Novi Pazar** has five cadastral districts. Considering the fact that this is mostly mountaneous area, of the total agricultural acreage there are mostly natural grasslands (70.85 %), among which 29.55% or 11,717 ha consists of meadows and 41.3% or 14,981 ha consists of pastures Total agricultural area of 84% is private property, while the share of public property of pastures amounts to 37%.

The area of the municipality of Novi Pazar is traditionally oriented towards agricultural production, especially cattlebreeding. At the beginning of 2007. the number of agricultural holdings was 2,148. Out of the total number of registered inhabitants (85.996 (2002.)), agricultural population consists of 10%, and, out of this number, individual farmers occupy 58%.

What worries the most is the fact that the head of cattle decreases, especially in sheep raising. The number of sheep which was 13,519 in 1999 decreased for 5,405 heads of sheep at the end of the observed period in 2007 and it amounted 8,114 heads, which is about 40% less. Among that, 57 % was sheep for breeding (this share was 86 % in 1999). The number of heads of cattle decreased in 2007. For 10.8% and the number of sheep for 1.4 % regarding the observed 2006. (Table 1.). The majority of heads is bred on pulverized goods and for the personal needs of manufacturer so that an institutional support (the improvement of genetic composition, security investments, the development of adequate and accredited processing capacity, the trainig of manufacturers) is necessary, whether it comes from the state, local authorities or international donor programs.

In the municipality of Novi Pazar, the existing capacities for milk production do not satisfy the needs of the locals. The specific is that there exists a dairy (Simlek-Dezeva) which is specialized for the production of different types of high-quality cheese (cheese with holes in it, hard caciocavalo); also, it has all the technical conditions and certificates for the export of its products. The capacity of this dairy is 5000 litres daily, although the daily purchase and production is significantly less and is about 700 litres. (literature 7)

Cattle production is a dominant branch of agriculture in **Ivanjica**, since Ivanjica a municipality that belongs to the area of Golija. The biggest share in total cultivated land (33,284 ha which represent 47,1% of total municipal land) have natural lawns–about 64,3%, of which 36,7% (18,899 ha) are meadows and 27,5% (14,111 ha) are

pastures. Recently, development of organic agriculture is noticeable, especially in the area of Natural park Golija. 15 KO of this municipality belongs to the area of Golija.

Although the area of Ivanjica has favorable conditions for the development of cattle breeding (large lawns), statistical data point at the fact that the number of cattle continues to decline, and in 2007. there was 10,2% reduced number of cattle in relation to 2006., but the number of sheep was 5,5% increased. Table 1. It could be concluded that during the several past years, breeding composition of cattle was changed. Individual farms mostly deal with combined type of production – milk/meat and domestic colourful type of cattle in simmental type was mostly raised.

According to the data of the Republic Bureau of Statistics of Serbia, on the territory of municipality **Sjenica** there was 21.285 heads of cattle in 2004. (cows and heifer 14.994), 17.513 sheep. Sheep raising is a leading branch of cattle breeding in Sjeičko-peštarska visoravan. The number of sheep was reduced for 42.488 in the last 2 decades of 20 century. Well known domestic sheep Sjenica „pramenka“, which gives 60l of milk per year, is being raised on Pešter.

According to the statistical data and calculation of base index for 2007. there was a 5 % reduction in relation to 2004, and in relation to 2006. there was 2,9% increase in the number of head of cattle. An increase in the number of sheep in 2007. in relation to 2004. was 5,3%, and in relation to 2006. it was 6,2% (tab. 1.). Calculation shows that the number of head of cattle and the number of sheep continues to increase, which points to an increase of the production of cattle products.

Constant improvement of the production of milk, not only the improvement of its quantity, but quality as well, must be one of the most important aims when we discuss about the development of cattle raising in this area. This is extremely important if we have in mind that the largest number of household use milk for the production of cheese, while only small quantities are delivered to dairies. Based on the data about cattle fund, the production of milk and dairy products continued to increase or reduce depending on the number of head of cattle and sheep.

Table 2. Calculation of sale and ransom of milk in 2008. in relation to 2007.

Municipalities	sale and purchase of milk in thousands of liters for 2006	sale and purchase of milk in thousands of liters for 2007	Index 2007/2006 (%)	sale and purchase of milk in thousands of liters for 2008	Index 2008/2007 (%)
Sjenica	4.913	6.847	139.3	6.631	96.8
Ivanjica	428	580	135.5	415	71.6
Kraljevo	22.050	14.257	64.65	15.151	106.3
Novi Pazar	4.154	4.851	116.8	4.686	96.6
Raška	1.071	1.250	116.7	1.425	114

Source : Personal calculation in relation to statistic data from „ Municipalities in Serbia 2007-2009“, The Republic Bureau of Statistics, Belgrade

On the slopes of Golija mountain is situated the town called Kraljevo, which is said to have the largest quantities of purchased milk in relation to the other researched towns and municipalities, which can be concluded from the indexes from Tabele 2.

According to the statistical data and calculation of base index in relation to the previous year 2006, in 2007. sale and ransom of milk on the territory of Kraljevo municipality was 35,4 % reduced, because the number of head of cattle was reduced too, for 11,8% and 1,5% for sheep.

Sale and ransome of milk was increased in 2007. in relation to 2006. in municipalities Sjenica (39,3%), Ivanjica (35,5%), Novi Pazar (16,8%) and Raška (16,7%), since there was an increase in the number of head of cattle and sheep on this area that belongs to Golija (tab. 1).

However, analyses of table 2. could points to the fact that the sale and purchase of milk in 2008 in municipalities Kraljevo 6,3% and Raska 14% inncreased, also there was evident an increased production of milk, while there was a decrease in municipalities Sjenica 3,2%, Ivanjica 28,4%, and Novi Pazar 3,4%, we could also recoqnize decrease of sale and ransome, compared to the 2007.

The basic aim of cattle production in hilly and mountainous area, where this region belongs is intensification of the production of milk and cheeses. Beside genetic material, which are being expressed through specific breed characteristics, the production of milk is influenced by environmental factors and the most important are food and lodging. Food is based on using food sold in bulk got from meadows and pastures.

According to the statistical data whih present area of meadows and pastures which is shown in table 3., as well as hay from meadows and pastures, Table 3., this region has significant possibilities for the production of quality fodder, which represents oneof the most important conditions for an intensive production of cow's and milk's milk, in othe rwords it represents a way to improve cattle raising in this area.

Table:3. The use of agricultural land of meadows and pastures and the yield of hay meadows and pastures, 2008

City, Municipality	meadows			pastures		
	meadows (ha)	yield		pastures (ha)	yield	
		Total, t	Per ha, kg		Total, t	Per ha, kg
Sjenica	26015	48830	1873	46587	32884	706
Ivanjica	19833	39626	1953	15319	2660	200
Kraljevo	19627	67453	2989	24014	22152	922
Novi Pazar	11744	23028	1857	14327	7897	551
Raška	8715	14891	1533	15742	9288	590

Source: Municipalities in Serbia 2009, RSZ, Belgrade

Area of mountain Golija has large number of lawns, which enable movement and natural way of nourishment for other animals on pasture. These conditions posiively influence for w3ell-being of dairy cow's, their productivity and good health,

which represents potential for the improvement of the production of milk and dairy products in these area. This production has long lasting tradition but because of present conditions it doesn't have organized character.

Perspective for the development of organic food

On the mountain Golija there are good conditions for the development of cattle production regarding preserved nature and pastures. Based on shown data about the region that belongs to Golija, it could be said that on that area there is a possibility for perspective of organic cattle raising, and at the same time the production of meat, milk and dairy, which are each day more and more looked for in our country and countries of EU.

The biggest part of natural meadows and pastures is placed in hilly and mountainous regions, where because of population trend agricultural activity partly died, so that intensive production was not realized. Ideal conditions for organic cattle raising are placed on localities which are less developed and where there is no economic base for big and fast development projects. Animals on this territory could be raised traditionally in a free system of keeping animals, and their food is based on the existent plant resources and doesn't ask for intensification of plant production. In that sense, raising of autochthonous breed, solid constitution contributes to preservice of biodiversity and enables respect of animal living association integrity in the regions that are under protection considering natural or/and cultural property.

According to the area plan of Natural park Golija, reconstruction is planned and the protection of those active bačičta on the territory of Area plan (as well as activation of deserted, on new program bases) which are significant for protection of cultural area where the production of milk will be performed. On the territory of Golija, starting with the production of healthy food is predicted, and first of all, the production of milk, dairy products and meat and creation of products with local protected marks.

Conclusion

Based on shown data about the region that belongs to Golija, it could be said that on that area there is a possibility for perspective of organic cattle raising, and at the same time the production of meat, milk and dairy, which are each day more and more looked for in our country and countries of EU.

Structure of agriculture production this region should be adapted to the needs of tourism demand with the following recommendations: production of food with high health value, development of the net of ransom dairy stations, program of standardization of cheese production technology on the whole territory, as well as a complete marketing for dairy products. It is necessary to improve placement of local agriculture products of high quality. That way secure market would be enabled, and producers will have guaranteed income.

Organic agriculture contribute to the optimal use of natural resources, to increasing the production (on the level of local communities), and especially total improvement of population status in rural area.

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