

**ASSESSMENT OF THE
COMPETITIVENESS OF THE DAIRY FOOD CHAIN
IN MONTENEGRO**

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1 Introduction

The aim of this report is to describe and estimate the state and performance of the dairy sector in Montenegro. This sector, because of its many characteristics, is a very sensitive and complex one. A challengeable task is to prepare milk sector for the accession to EU. As a pre-candidate country, Montenegro has already started preparation to fully implement EU model of development of agriculture, in which the dairy sector is the largest one.

The report aims to judge the competitiveness of the Montenegrin dairy sector and to identify some of the key constraints to competitiveness and further developments.

The analysis is used to formulate prospects for the sector's development. The methodology established is based upon internationally accepted definitions of competitiveness, which focus on the ability of the industry to primarily increase market share on the domestic market, with intention to participate on international market, too.

Structure, conduct and performance concepts are combined with resource analyses in judging the competitiveness of the Montenegrin dairy chain. Interviews were used to identify key constraints to competitiveness and to develop some ideas on actions required by the sector itself and suggestions for policy interventions to improve competitiveness. The study considers the entire dairy chain from small-scale milk production at the farm level through the processing and retailing activities.

One of the main constraints during preparation of the report was lack in data, or inconsistency between data sources. In some cases, data were available for shorter period, mostly 2002 – 2007. Due to that fact, some of the tables show trend for shorter period than ten years.

The structure of the report is as follows. In section 2, an overview of the present situation and conditions in milk production and processing in Montenegro is provided. Section 3 further elaborates on the issue by evaluating factors, which influence the competitiveness and efficiency of the milk chain. Based on these analyses, the sector's strengths and weaknesses, opportunities and threats are identified in section 4. Such a SWOT analysis gives the possibility to define prerequisites and directions for the sector's future development. The recognition of key constraints leads to a series of ideas for policies that may address the obstacles to further development and help reduce the inefficiencies identified. Section 5 drafts policy options and some policy recommendations, as much detail as possible at this stage, in order to help prepare the dairy chain for the challenges ahead in section 4.

2 Overview of the sector

2.1 Sector definition: sector components and importance

Montenegrin milk production has traditionally been concentrated in the private sector. Before nineties of last century, few collective or state farms – known as ‘agricultural holdings or combinats’ had been existed. During transition in nineties, some of them were collapsed (closed completely), few continued to function and passed privatization. Nowadays, all milk production comes from privately owned farms. Contrary to the many other Western Balkan countries, there is no dual structure of milk production sector.

One of the main characteristics of Montenegrin dairy sector is small share of milk processed by the dairy industry, still less than 15%. Significant part of the milk goes to the calves feeding (20-25 %). The major part of the milk produced is retained on the farms. It is used in households for making home-made dairy products (different types of cheese, yoghurt and specific autochthonous products like kajmak, sour milk, yardum etc.) or for family member’s consumptions as fluid milk. Major product sold directly from the households is cheese, then kajmak follows. However, the quantity of fluid milk sold directly to consumers does not play significant share in the total quantity.

At the processing level, the current industry mainly consists of small companies. Data from 2007 indicate that there were 19 dairy processing enterprises operate in total, with daily processing from 1 to 20 tonnes of milk, but physical processing capacities of these dairies are much larger. No specific specialisation among them. However, majority of them have yoghurt as a main product. Foreign investment has not entered the dairy sector.

Beyond the processing sector, the distribution of processed milk and dairy products involves private specialized shops, the wholesalers and the distribution networks of retail chains.

2.1.1 Production and value added

Table 1 indicates that milk production accounted for approximately 25% of Gross Agricultural Output (GAO). A drop in last two years (table 1) is because of fact that National Statistical Office – MONSTAT changed methodology, which caused a drop in animal population, and consequently reduction in total milk production. Milk as single commodity has the highest share in total GAO. The data suggest there were no big fluctuation over the period, but decrease in the share over past several years can be noticed. The share of 25% is significantly more than that of the EU (27) as a whole, in which milk accounted for 14% of Final Agricultural Production (Eurostat, 2006). The milk shares in individual states range from 5.8% in Spain to 33.5% in Luxemburg.

Table 1 Share of milk production in total Gross Agricultural Output (GAO), 2001 -2007

	2001	2002	2003	2004	2005	2006	2007
Total GAO (value in Mio euro)	220	229	238	248	254	259	n/a
Share of milk pro-duction in GAO (%)*	26	25	26	25	23	22	n/a

Source: Ministry of Agriculture, Forestry and Water Management (MAFWM)

The food processing industry was and still is a small sector in Montenegro. In 2005 the food industry accounted 6 % of Montenegro’s Gross Domestic Product (GDP) and 3.6% of its total employment (MONSTAT, 2007). The category of ‘Beverages’ is the dominating sectors, accounting close to 40% of the output and employment of the food industry. This sector was followed by processed meat and dairy products, the latter accounting for 8 % of Gross Value Added (GVA) and 9% of total employment in the food industry in 2003 (The Strategy, 2006).

Over the period 1998-2007, the dairy industry has passed significant changes, new dairies have appeared and some of the state-owned were closed. Starting with functioning, new dairies have provided additional opportunities for employment.

There is no exact data for the whole period; nevertheless, the position of the dairy industry in the total food industry had not changed much between 1998 and 2007. This conclusion is drawn on the bases of the fact that the other industries, like beverages and meat sector, have also similar trend for the same period.

2.1.2 Product flows within the sector

In 2007, out of the total milk production 14% was delivered for processing to the dairy companies (figure 1). No precise data for the 1990s, however it can be concluded that situation was not so much different.

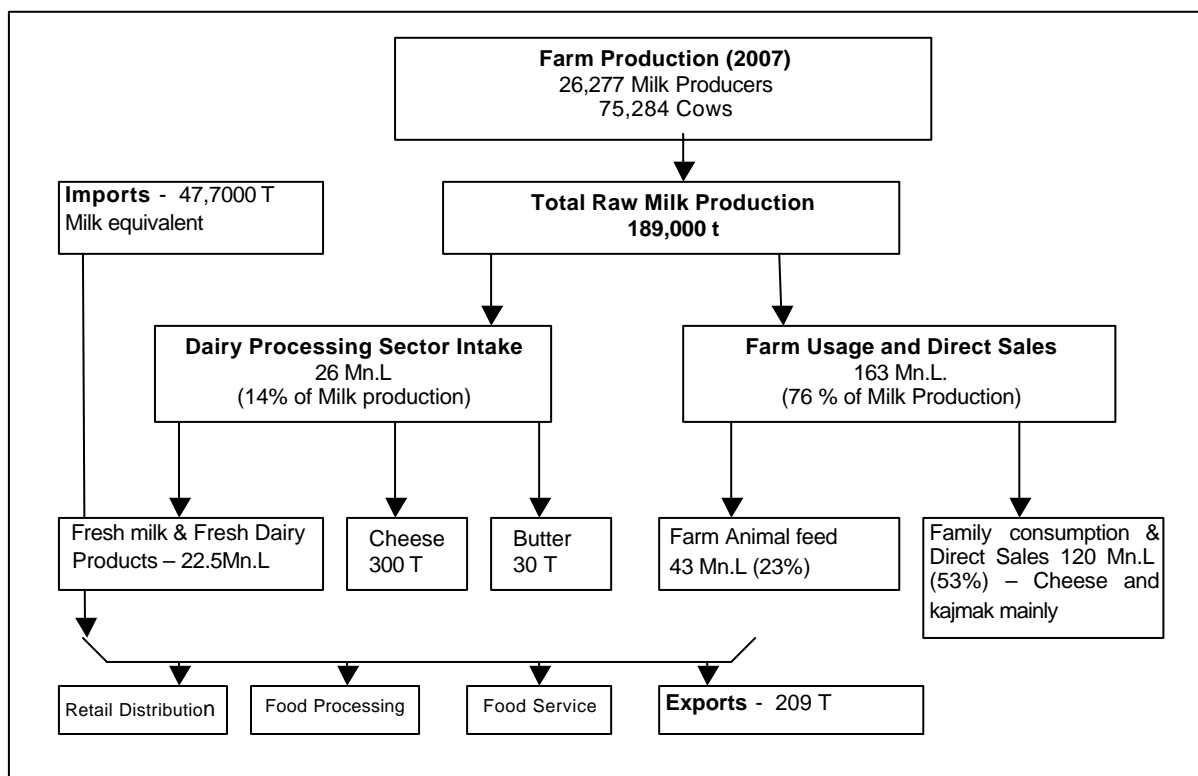


Figure 1: Overview of the Montenegrin milk sector and milk flows, 2007 (Source: Biotechnical institute Podgorica)

A major part of the milk collected is processed into the yoghurt, than fresh milk. Production of cheese, in spite of the positive trend in last few years, is still on a very low level. Major quantity of the locally produced cheese in retail chains still comes from the households’ production.

In recent years the share slightly increased to vary between 12 and 14%. This shows that extremely small part of the Montenegrin milk production has become commercial. Around 163 million tons of milk production (76% of the total) retains on the farms. A major part of this volume – some 73.5% - is used in households, either for consumption as liquid (milk and yoghurt) or for processing into different dairy products, mainly different types of cheese. The other 26.5% of this quantity is used for feeding of calves.

2.2 Structural features of the dairy supply chain: present situation and trends overtime

2.2.1 Industry structure at primary level

Based on the results of the Program of identification and registration of cattle, done in 2007 with support of EU donation, the Montenegrin dairy herd counts 75,284 cows (see Table 2). The number of dairy holdings is 26,277. According to the personal information from the field, there is around 3% of cow population uncovered by the identification at the same number of the holdings. It should give the total number of cows close to 78,000.

Table 2 Size structure of the livestock farms in 2008

Specification	FARMS			COWS			
	No. of farms	% of total	Cum. %	No. of head	% of total	Cum. %	Average head/ farm
TOTAL	26,277	100.0	100	75,284	100.00	100	2.9
1 head	8528	32.5	32.5	8528	11.3	11.3	1.0
2 heads	7036	26.8	59.2	14072	18.7	30.0	2.0
3 heads	4215	16.0	75.3	12645	16.8	46.8	3.0
4 heads	2410	9.2	84.4	9640	12.8	59.6	4.0
5 heads	1457	5.5	90.0	7285	9.7	69.3	5.0
6 heads	900	3.4	93.4	5400	7.2	76.5	6.0
7 heads	535	2.0	95.4	3745	5.0	81.4	7.0
8 heads	381	1.4	96.9	3048	4.0	85.5	8.0
9 heads	221	0.8	97.7	1989	2.6	88.1	9.0
10 heads	145	0.6	98.3	1450	1.9	90.1	10.0
11-15 heads	309	1.2	99.5	3805	5.1	95.1	12.3
16-20 heads	75	0.3	99.8	1332	1.8	96.9	17.8
21-30 heads	42	0.2	99.9	1058	1.4	98.3	25.2
31-50 heads	19	0.1	100.0	725	1.0	99.3	38.2
51-100 heads	2	0.01	100.0	115	0.2	99.4	57.5
>100 heads	2	0.01	100.0	447	0.6	100.0	223.5

Source: Veterinary Directorate of Montenegro

This makes the dairy sector a typically small scale family business. The sector has been passing through a difficult phase of structural changes, illustrated by decrease of the number

of dairy holdings since 1998 when the total number of dairy holdings was counted more than 35,000.

The average number of cows per dairy holding is quite stable, close to 3 milking cows (2,85cow/per holding). Yet, this average is very different from the size structure of the old EU member states, where the average is around 30, ranging from 14 cows per holding in Greece and Austria to 86 in Denmark (2005 data, from Eurostat, 2008). However, Montenegrin average is more or less similar to some new member states (Latvia 3.1; Lithuania 2.4; Poland 3.9; Bulgaria 2.3).

In 2007, close to 60% of the dairy holdings in Montenegro had 1 or 2 cows and 90% of them had 5 or less dairy cows (Veterinary Directorate Data, March, 2008). The share of holdings with more than 10 cows reaches merely 2 % of all dairy holdings. The number of cows at 1 or two cow farms participates in total by 30%, while the number of cows at the farms up to 10 cows by 90%.

Contrary to the old EU member states, there is now clear distinction between dairy and beef breeds of cattle. Majority of the population (close to 50%) belongs to the different type of crosses used for dual purposes, milk and meat production. However, there is no category of suckler cows in Montenegro; the whole population of cows is used for milk production.

2.2.2 Industry structure at processing level

At present Montenegro counts fairly large number of milk processing companies (see table 3), having in mind the size of the sector. General characteristic of the dairies is very limited capacities, majority of them are operating at a very small scale (see table 4).

Table 3 Size distribution of dairy industry, in number of employees

Size band, in numbers of employees	Number of Enterprises
0-49	16
50-99	1
100-249	2
Over 250	0
Total	19

There is a seasonality in production of raw milk (due to seasonality in cows' calving) as well as in total consumption (a pick of the tourism season in summer months causes increase in consumption). Due to that fact, some of the dairies still rely to the significant extent on the purchasing of raw or pasteurized milk from Serbia.

The farmers used to sell milk directly without intermediation of cooperative or the association. Only one dairy in the north-eastern part of the country (Zora dairy in Berane) organizes purchasing milk from the milk collection centres, owned by the farmers groups.

Table 4: List of the dairies companies, with their milk intake in 2007

	Name of the company	Place	Ownership	Intake per day	
				in litres	as % of total intake
1	Mljekara Podgorica	Podgorica	private	5486	8.7
2	Doo "Mljekara NIKA"	Niksic	private	8062	12.8
3	'Srna"	Niksic	private	10009	15.9
4	ZZ "Kooperativa"	Pljevlja	private	3804	6.0
5	Mljekara "Zora"	Berane	state property	6858	10.9
6	Šimšić Montmilk	Danilovgrad	private	8925	14.1
7	'Arena Milk"	Ulcinj	private	1686	2.7
8	Mljekara "Žir"	Bijelo Polje	private	691	1.1
9	ZZ "Dona" *	Danilovgrad	private	0	0.0
10	ZZ "Cevo"	Cetinje	private	671	1.1
11	Ital produkt	Podgorica	private	516	0.8
12	ZZ Cijevna	Podgorica	private	389	0.6
13	Doo "Amiprom"	Rozaje	private	1788	2.8
14	AD "Krisma-mlik"	Bijelo Polje	private	5661	9.0
15	Doo "San Nikola"	Ulcinj	private	4956	7.9
16	Vulaš-Cevo	Cetinje	private	756	1.20
17	Niksen trade	Cetinje	private	147	0.2
18	Rm Komerc	Pljevlja	private	1349	2.1
19	Dinoša-Bubulj	Podgorica	private	1366	2.2
	Total			63121	100.00

* - Small dairy ZZ Dona, with processing capacity up to 2 tons per day, had a break in collection in 2007, because of reconstruction.

Collection of milk is organized as a "so called" line collection, which means that dairies collect milk from every individual farmer directly at farm gate. It increases collection costs and makes additional problem to keep hygiene of milk, especially during summer season.

Different from what happened in the neighbouring ex Yugoslav republics (Bosnia and Herzegovina, Croatia and Serbia), foreign investors have not entered the Montenegrin dairy market. The main reason for that is very small size of the sector.

The quality of the milk in terms of its content (butterfat 4.11% and protein 3.24%) is satisfied, but from the hygienic point of view, it is not (somatic cells count 538,000 and total bacteria count 4,623,000) – Biotechnical Institute - Milk Laboratory Annual Report 2006. The main reason for that is small scale production, majority of the small producers do not have appropriate facilities for milking and cooling milk before delivering to the dairies. Even, all dairies still do not have appropriate tracks for collection and transport milk from farms to the processing facilities.

Generally speaking, protection of the sector by custom tariff rates is moderate, *ad valorem* tariff equivalent ranges from 10 to 40%, depending on the product concerned. In the negotiation with EU, in scope of the Stabilisation and Association Agreement, milk and dairy products were treated as highly sensitive products. It was agreed that Montenegro will reduce tariff protection by 50% of currently applied rate in the period of five years (every year 10%).

However, new CEFTA brings free flow of agricultural products with Bosnia and Herzegovina, Macedonia and Serbia. The biggest pressure on the dairy market comes from Serbia, unfortunately sometimes by dumping prices of its big dairy companies.

Potential foreign investors found the Montenegrin companies not so attractive at that time. Obviously, foreign investors consider the Montenegrin dairy market too small, and instead put their money elsewhere in the Central and East European region where they evaluated relatively much better market opportunities than in Montenegro.

2.3 Production, consumption and trade developments

The supply and demand balance sheet summarizes the key developments in production, consumption and trade since 2002 (see table 5). Due to lack of complete data for the 1998-2001, the table only presents data for the period 2002-2007. Production has been slowly decreased in the mentioned period. However, domestic production is still lag behind total consumption, thus Montenegro has a big deficit in the dairy sector. It is a net importer; more than 20 million of euros go to the import of milk and dairy products annually.

Table 5 Supply/demand balance sheet on dairy products (in tons equivalent of 3.5% fat milk) 2002 – 2007

	2002	2003	2004	2005	2006	2007
Production	197,570	202,753	192,486	195,811	187,791	189,000
Imports	35,855	32,281	36,284	39,590	44,152	47,702
Exports			185	287	358	209
Supply available	233,425	235,034	228,585	235,114	231,585	236,493
Human consumption *	147,784	154,307	165,015	169,852	176,024	176,225
Avg. Cons. Per capita, l	232	241	255	260	265	265
Self-sufficiency rate (%)	84.6	86.3	84.2	83.3	81.1	79.9

* - Includes consumption of local population and the tourists.

Production and imports together, minus exports and stock changes give available supply for domestic consumption.

Consumption has shown an increasing trend, it reached 265 kg/capita in recent years. Reason for this very high consumption is that Montenegrin inhabitants traditionally consume a lot of dairy products like cheese, locally produced yoghurt, cream – so called kajmak and the other dairy products. It is not reflection of the improvements in living standard; it is rather traditional habit and pattern of nutrition in many parts of the country.

Comparisons with other EU-27 countries indicate that the average consumption per capita of cheese in Montenegro is much close to the EU average (17.5 kg per capita in Montenegro, 18.4 in EU25), as well as consumption of liquid milk is above the EU-27 average (133 kg in Montenegro, 92.6 kg in EU) - (Source: International Dairy Federation, Bulletin 423/2007).

Production of raw milk

Production of raw milk had been increased since 1998 to 2003, then slightly decreased until 2007. The proportion of milk produced that is delivered to dairies for processing went up from 21,500 tons in the 1998 to 27,716 tons 2006 (see figure 2).

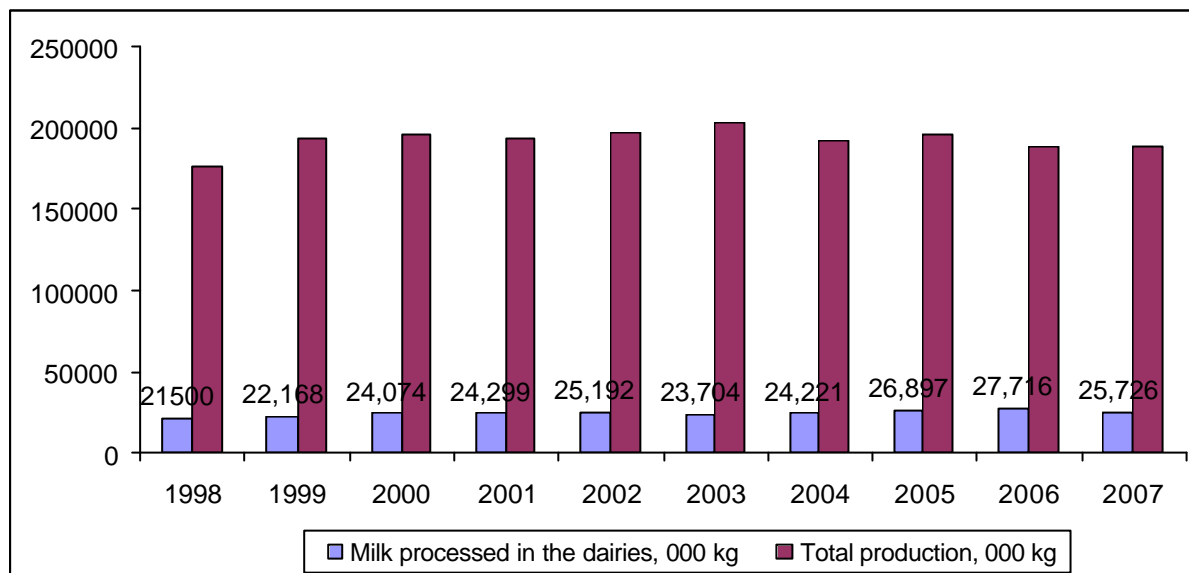


Figure 2. Total milk production and deliveries to the dairies

However, during first half of 2008 important developments occurred. Compared to the first half of last year, the quantity of milk collected from farms in the first half of 2008 increased by 15 % (Source: MAFWM, 2008). Even, more increase was in total quantity of milk processed, because of increase in quantity of raw or pasteurized milk purchased from Serbia then processed in domestic dairies. Reason for this is increased consumption during tourism season as well as increased price of imported milk and dairy products from Serbia and from the other traditional import markets (Slovenia, Croatia, etc).

Production and consumption trends for dairy products

Production developments in the main dairy products show quite different pattern as the milk production trend shown above. The production of fresh milk and fresh processed products has had steady but slight increase. The production of cheese is completely different; while in 1998 there was almost no industrial production of cheese (purchased mainly from Serbia) more and more small cheese factories have started to operate, but total production is still modest. Last 6 dairies in table 4, with small capacities, produce only cheese.

Table 6 Trends in dairy production, only the dairies

	2002	2003	2004	2005	2006	2007
Butter, kg	25,000	23,000	23,000	25,500	27,000	30,500
Cheese products, kg	133,000	218,000	240,000	276,000	248,000	300,000
Fresh dairy products, l	21,000,000	19,800,000	19,300,000	21,300,000	22,260,000	22,500,000

The production of butter is on a much lower level than the other dairy products, only two dairies produce butter (Podgorica dairy and NIKA Niksic).

Data show that the consumption of fresh milk has had steady trend – around 130 kg/capita in 2002 (Strategy, 2006). On the other hand, the consumption of cheese increased gradually over the period 1998 - 2007 from 14 kg to reach 17.5 kg/capita in 2007.

Trade

Montenegro is a net importer of agricultural products generally; the same goes to the dairy products. In spite of some positive trends in the sector, the imports of dairy products have steadily been grown in recent years (see table 7). In addition to the growing tourist's presence, significant number of the foreigners, as temporarily employed persons, have been staying over the year (5-6% of total population), in recent years.

Table 7: Export and import of main dairy products, 2002 - 2007

	2002	2003	2004	2005	2006	2007
Import						
Milk 1-6%	1,442,002*	312,033*	16,334,416	17,719,958	18,778,127	22,355,789
Milk powder	388,587	631,393	657,120	810,211	395,930	364285
Yoghurt	655,657	634,951	3,405,471	3,025,017	4,239,751	4408253
Whey	0	0	42,585	68,023	2,112	0
Butter and milk cream	370,222	100,826	296,462	342,537	424,720	657949
Cheese	2,380,690	1,347,549	2,237,162	2,370,076	3,082,317	2,899,949
Export						
Milk 1-6%	0	0	17148	112,838	189,383	124,231
Milk powder	0	0	12,186	4,728	10,945	12,000
Yogurts	0	0	1,956	240	6,138	0
Whey	0	0	0	0	4,850	0
Butter and milk cream	0	0	110	1,944	4,400	0
Cheese	0	0	4,779	12,630	3,435	0

* - There was no evidence for milk from Serbia, as the main supplier.

On the import side, the ex-Yugoslav republics used to be a major import market for Montenegrin supply. By far, the main country of origin for milk is Serbia (see table 8).

Table 8 Trade totals, main destination of exports and main origin of imports in 2006

Import	Value, euro	Share, %
Serbia	15,877,981	75.98
Germany	2,460,134	11.77
Croatia	1,150,707	5.51
Slovenia	462,513	2.21
Netherlands	247,160	1.18
Other	697,936	3.34

Total	20,896,431	100.00
Export		
Serbia	165,425	93.07
Albania	12,314	6.93
Total	177,739	100.00

2.4 Government policy

2.4.1 Regulatory framework of the dairy sector

During intensive reform process, Montenegro has adopted several important laws, which are, to the extent possible, compliant with WTO and *Acquis communautaire* of EU. New Law on Veterinary (adopted in 2004), was a base for privatisation of the field veterinarian service (in 2005), as well as for establishing of Veterinary Administration. Food Safety Law, adopted in 2007, regulates many aspects of milk processing and distribution. In addition, Law on Identification and Registration of Animals and Law on Animal Welfare, both adopted in 2007, will contribute to better regulation of primary production of milk. The preparation of many of sub-laws or rulebooks prescribed by these laws is underway. Draft of Law on Agriculture and Rural development, pending now parliamentary procedure, will be a legal frame for the state support measures to the dairy sector, drafting of Law on Livestock is also underway.

During last decade Montenegro has been trying to improve milk sector by implementing international standards. The Livestock Selection Service (LSS) was established in 2000, since that it has performed milk recording on the larger commercial farms, according to the ICAR rules (International Committee for Animal Recording). In doing that, LSS closely collaborates with farmers giving them different advices on nutrition, hygiene of milking, rearing of the offspring, housing etc. Since 2002, Montenegro has been implementing new payment scheme for row milk, based on four parameters: butterfat and protein content, Somatic Cells Count (SCC) and Total Bacteria Count (TBC), instead of just butterfat content previously used. The analyses of these parameters are carried out by the national Milk laboratory, belongs to the Biotechnical Institute in Podgorica. The lab is properly equipped with sufficient capacity for the whole sector. The dairies and the farmers are obliged to apply payment scheme by the Government Decree on criteria for determine raw milk price, adopted in 2002. No state control on determination of price for raw milk, it is up to the producers and the processors, but the dairies are obliged to differentiate price according to quality of raw milk, as it was prescribed by the Decree.

There are several support measures implementing with the aim at to improve competitiveness of the milk production sector. There is a basic premium 0.02 euros to producers for each litre of milk collected by the dairies, in addition 0.025 euros are allocated for each litre of milk but above limit of 10.000 litre per producer annually – with the aim to support commercial production of milk. In addition, there is a support of 0.04 euros per litre of milk collected to the dairies, as a compensation for collection costs of the dairies. The dairies are also supported to implement hygienic standards, i.e. HACCP, up to 50% of their costs are covered from the budget.

Further reforms of agro-policy are defined by the new National Program for food production and rural development. It foresees a larger support to the sector through the Axis one of Rural

development policy - strengthening of competitiveness by investment support, and changes in current direct support policy, namely to continue with headage payment (80€ per cow) and to support milk production (the farmers) by only one measure – 0.035 euro/kg, with the reduction of compensation to the dairies for milk collection costs from 0.04 euros to 0.025 euros.

There have been some donations in the dairy sector, at the producer and the processing level. In 1999 and 2000 there was EU donation (Program Obnova) more than 1000 in-calf heifers, followed by donation of milk equipment for the farmers and processing industry (milking machines, milking cooling tanks and trucks for transport raw milk) in 2003. There were also other donations; as a result of the Luxembourg donation, for example, new dairy founded in Berane (north-east part of Montenegro), only produces UHT milk.

3 Performance of the dairy supply chain

3.1 Performance at farm level

It has already been noted that Montenegro dairy sector characterised by small-scale farming. With an average herd size of 2.85 cows the dairy sector has a very different size structure to that in the EU-27 (section 2.2.1). The small-scale structure of Montenegrin milk production results in the sector operating with a number of inefficiencies at the production level.

3.1.1 Yields

One of the areas of low technical efficiency is that of milk yields. The average milk yield per cow in Montenegro is around 2450 kg per cow (the estimation made by the Biotechnical Institute). It is less than 50% of EU27 average (6097 kg/cow). It should be noted that differences in yields are wide among EU countries: the lowest yield is in Romania (3,036 kg/cow) while the highest average yield (8,206 kg/cow) is achieved in Sweden.

The explanation for Montenegrin very low yield per cow is due to lack of modernization on the farm level. Still subsistence farming with small number of cows prevails; small farmers are not motivated to improve level of production and to introduce technological improvements.

Breed structure is not favourable, since around 50% of the Montenegrin cow herd belongs to the lower productive crosses, as a result of unplanned crossing of the different breeds.

Majority of the farmers produce milk in the less favoured hilly-mountain areas. An increase of the percentage of pure-bred animals (Holstein-Friesian, Brown and Simmental breed) would result in increase of yields of milk in the future.

Major difference exists between the country's performance of cow yields on average and the yield at the farms in regular milk recording control. Relatively small part of the population included in regular milk recording scheme (around 3%) achieved much higher milk yield. In 2006, average milk yield in standard lactation (305 days) was 5114 kg, for 1541 lactations completed, with big deviation among breeds and regions. Holstein breed (813 lactations) had the highest milk yield (5724 kg), while the lowest yield was in crosses, 4282 kg. As far as the regions are concerned, the best was Niksic region (6286 kg of milk in average, for 430 standard lactations), while the lowest yield was in northern region of Bijelo Polje (3796 kg in average, for 175 standard lactations).

Only small percentage of the farmers, around 15% of all dairy cows of Montenegro on their farms, are presumably the bigger and more commercially oriented farms. These farms have largely Holstein-Friesian or Brown breed cows and use much more concentrates feed than the typical small-scale farms.

Land

Another issue that affects efficient farming negatively is the fragmented land structure in Montenegro. This is particular the case in the flat areas but to lesser extent in hilly-mountainous areas. Personal communications indicate that often commercial farmers, mainly in Niksic region (central part of the country) do not produce enough forage; they rely on purchasing hay, for example, from long distant northern area of Pljevlja.

At those farms that produce forage for their own animals, typical for most part of Montenegro, agricultural land is divided into small parcels, which is a further disadvantage to use land efficiently. Farmers who want to develop their farms have difficulties in purchasing land: either land is not available in the vicinity of their farms or prices for land are relatively high. Near to cities where business and services are expanding, the demand for land force up prices to levels farmers cannot pay because of high price.

3.1.2 Prices

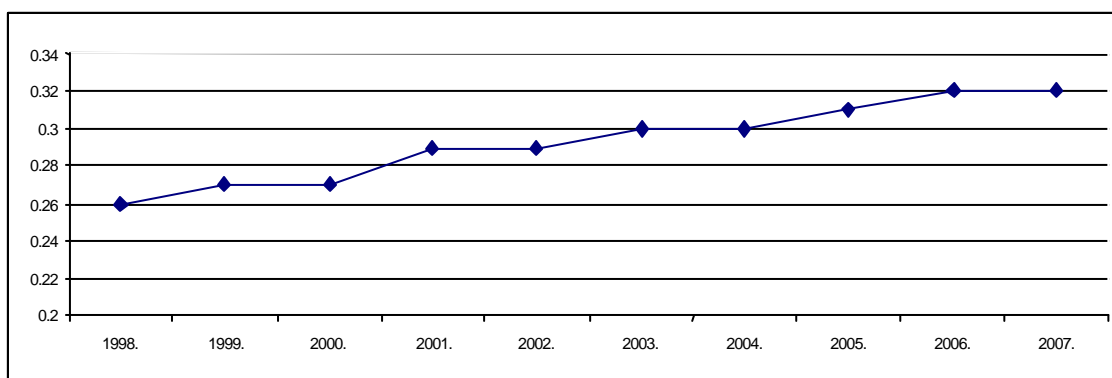
Milk prices

Milk prices have had constant and steady increase (in euro terms) since 1998. (see figure 3). Contrary to the Slovenia, for example, situation with milk price in Montenegro was very specific. Until 2001, the raw milk price was under state control. Then full liberalization came, what meant completely free price determination. At the same time new national payment scheme based on four parameters has been started to apply. At that time, farmers' association movement was quite strong and farmers succeeded to get reasonable high basic milk price from 0.26 euros to 0.30 euros for milk with: 3.7% butterfat and 3.2% protein, first class in terms of SCC and TBC.

During the last several years (period 2000 - 2005) many small private dairies started to operate as the result of local entrepreneurship. In order to be profitable, dairies tried to keep raw milk price at the same level as it was at beginning of liberalization. That is one of the main reasons why prices have not been changed a lot. In addition, Montenegro is using Euro as a local currency, thus the inflation rate was at much lower level (less than 10%) than it was before using euro.

The figure below on prices shows that there has been slight increase in raw milk price since 2002.

Figure 3. Milk prices in euro/kg



Sources: Ministry of Agriculture, Forestry and Water Management.

In addition to what the dairies normally pay for the raw milk to the farmers, they organize collection of milk which causes significant costs. Dairies usually organise and bear costs for the transport of milk from the farm to the dairy – which were estimated by an interviewed industry's representative at 0.002 to 0.004euro/litre of milk collected.

As it was previously said, only small number of farmers organizes collection of raw milk to the collection centres, which are managed by the farmers groups.

The raw milk price was at that time quite close to the average EU-25 milk price of 30.78 euro/100kg. These figures indicate that the Montenegrin milk prices follow the trend in de EU, but the prices in Serbia were always significantly lower than in Montenegro.

3.1.3 Gross margins

The question of whether an enterprise is capable of producing a positive margin is an important element of competitiveness. Table 9 sets out a gross margin on an average Montenegrin dairy farm, and on a small and large sized farm (only commercial farms taken into account).

It provides a basic listing of the key production variables and the associated revenues and direct costs. It indicates that with an average yield of 2500 kg/cow and milk price of 31.0 euro/100 kg (in mid 2006), the farms achieve:

- a gross margin (total income less variable costs) of 2398 euro
- a gross margin of 31.98 euro per 100 kg of milk;
- and a gross margin rate of return on milk sale of 83.15% (31.98 / 38.46).

Table 9: Gross margins at Montenegrin dairy farms

Item	Small dairy farm	Average dairy farm	Large dairy farm
Number of cows	3	8	20
Yield (kg/cow)	2500	4800	5100
Grassland (ha)	2	5	8
Other crops (ha)	2	2	5
Values in €per 100 kg milk			
Total revenues	38.46	34.01	35.22
Milk and dairy products	31.00	31.00	31.00
Turnover (calves sales)	7.46	4.01	4.22
Total calculated costs	6.48	17.29	20.24
Feed concentrates	1.28	7.03	7.33
Roughage (hay)	0.0	3.45	6.07
Health care	0.91	0.91	1.10
AI and Milk recording	0.53	0.31	0.17
Fertilizers	1.90	2.14	1.62
Seeds and crop protection	0.00	0.50	0.85
Other costs	1.86	2.95	3.10
Gross margin per 100 kg of milk	31.98	16.72	14.98
Gross margin rate (of return on milk sale)	83.15%	49.16%	42.53%
Gross margin (total revenues less variable costs)	2398	6420	15278

Source: Biotechnical Institute Podgorica

Table 10 also indicates the significant differences between small and large farms, with the first achieving much higher gross margins per litre than the latter. The lower results at large-scale farms are due to the higher costs, largely because of the use of feed concentrates. Total gross margins – from which fixed costs (capital, rent and own labour) have to be paid - at the larger farms are yet 7-8 times higher than at small farmers, due to their bigger size and higher yields.

3.2 Performance at industry level

3.2.1 Value added and profits

Montenegrin milk processing companies have been profitable, what is confirmed by data for last three years (Table 10). This mainly because of fact that majority of bigger dairies produce high value added products, like yoghurt. Some of the dairies benefited from donor funds aimed at the modernization of the food industries.

Table 10. Performance indicators of the dairy industry, euro

Years	Value Added	Net profit	Value Added Per Employee	Net Profit /Employee
2005	5,416,000	243,720	10.620	478
2006	5,560,000	250,200	10.902	491
2007	5,448,000	245,160	10.682	481

Source: personal communication with 5 bigger dairies

3.2.2 Market share developments

On fresh products milk and yoghurts the Montenegrin dairies have been improving a position at the domestic market. It is because of a huge presence of milk from Serbia's dairies in the past. The best improvement was in case of plain yoghurt where domestic dairies are playing now main role at local market. However, UHT milk, in terms of the volume sold on domestic market is main liquid milk product. Majority of UHT milk comes from Serbia's dairies, mainly from IMLEK. Only Montenegrin dairy Zora produces UHT milk program. That dairy started to operate in 2002, and since that it has been passing many problems characteristic for infant industry facility. According to the interview, it still does not play an important role at Montenegrin market, with market share less than 20%.

Data on market shares for cheese indicate the different tendency as noted above for milk and yoghurt. Over the period 1998 to 2004 the market share for cheese was less than 10%. Again, majority of cheese had come from import, EU countries and Serbia.

Position of domestic cheese producers has been significantly improved since 2004, but still at very low level of market share. There is no clear evidence about market share of cheese locally

produced in households, but total quantity of cheese from the dairy companies plus home made cheese hardly achieve 40% of domestic market for cheese in retail market chain.

3.2.3 Competitiveness at retail level

At the retail level a wide variety of products can be observed and comparisons are difficult because of different product specifications such as weight of product, fat content, additives, packaging, etc. A few observations are reported based on visits to retail shops and a discussion with local retail managers:

- Montenegrin dairy products are still not so well presented in all major dairy product categories;
- Generally, the quality of Montenegrin products is perceived similar (not lower!) to foreign competitors;
- Montenegrin cheeses are not among the cheapest. For instance, IMLEK and Sabac dairies from Serbia offer the dairy products at lower prices than Montenegrin dairies.

There is still no offer of flavour yoghurt, ice cream or some specific dairy products from the domestic industry. At the same time, this well-regarded foreign brand is known for its high quality products.

Personal communications with the retail sector indicate that:

- Montenegrin dairies have major difficulties in competing with Serbian dairy companies;
- Dairies are too small to face the international competition. Increasing scale is important not only to compete on costs but also to invest in new products (innovation) and in well-targeted marketing.
- Montenegrin dairies have, for their small capacities, wide assortment. Specialisation on a few products would improve efficiency in production (bigger scale) and allow more efficient use of marketing efforts;
- Although of good quality Montenegrin dairy products are not considered outstanding to consumers. However, some companies sell products with market perspectives (e.g. Kajmak, Njegusi cheese, Pljevlja cheese and so on), these products have a very good reputation on the local market. Furthermore, many Montenegrins consider Montenegrin products more natural than products from abroad. The dairy sector should try to make consumers much more aware of the 'special' and 'natural' attributes of its products by well-targeted marketing, and invest in product development to explore these attributes.

3.3 Concluding comments

Competitiveness is a relative concept, the assessment of which is fraught with difficulty. However, the competitiveness of the Montenegrin primary dairy sector is clearly handicapped by:

- a small scale production, especially in the hilly-mountain and less favoured areas, which is very labour intensive;
- low average yields on small-scale farms in many instances due to the fact that low productive crosses of different breeds are reared (used for milk and meat production);

- very expensive concentrate feedstuffs and lack of cheap fodder production (silage for example);
- a fragmented land structure that requires a well-considered land consolidation;
- transport costs of milk from farmers to dairies are significant.

As far as the milk processing sector is concerned:

- in recent years several new small dairies have been established, but their position on market is still weak;
- majority of new dairies are oriented to produce plain yoghurt, without diversification of the product range;
- the dairy processing industry lacks product specialisation and targeted marketing;
- the scale of the processing industry is generally too small to face international competition.

A chain is no stronger than its weakest link. The foregoing analysis leads to the conclusion that in every link of the Montenegrin dairy chain, there is scope for improvement. Efforts to strengthen competitiveness and improve perspectives for the future should focus on the weak points indicated above, to ensure that the Montenegrin dairy chain uses its market opportunities in a best way. The next chapter will sketch the challenges and some of the market opportunities for the dairy chain.

4 SWOT

Based on the analyses in the previous two sections, the sector's Strengths and Weaknesses, Opportunities and Threats analyses was made. Such a SWOT analysis gives the possibility to define prerequisites and directions for the sector's future development.

4.1 Strengths and weaknesses

STRENGTHS

Market / macro environment:

- Quite stable economic frame, no big inflation,
- Expanding tourism consumption as a driving force for local production

Farm Level

- Raw material production is based on quality natural meadows and pastures in hilly - mountain region which gives specific flavour and the value to the milk produced,
- There is a long tradition in production,
- Production is based on using cheap sources of feeding stuffs.

Processing

- Low labour costs,
- Dairies are distributed regionally and rely on collection of milk in their surroundings,
- Several new dairies have started to operate, which gives alternative in market access for the producers.

Wholesaling and Retailing Distribution

- Provide widespread product availability,
- Good range of products - increases product availability,
- Generally good standards of service.

WEAKNESSES

Market / macro environment

- Low level of consumer incomes gives low level of consumer spending power,
- Difficulties in the access to the bank loans,
- Still weak perception of the quality of dairy products, especially in small cheese factories,
- Lack of accessible information on industry structure, conduct and performance for informed sector monitoring, regulation and development assistance.

Farm Level

- Small scale structure of milk production,
- Highly seasonal pattern of milk production, major part of the production is during summer,
- Low levels of education and training among producers for modern milk production,
- Low genetic potential for milk production of significant part of the national herd, reflected in low milk yields,
- Lack of quality and hygiene orientation (poor knowledge levels, lack of cooling facilities),

- Lack of farm generated investments,
- Unstable payment arrangements for many producers – lengthy delay of payments, distrust of some processors on level / accuracy of payments,
- Lack of market orientation (high levels of self-consumption, old age of many producers gives rise to lack of commercial ambition).

Processing

- Weak supply base of many enterprises (small-scale producers, highly seasonal milk intake, inadequate cooling facilities within milk supply chain, lack of contractual commitment),
- High costs of milk collection because of unfavourable natural conditions (mountain regions – long distances, big dispersion of small producers etc,
- The quality of milk is negatively affected by a lack of cooling facilities at farms and at collection points.
- In spite of implementation of new payment scheme, still high level of total bacteria count in raw milk,
- Lack of scale (potential economies of scale not secured),
- Low levels of product development,
- Lack of market development information.

4.2 Opportunities and Threats

OPPORTUNITIES

Farm level

- Easy convert significant part of the production into organic, due to low level on inputs,
- Improve feed efficiency by providing advice on proper feeding plans and fodder production,
- Improve quality of milk by providing advice and training on hygienic conditions and procedures,
- Investment in animals with higher genetic potentials, animal housing and feed storage result in higher yields and production.

Processing level

- Tourism demand is increasing,
- Consumers are more and more focused on domestically produced dairy products,
- Raise quality and quantity of milk supply through investment in the collection system plus the development of milk quality payment systems,
- Product development lead by improved knowledge of market and consumer demand,
- Improved product range and quality as demand develops with increases in consumer income,
- Raise efficiency of sector through market led restructuring (mergers and acquisitions enabling scale and specialisation of production),
- Extend markets through purchasing and distribution networks of major retailers
- Further foreign investment enabling provision of capital and production and management expertise (foreign investment would also assist the retail sector)

THREATS

Farm level

- High pressure of milk from neighbouring countries (mainly from Serbia),
- Non using possibilities for investment given by different sources (domestic, donor, etc),
- Lack of alternative employment opportunities in rural areas hampers the restructuring process of farms,
- Poor quality acceptance may undermine efforts of the sector to raise standards in milk production
- Failure to meet Acquis requirements (quality, hygiene, animal welfare, etc.)

Processing level

- Retail chains setting quality and quantity requirements that the domestic industry can not respond to and import penetration increases,
- Increasing trends in consumption of products with low fat content,
- Failure to meet Acquis requirements (quality, hygiene, etc.)
- Some weaknesses in the Montenegrin economy prevent development of market for dairy products,
- Further import penetration if sector does not raise competitiveness as EU accession approaches.

The SWOT analysis also indicates the scope for adjustment, which will strengthen the sector's competitive position on both domestic and foreign markets. At the farm level, opportunities to improve efficiency and quality are mainly to be sought in better feeding and hygienic practices. Investments, either from own resources or through investment assistance, in animals, their housing and feed storage will affect production and productivity positively. The processors are presented with major opportunities if they invest in a collection system and modern processing technologies.

A major threat to the sector is that it fails to meet the growing quality requirements and standards all along the dairy chain. As consumers become more discerning, failure to meet consumer requirements will result in further import penetration. Similarly, if productivity improvements are not actively pursued and achieved, the competitiveness of the sector will be further weakened. Furthermore, failures to meet the Acquis requirements on these issues may endanger the process of EU accession.

5 Suggestions for policy recommendations

The overview of strengths and weaknesses suggests that disadvantages dominate, which could indicate that the competitiveness of the Montenegrin dairy sector is rather weak. The small scale farm structure, low milk yields, the deficiencies of the milk collection system, the low hygienic level of raw milk production and the difficulties in the access to financial means, all appear to be weak elements in the competitiveness of the Montenegrin dairy sector.

The changes in demand and in the structure of the supply chain noted in EU countries and in the Western Balkan countries have affected the Montenegrin dairy sector too. The current trends, however, will urge the sector to:

- remove certain bottlenecks and be more cost effective on production and distribution levels;
- search for value added by new product development;
- invest in marketing of existing 'special' products.

To develop actions in these directions it would help the producers and processors (dairy companies) to increase their scale of operation. Dairies could benefit from increasing scale by further specialization, and at the same time spread investments in product development and marketing over a larger production volume which would lower costs per unit.

In order to facilitate the primary and processing level to prepare for the challenges ahead, government policies could be helpful on the area of:

1. Direct payments as income compensation to the milk producer in order to support competitive position of the sector;
2. Land policy - aimed at land transfers that contribute to efficient farming by encouraging land consolidation. Such policy could be helpful in the more productive (flat) areas, where land parcels are still relatively small and scattered;
3. Rural development policy:
 - a) investment support through Axis One of RD policy is one of main priorities - without much intensive investment primarily into milk production the whole sector could not be able to compete on Montenegrin market; support in the form of grants should be allocated to the construction of new and renovation of the old barns, purchasing new equipment for milking and cooling of milk, purchasing high-genetic potential animals, improving fodder production by introduction new lines of mechanisation, improving housing of the animals, improving genetic potential and rearing of the offspring, etc.),
 - b) Axis Two and Three of RD policy aimed at supporting small-scale farming in less-favoured areas by compensatory payments and by stimulating the combination of agricultural activities and agro-tourism;
4. Facilitate technical and institutional modernization to increase productivity and efficiency in the sector, for instance, by supporting up to date research and extension services to farmers, by helping the agricultural sector to establish a marketing strategy to promote Montenegrin 'special' products, and by ensuring as much as possible market transparency providing public information on supply, demand, prices and trade of milk, land and other agricultural inputs.

Additional support to the rural development has to come from IPARD fund, that support should target primary production of milk and processing sector too. This policy, funded by the EU, will become increasingly important in encouraging economic developments in rural areas, where agricultural income and employment decline over time. Programmes in this area could also support the development of new income sources in regions where milk production declines due to dairy policy and/or market changes.

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