

Possibilities to Increase Autochthonous Dairy Production in the Municipality of Štrpce, Serbia¹

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Abstract

Security situation in Kosovo and Metohija and traffic circumstances - in other words - distance between the municipality of Štrpce and bigger consumer centres in Serbia and other factors restrict milk procession in the existing dairy plant and on agricultural husbandries mostly to durable white cheese and cheese brine. The procession of milk into cheese and dairy products with short term durability is significantly less performed, because of the above mentioned reasons.

Within this paper we presented the available natural resources and human potential and we analysed both the development in the number of heads of cattle and the quantity of autochthonous dairy products during the period between 1998 and 2008. Based on the data and analysis, we have drawn the conclusion that the increase in the production of autochthonous dairy products in the municipality of Štrpce would contribute to the agricultural development on the whole and to better employment of the local population. The performed analyses were based on modest financial resources, but also on the efficient participation of Serbian institutions, with significant expert and scientific support.

Key words: *natural resources, analysis of the development in the number of heads of cattle, dairy products, support of the developmental perspective*

JEL Classification: *O13, O18, D13, E23*

Introduction

The municipality is situated on the north slope of Šara mountain massif, where mountainous regions that reach the height up to 2500 m above sea level are predominant, and where the river valley of the river Lepenica with its river basin represents the middle part of the region. The total area of the municipality of Štrpce amounts to 26.762 ha, where agricultural land covers 55% of the municipal area (13651 ha) with the population of about 12000 inhabitants. Pastures cover 38,8 % and meadows 25 % of the total agricultural land and are dominant in the structure of the agricultural land. Land under cultivation that belongs to a class of land of lower quality covers 18 % of the total agricultural land while orchard area is irrelevant. Formation of agricultural land with crop farming and cattle breeding characteristics was influenced exactly by this kind of terrain

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configuration and land structure with the characteristics of the Alps mountain range. Agricultural area suitable for the development of cattle breeding is placed on surrounding mountain massifs' slopes and hillsides. An adequate development of complementary branches of agricultural science, along with tourist complex development project would also support the future development of the municipality. Priority should be given to autochthonous dairy products (Šara cheese, Šara hard cheese, Šara white cheese and cheese for making special type of pie made from thin layers of dough and filling).

Protection of autochthonous cheese is extremely important, because ethnographic wealth of a country remains thus protected, and at the same time it popularises the gastronomic ability and increases the tourism offer and enables its placement on the domestic and foreign market. Hence, autochthonous cheese production becomes a more and more important means of gaining profit in rural households.

Authenticity of autochthonous cheese, according to which the same types of cheese but made in different regions differ, depends, among other things, on the autochthonous micro organisms, which are heterogeneous types of lactic acid bacteria. Domination of a certain type depends on the type and origin of milk.

Available Resources

Wide, pure and high-quality natural pastures and meadows, in other words abundance of healthy and high-quality cattle fodder is a restorable natural resource reproduced by itself. Natural resources also include climatic conditions, such as solar energy, wind and gravitation.

At first, the increase in the number of inhabitants with permanent place of residence in Štrpce led to the insufficiency of natural resources of food, considering the present production capacity, but on the other side it significantly improved human resources, in other words expert and personnel potential was increased.

According to natural resources and human potential analysis, agriculture in municipality of Štrpce should be based on cattle breeding and within it on the production of milk and dairy products.

Table 1 and Figure 1 represent the data on the development of the number of heads of cattle during the period between 1998 and 2008. Table 1 also shows base index and chain index extract values.

Table 1. Development of the number of heads of cattle during the period between 1998 and 2008

Years	Unit state of cattle	Base index	Chain index	Unit state of sheep	Base index	Chain index	Unit state of goats	Base index	Chain index
1998	3,985			6,920			680		
1999	3,840	96.36	96.36	6,450	93.21	93.21	720	105.88	105.88
2000	3,220	80.80	83.85	5,620	81.21	87.13	650	95.59	90.28
2001	3,771	94.63	117.11	6,708	96.94	119.36	700	102.94	107.69
2002	3,795	95.23	100.64	6,800	98.27	101.37	680	100.00	97.14
2003	3,795	95.23	100.00	6,890	99.57	101.32	740	108.82	108.82
2004	4,025	100.00	106.06	7,000	101.16	101.60	720	105.88	97.30
2005	4,225	106.02	104.97	7,020	101.45	100.29	740	108.82	102.78
2006	4,225	106.02	100.00	7,020	101.45	100.00	730	107.35	98.65
2007	4,250	106.65	100.59	7,500	108.38	106.84	700	102.94	95.89
2008	4,335	108.78	102.00	7,650	110.55	102.00	750	110.29	107.14
Average	3,951			6,871			710		

Source: author's calculation of base index and chain index based on the data of Mini dairy "Lahor-Šara", Štrpce, 2008.

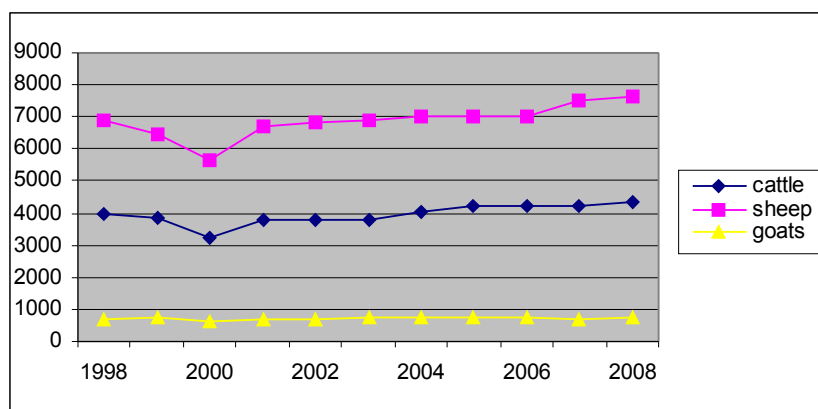


Fig. 1. Comparative analysis of the number of heads of cattle during the period between 1998 and 2008

According to the calculation of base indices the largest increase in the number of heads of cattle was recorded in 2008 and it amounted to 8.8%. Chain indices show that the largest increase was recorded in 2001 and it amounted to 17%, then in 2004 and 2005 it amounted to around 5% and in 2008 to 2%.

The greatest increase in the number of sheep in relation to the base year was recorded in 2007 and it amounted to 8.4% and in 2008 when it amounted to 10.5%. According to the chain index extract the largest increase in the number of sheep was recorded in 2001 and it amounted to 19.4%, and afterwards from 2002 to 2006 it amounted to 1.5%, in 2007 it amounted to 6.8% and in 2008 it amounted to 2%.

Extraction of base and chain index for goats also showed some increase, which reached the highest point in 2008, when it amounted to 10.3% regarding base indices and somewhat more than 7%, regarding chain indices.

The above mentioned potential shows justification for the existence of the production line for organized purchase and processing of milk and dairy products. However, mini dairy "Lahor-Šara" in Štrpce with the capacity up to 500l of daily production, which has been working successfully during the past years, unfortunately does not satisfy the present need and real demand.

The Production of Milk and Dairy Products

The production of milk in Serbia is still on unenviable level; during the last six years it has not been significantly changed, more exactly the quantity of the produced milk was increased by 0.32 % in 2007 as compared to 2000, therefore certain measures should be taken to stimulate its growth and development.

Serbia's share in the world milk production amounts to 0.31 %, its share in European milk production amounts to 0.90 % and it modestly ranks 22 in Europe, with the production that is higher than the production of milk in Lithuania, and lower than the production of milk in Portugal. Milk producers in Serbia are family households that produce 92 % of the total production, while in agro-industrial plants significantly smaller quantity of milk is being produced. The region that is the most successful in the production is Central Serbia, considering that it has an adequate terrain configuration for cattle breeding production.

According to the consumption of milk and dairy products, Serbia is on the bottom of European scale. If it approached European average, it would be confronted with a deficit of those products. Average consumption of milk in 2007 was 60.6 l per capita.

The European Commission's decision to register Serbia on the list of the countries from which it is possible to import milk to the countries of the European Union will have positive effects on the development of domestic agriculture in the long term, since that decision will additionally stimulate agricultural production, because new markets for the placement of domestic products are being opened. The production of milk and dairy products should be stimulated through the measures of agrarian policy.

Table 2 and Graph 2 show the survey of milk and dairy products production development between 1998 and 2008 in Mini Dairy "Lahor-Šara". According to the given data it could be noticed that during recent years there has been a significant increase in the production of milk, and therefore a significant increase in the production of dairy products, as well as in consumption.

Table 2. The production of milk and dairy products between 1998 and 2008

Years	Milk (l)	Litres per capita	Litres per ha	Yogurt (l)	Litres per capita	Litres per ha
1998	91,250	7.6	6.7	91,250	7.6	6.7
1999	75,100	6.3	5.5	75,100	6.3	5.5
2000	35,000	2.9	2.5	50,000	4.2	3.6
2001	35,000	2.9	2.5	50,000	4.2	3.6
2002	35,000	2.9	2.5	50,000	4.2	3.6
2003	35,000	2.9	2.5	50,000	4.2	3.6
2004	40,000	3.3	2.9	45,000	3.7	3.3
2005	45,625	3.8	3.3	45,625	3.8	3.3
2006	46,000	3.8	3.3	42,000	3.5	3.1
2007	51,000	4.3	3.7	45,200	3.7	3.3
2008	56,000	4.7	4.1	46,000	3.8	3.4
Average	49,543.2	4.1	3.6	53,652.3	4.8	3.9

Source: Internal data of the Mini Dairy „Lahor-Šara”, Štrpce, 2008

Analyzing Table 2 and Figure 2 it could be concluded that the purchase of milk was increased between 2004 and 2008 in the Mini Dairy "Lahor-Šara". Based on that fact, we have drawn the conclusion that larger procession of milk goes into dairy products. Also, considering that the production of yogurt was not increased, it could be concluded that the milk was used for the larger production of autochthonous cheese, which is obvious according to the further discussion within this work.

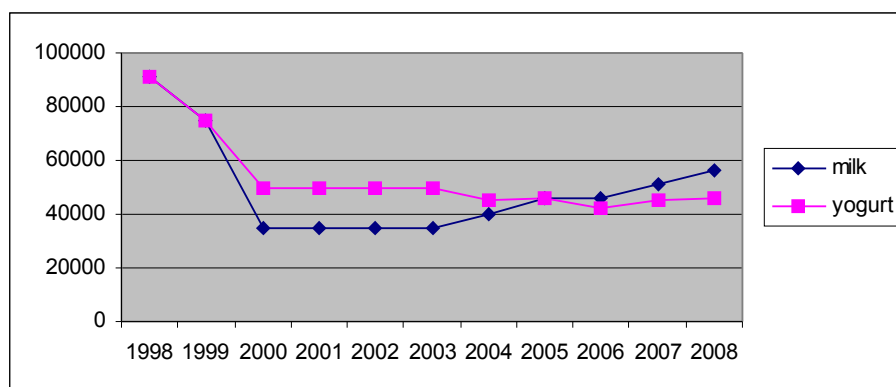


Fig. 2. Comparative analysis of milk and yogurt production

The Production of Autochthonous Cheese

Autochthonous cheese is a product that is originally made in a certain area as a result of long termed development of the traditional production technology.

A large number of different types of cheese, world-known, are produced as a result of autochthonous production, for instance Emmentaler produced in Switzerland, Gauda produced in the Netherlands etc. Specific taste of autochthonous cheese is influenced by: pasture or hay and geographical area where the cheese is being produced.

In order to place autochthonous cheese on the foreign market, it is necessary to apply traditional, but standardized technology which assures equal quality and protection of these products, in order to adapt them to the EU market demand.

Taking care of their health, consumers all over the world became more and more demanding while looking for natural products of famous origin. Today, there is a growing number of consumers that want to buy autochthonous products produced in small series according to ecological norms for every day use. According to the data given by FAO sale of ecological food in the world per year is growing with more than 20%. Market research shows that autochthonous food is on average with 15 % more expensive than common food. The biggest part of ecological food is placed in the countries of the European Union.

Milk procession, based on small producers scattered all over the map - typical of hilly and mountainous terrain, is also characteristic of the municipality of Štrpce. However, the existing Mini Dairy could take over an important role in the production and procession of milk for the market, if stimulating means for capacity expansion were provided, because this Dairy is small if taking into account only its capacity, but in regard to all other functions, this dairy is similar to standard Dairies. In that way, beside an increased milk procession, autochthonous dairy products would remain protected, which is of great importance for this area.

Table 3 shows the production of autochthonous types of cheese in Mini Dairy "Lahor-Šara" from Štrpce. An analysis of the data given in the table shows that the assortment of production consists of 3 types of autochthonous cheese and that the most important products are Šara cheese and Šara hard cheese. Their significant increase in production has been recorded since 2007.

Table 3. Industrial production of autochthonous cheese from 2000 to 2008 in kg

Years	Šara cheese	Base index	Chain index	Šara kachkaval (hard cheese)	Base index	Chain index	Šara white cheese	Base index	Chain index.
2000	2,500			2,000			500		
2001	2,800	112	112	2,000	100	100	500	100	100
2002	3,000	120	107.1	2,500	125	125	500	100	100
2003	3,000	120	100	2,500	125	100	1,000	200	200
2004	3,000	120	100	3,000	150	120	2,000	400	200
2005	3,125	125	104.2	3,125	156	104.2	2,500	500	125
2006	3,500	140	112	3,000	150	96	1,200	240	48
2007	5,100	204	146	3,500	175	117	1,200	240	100
2008	5,350	214	105	3,500	175	100	1,200	240	100
Average	3,486.1			2,791.7			1,177.7		

Source: Author's calculation of base index and chain index based on the data of Mini dairy "Lahor-Šara", Štrpce, 2008

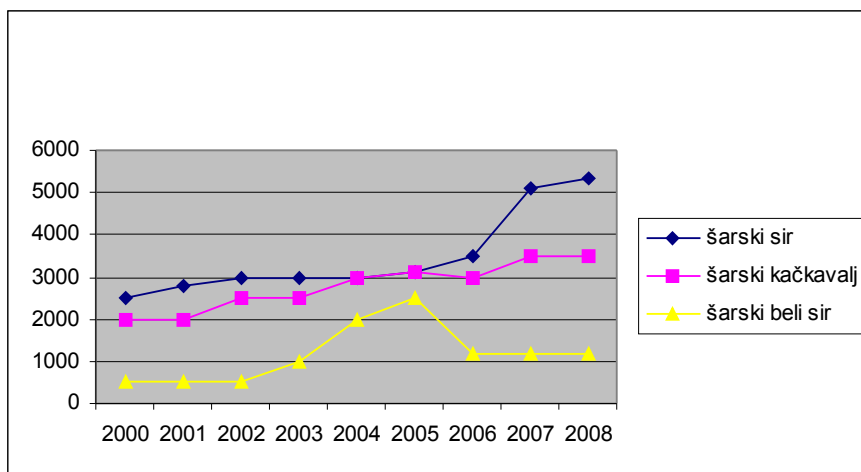


Fig. 3. Comparative analysis of the production of Šara cheese

The general conclusion regarding base and chain indices and graph survey for the observed period between 2000 and 2008 would be that there is a certain increase in the production of cheese, which, according to chain indices, amounts to 46% for Šara cheese and 17% for kachkaval (hard cheese) in 2007.

Conditions and Possibilities to Increase the Production of Autochthonous Cheese and to Place it on the Market

The development of agriculture is usually associated with the provision of additional funds. However, other development possibilities, that are often underestimated, are being discussed within the text, although the funds remain a necessary assumption of economic activity.

The number of inhabitants and tendencies in natural population development and in economic structure of the population are important factors which are affecting demand of agricultural and food goods. The level of demand of these goods for the farmers in the mentioned area is conditioned by population number and, therefore, more satisfactory prices than in other areas represent additional simulating factors for the production activity. Some farmers achieve different results under the same material, natural and social conditions, because of unequal management skills. To make better work decisions in agriculture one needs reliable information, expert knowledge, data about market conditions and market tendencies...New knowledge could be acquired not only from books, from media, through lectures, but also through exchange of experience. A lot of farmers and agricultural organizations could learn a lot from those householders and organizations that succeeded in some agricultural works. Fear of the unknown slows down the changes, while one first accepts what is useful, but already well-known. In brief, the advancement of production management is a significant reserve for more efficient farm management.

In the era of enterprising society, success in agricultural activity represents the result of adaptation of useful changes in the means of production, in production technology, in the choice of genotype and in the presentation on the market. Technical and technological changes are achieved through financial investments, but not all useful changes are restricted to funds.

Although in order to succeed in agricultural economy, wide expert knowledge is needed, agricultural education of the youth in our country is insufficient. In fact, the educational system mainly directs rural youth to education towards professions that are not connected with agriculture, which to a great extent leads to country and agricultural abandonment. Specialized secondary school is a minimum of expert education of future successful householders. Useful information for the youth coming from villages

would be that in spite of growing unemployment in towns, permanent employment on the family farm is possible and promising. Those family farms are in fact family agricultural firms. The future for those firms' activity is certain, especially as long as population grows, and as long as our state imports the food. Since technical and technological changes lead to farmers' need for further knowledge, increase in the number of agricultural secondary schools within the total numbers of secondary schools has become of public interest. On the other hand, it is suitable to improve in principle the position of youth on farms through larger participation in production management, earlier law of inheritance regulation and satisfaction of their personal needs.

The new Law of Collective Farms enables foundation of farms that to a great extent would consider our ancestors' farms as a model. Our ancestors excelled in the European farming, in contrast to the present situation. To regain trust in the farm, which would be the organization of private owners and which would be founded first of all by farmers using their property upon which they would have all the control while it serves to the economic advancement, represents the current need and our future. Consequently, we need a new farm which would not be a social firm, but an organization of farmers.

Quality marks, which are extremely important, serve to protect trade marks which satisfy all precisely defined criteria, while regulations are not contrary to the Intellectual Property Law and to TRIPS agreement from 1994.

Almost all member states of the European Union strive to protect the production of their autochthonous cheese. The European Union adopted Regulations No. 2081/92 and No. 1804/99 in 1993, according to which cheese could be protected by quality marks: originality (Protected Denomination of Origin (PDO)), geographical origin (Protected Geographical indication (PGI)) and guaranteed traditional speciality (Traditional Speciality Guaranteed (TSG)).

Conclusion

The traditional technology of the production of autochthonous cheese is simple and completely feasible in modest conditions of hilly and mountainous terrain. Geographical position, climate, height above the sea level and rich mountain pastures are suitable for the breeding of cattle, sheep and goats, consequently they are suitable for the production of milk and traditional products in the municipality of Štrpce.

The general conclusion regarding base and chain indices for the observed period from 2000 to 2008 is that on the one hand, there is certain increase in the production of cheese in the Mini Dairy Lahor Šara (in that area), which depends on the larger delivery of milk from private individual farms, and on the other hand that there is an indication of stabilized increase in the production and consumption.

Capacity expansion of the existing Mini Dairy, which is small only regarding its capacity, but in regard to all other functions, this dairy is similar to standard Dairies, would stimulate the improvement or change in cattle breeding structure, by adding highly productive milk cows. Moreover, the conditions necessary for stable milk production would be achieved by introducing modern equipment for automatic and mechanical cattle breeding, and surplus of autochthonous dairy products would appear on the market and in time, those products would be placed not only on Serbian market, but on the markets of surrounding countries as well.

Increase in the level of maintenance of family farms on the territory of municipality of Štrpce, owing to the increase in primary agricultural production of healthy food would lead to the development and promotion of the environment and tourism of Brezovica Mountain, as well.

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Posibilități de creștere a producției autohtone de lactate în municipiul Štrpce, Serbia

Rezumat

Starea de securitate din Kosovo și Metohija precum și circumstanțele logistice - cu alte cuvinte, distanța dintre municipiul Štrpce și centrele de consum mai mari din Serbia, alături de alți factor - limitează procesarea laptelui din cadrul fabricilor existente și a gospodăriilor agricole la sortimentele de brânză albă maturată și zer. Procesarea laptelui în brânzeturi și produse lactate cu termen scurt de valabilitate se efectuează din ce în ce mai puțin, datorită motivelor menționate mai sus.

În cadrul acestui articol se prezintă resursele naturale disponibile și potențialul uman, analizându-se atât creșterea numărului de vite cât și cantitatea de produse lactate autohtone în perioada 1998-2008. În baza datelor și analizei, autorii au ajuns la concluzia că această creștere a producției de produse lactate autohtone în municipiul Štrpce ar contribui la dezvoltarea agriculturii ca întreg și la o mai bună ocupare a forței de muncă în cazul populației locale. Analizele efectuate s-au bazat pe resurse financiare modeste, dar și pe participarea eficientă a instituțiilor din Serbia, care au oferit un considerabil sprijin științific.