



Analysis of the dairy chain in Slovenia

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April 2007

PREFACE

This report has been written in the framework of the Slovenian-Dutch Twinning-project “Helping farmers and supporting institutions to quota regulations in adjustment to the EU supply management resources”. The report is largely based on data collection and a field trip in June 2006 and a second trip in November 2006, in which also a workshop was held to discuss the preliminary conclusions from this study. In this workshop - chaired by the project leader Abele Kuipers - professor Joze Osterc from the Biotechnical Faculty, University of Ljubljana, Slovenia and Dr. Josef Lederer from the Kammer fur Land – und Forstwirtschaft, Salzburg, Austria, also presented views from their countries. These views are integrated in this report. About 30 persons from all kind of organisations of the Slovenian dairy sector participated.

The author wishes to thanks Marija Klopčič and Franc Habe (both at Biotechnical Faculty, University of Ljubljana) for organising field trips and providing verbal information, and to Tina Volk (Agricultural Institute of Slovenia) and the Agency for Agricultural Marketing and Rural Development for providing statistical data. The author acknowledges the kind assistance of Ab van Buiten, RTA at the Twinning Office. Also, the author acknowledges the support of all the individual farmers and companies that were visited and interviewed.

EXECUTIVE SUMMARY

This report analyses changes in the structure of dairy farms and in the dairy supply chain in Slovenia during the last decade, identifies key constraints for further development and indicate policy directions to improve the competitive position of the sector. The analysis draws on data analysis, literature review and on interviews with stakeholders.

Key findings and conclusions are that:

- the sector is characterised by a small scale of production: two-third of the dairy farms produce less than 50,000 kg/year. An average holding has 6.6 dairy cows;
- Slovenian milk quota is 576,000 tonnes (2006/2007). Quota has been allocated to around 9,300 farmers. There was still some 15,000 ton in National Reserve in March 2007. There is little trade in milk quota;
- Most milk is sold to dairies through agricultural cooperatives. The number of these milk trading cooperatives is high (around 100);
- Milk is processed by seven dairy companies. One of them processes over 50% of all milk supplied, the others are very small-scale processing companies;
- Approximately a quarter of the milk production is sold to Italy, where prices for milk are significantly higher than in Slovenia;
- Milk quality at primary level generally meets the highest EU standards. Milk yields are some 75% of EU average. Compared to average dairy farms in most other major milk producing countries in EU-15, gross margins at Slovenian dairy farms are low;
- Dairy industry performance indicators show declining profit figures and gross value added per employee in the industry in recent years. Furthermore, the industry is losing market shares to foreign competitors;
- Competition at the EU markets is expected to become more intense due to policy changes (less support to farmers and industry) and market trends (e.g. consumers in saturated markets are highly demanding; concentration of market power in retail and processing);
- Implications of these trends for Slovenian dairy farmers and processing companies are to increasingly search for 1) cost reductions by increasing scale of operation; 2) product development, and 3) investments in marketing of (special) products;
- Key policy issues for the government refer to land consolidation, technical and institutional modernization aimed at increasing productivity and efficiency in the chain, and regional/rural policy. Examples from Austria how to apply CAP measures in order to support small-scale farming in less-favored areas may prove to be very instructive for Slovenia.

1. INTRODUCTION

The aim of this report is to describe and estimate the state and performance of the dairy sector in Slovenia. The report aims to judge the competitiveness of the Slovenian dairy sector and to identify some of the key constraints to competitiveness. 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 individual industries to "profitably maintain or increase market share" in either domestic or international export markets. Structure, conduct, and performance concepts are combined with resource analyses in judging the competitiveness of the Slovenian dairy chain. Interviews are used to further 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 to processing and retailing activities.

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 Slovenia 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, some conclusions are drawn with respect to the sector's competitiveness. Together with a brief evaluation of trends in (mainly EU) policy and international markets, this paper concludes with presenting an outlook for the sector's development and some policy recommendations to help prepare the dairy chain for the challenges ahead in section 4.

2. OVERVIEW OF THE SLOVENIAN DAIRY SECTOR

2.1 Sector definition: sector components and importance

Slovenian milk production has traditionally been concentrated in the private sector. At independence (1991) only a small number of state farms – known as 'agricultural enterprises' - produced milk. Nowadays all milk production comes from privately-owned farms. In 2005 over 80% of the milk production is delivered to dairies for processing. The rest of the milk production is retained on farms for family and livestock usage. No significant quantities are sold directly to consumers.

At the processing level, the current industry consists of five major and two very small companies. Data from 1992 indicate that at that time there were around 20 dairy processing enterprises in total. Foreign investment has not entered the dairy sector.

Beyond the processing sector, the distribution of processed milk and dairy products involves private specialised shops, private wholesalers and the distribution networks of retail chains. The latter is highly concentrated in Slovenia, where in 2003 the four biggest retailers account for 83% of all food sales (Kuhar, 2005: 19).

Production and value added

Table 1 indicates that milk production accounted for 14.6% of Gross Agricultural Output (GAO) in 2005. Whilst the data suggests considerable fluctuation over the period, there appears to have been some decrease in the share over the past three years. The share of 14% is a bit more than that of the EU(15) as a whole, in which

milk accounted for 13.2% of Final Agricultural Production (Eurostat, 2006). The milk shares in individual states range from 6% in Spain to 28% in Finland and 32% in Luxemburg.

Table 1 Share of milk production in total Gross Agricultural Output (GAO), 1997 and 2000-2005

	1997	2000	2001	2002	2003	2004	2005
GAO (in Mio euro)	1031.5	988.9	985.2	1072.3	962.6	1105.1	1104.3
Share of milk production in GAO (%)	12.5	16.1	16.7	16.1	16.8	14.4	14.6

Source: Slovenian Office of the Republic of Slovenia (SORS), Economic Accounts for Agriculture

The food processing industry was and still is a small sector in Slovenia. In 1998 the food industry accounted for 3.4% of Slovenia's Gross Domestic Product (GDP) and 2.9% of its total employment (EC, 2002). The category of 'Other foods' and 'Beverages' were the dominating sectors, both accounting for about half of the output and employment of the food industry. These two sectors were followed by processed meat, fruit and vegetables and dairy products, the latter accounting for 7.2% of Gross Value Added (GVA) and 10% of total employment in the food industry in 1998. Over the period 1996-98 GVA of the dairy industry declined significantly (-25% in euro), but with only limited employment decreases, indicating that there were no substantial rationalisation of production facilities during this period. A comparison of data over years shows that the position of the dairy industry in the total food industry did not change much between 1998 and 2005, accounting in 2005 for 8.5% of GVA and 9.0% of employment in the food industry (Kuhar, 2005 and 2006).

Milk flows within the sector

In 2005, 83% of the total milk production was delivered for processing to the dairy companies (figure 1). In the 1990s this proportion was in the range of 60 to 70%. In recent years the share increased to vary between 70 and 75% and it suddenly jumped to 83% in 2005. This shows that only recently a bigger part of the Slovenian milk production have become commercial. Around 100,000 ton of milk production retains on farms. Major part of this volume – some 60% - is used for animal feed. The other 40% is either for family consumption or for direct sales.

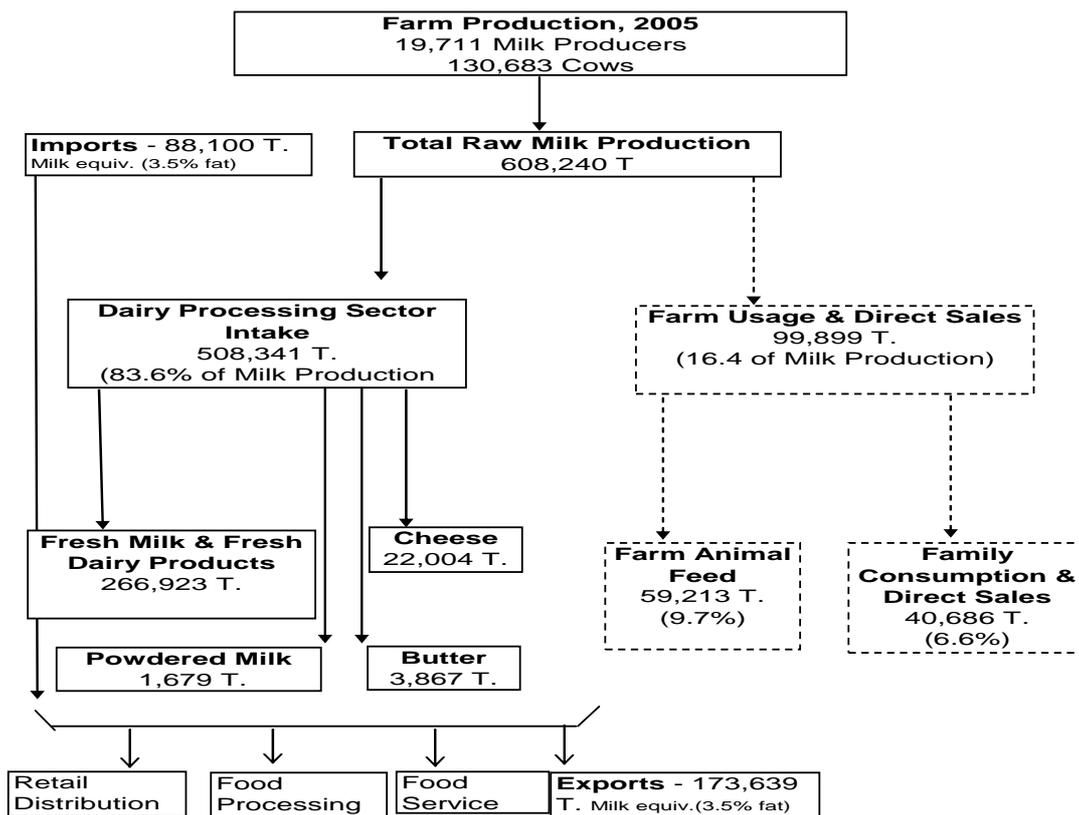


Figure 1 Overview of the Slovenian milk sector and milk flows, 2005 (Sources: SORS and Agricultural Institute of Slovenia)

An estimated 50% of the milk processed is in fresh milk and fresh dairy products, like yoghurts and cream. Next to that cheese, butter and powdered milk are the main products of the Slovenian dairies.

2.2 Structural features of the dairy chain

2.2.1 Industry structure at primary level

The Slovenian dairy herd counts 130,000 animals (see Table 2). The number of dairy holdings is somewhat less than 20,000. This makes the dairy sector a typically small scale family business. The sector went through a strong structural change, illustrated by the rather rapid decrease of the number of dairy holdings since 1997 when the total number of dairy holdings was over 46,000. The average number of cows per dairy holding has increased from 3.8 in 1997 to 6.6 in 2005. Yet, this average is very different from the size structure of the EU-15 where the average is around 40, ranging from 14 cows per holding in Greece to 80 in the UK (2003 data, from Eurostat, 2006). In 2005 still 40% of the dairy holdings in Slovenia had 1 or 2 cows and 57% had less than 5 dairy cows (SORS, Rapid report 88/2006, June 2006). The share of holdings with more than 10 cows has increased since 2000 but only slowly, reaching a merely 20% of all dairy holdings in 2005.

Quite a number of agricultural holdings – 17,452 in 2005 – have, next to milking cows, ‘other cows’, which are mainly suckler cows. In 2005, the total number of these cows was 54,850. The means that each agricultural holding in this category has on average 3 suckler cows.

Table 2. Size structure of the dairy holdings

	1997	2000	2003	2005
Agricultural holdings with dairy cows, total	46,312	28,588	17,189	19,711
1 to 2 cows	24,092	12,970	4,759	7,927
3 to 9 cows	19,054	11,879	8,070	7,713
10 to 19 cows	2,759	3,009	3,185	2,729
20 to 29 cows	294	520	789	867
30 to 49 cows	89	161	293	354
50 to 99 cows	13	37	83	108
>=100 cows	11	12	11	13
Dairy cows	174,275	141,574	131,101	130,683
1 to 2	34,883	18,436	6,973	11,377
3 to 9	89,259	59,481	43,167	39,582
10 to 19	34,334	38,962	42,708	36,576
20 to 29	6,587	11,986	18,371	20,030
30 to 49	3,050	5,843	10,589	12,797
50 to 99	786	2,165	4,969	6,507
>=100	5,376	4,701	4,323	3,814
Average number of dairy cows on holding	3.8	5.0	7.6	6.6

Source: SORS, Farm Structure Survey

Since Slovenia is member of the European Union, milk production is subject to the EU milk quota system. In compliance with the Accession treaty Slovenia had to introduce the milk quota system in quota year 2005/2006 (1 April-31 March). In negotiation with the EU, Slovenia had reached an agreement for quota to the amount of 560.424 tonnes of milk. In allocating quota to individual farmers, the very small farmers which mainly produce for own subsistence were not eligible for receiving quota. This means that not all registered dairy holdings have quota: information from the Agency for Agricultural Market and Rural Development (AAMRD) shows that in total only 9,617 farms delivered milk under quota in the first quota year 2005/2006 (see table 3). Of them, 69% had a quota size of less than 50 tonnes. Together these farms produced almost 138,000 tonnes, which was 26.6% of total production allocated through quota to Slovenia. On average these farms produced 19,700 kg per year. This means (with an average yield of 4,539 kg) these farms typically had four cows.

Table 3 also shows that in the second year the number of farms with quota is about 3% down. The number of farms in the size category of less than 50 tonnes declined by over 400, while the numbers in the middle categories increased. This indicates a trend towards consolidation of the milk production in middle-sized dairy farms in Slovenia.

Table 3. Farm structure for deliveries for the year 2005/2006 and 2006-2007

Quota size category (tonnes per farm)	Number of farms per quota size category		% of total farms per size category		Quota allocated to farms in this quota size category (1000 tonnes)		% of allocated quota per size category	
	2005/2006	2006/2007	2005/2006	2006/2007	2005/2006	2006/2007	2005/2006	2006/2007
0-50	6,614	6,201	68.8	66.3	137.8	136.0	26.6	25.1
50-100	1,755	1,810	18.3	19.3	123.7	128.6	23.9	23.7
100-150	611	658	6.3	7.0	74.0	79.8	14.3	14.7
150-200	261	287	2.7	3.1	44.9	49.2	8.7	9.1
200-300	221	238	2.3	2.5	52.5	56.5	10.1	10.4
300-500	122	133	1.3	1.4	46.1	50.3	8.9	9.3
500-750	23	33	0.2	0.3	13.5	19.4	2.6	3.6
>750	10	9	0.1	0.1	25.8	22.4	5.0	4.1
Total	9.617	9.369	100.0	100.0	518.4	542.1	100.0	100.0

Source: data for 2005/2005 from AAMRD, May 2006; data for 2006/2007 from AAMRD, April 2007 (all data in round figures)

In the quota year 2006/2007 the total quota allocated to Slovenian dairy farming sector is 576,638 tonnes. Out of this, 554,593 tonnes is for milk delivery to dairies (A-quota) and 22,045 for direct sales (see table 4). At the introduction of the quota system in the country, not the whole quantity negotiated in the area of milk quota with the EU was allocated to farmers; part was left as a national reserve for solving certain cases, such as mistakes in allocation, already initiated investment in milk production etc. Table 4 indicates that there was still almost 15,000 tonnes in the national reserve in March 2007, mainly in the section of deliveries (A-quota). Yet, there is flexibility in the system: at the request of the farmer, quota for direct sales can be converted to quota for delivery and vice versa. Also, a farmer who wants to expand can apply for quota from the national reserve. The government's decision to allocate quota to farmers is due to its discretionary powers.¹

Table 4 Quota for deliveries to dairies and quota for direct sales, 2006/2007

Deliveries (tonnes)		Direct sales (tonnes)	
Nat Ref Quantity	554.593	Nat Ref Quantity	22.045
Number of producers	9.369	Number of producers	2.449
Allocated quota	542.133	Allocated quota	19.509
National Reserve	12.460	National Reserve	2.536

Source: Agency for Agricultural Market and Rural Development, Sodobno Kmetijstvo, Yearbook 40, No. 1, March 2007

¹ The government may also take back quota: AMRD staff stated (verbally) that quotas were taken away from farmers who produced much less (< 70%) than the quotas allocated to them in 2005. These quotas were planned to be given to those farmers who supplied more than their quotas, or farmers who had bought quota last year.

2.2.2 Industry structure at processing level

At present Slovenia counts only seven milk processing companies (see table 5). Since independence several companies were closed down and others merged with Ljubljana Mlekarne or Pomurke. Ljubljanska Mlekarne is by the far the biggest dairy company, among others by the recent take-overs of dairies in Maribor and Kranj. Some of the dairy companies are operating at a very small scale (see figure 2 and table 5).

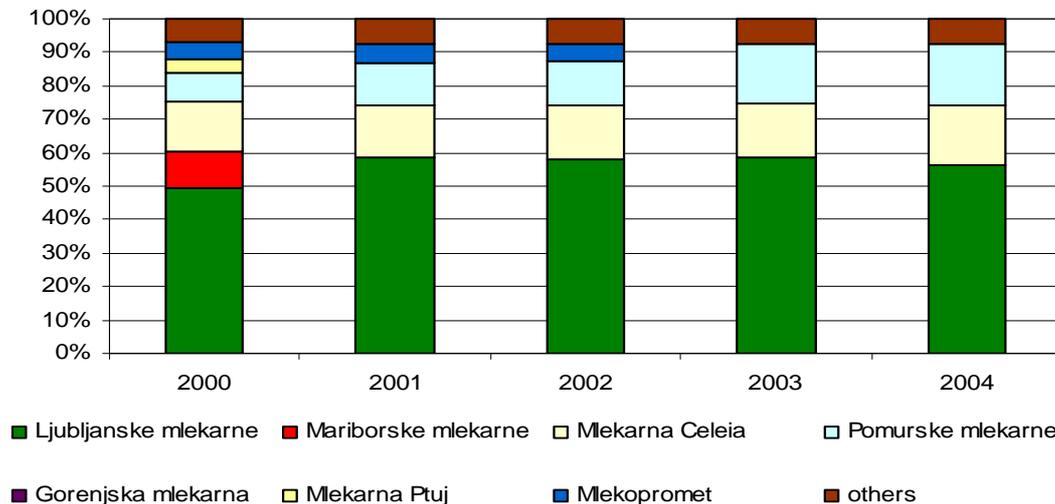


Figure 2 Intake of milk by Slovenian dairies, 2000-2004 (Source: Kuhar, 2006)

Ljubljana Mlekarne and Pomurka are both joint stock companies with shares owned by the state, by agricultural cooperatives and by others. Further, three companies have a strong cooperative involvement: agricultural cooperatives own 80% of the share of the Celeia dairy and 70% of the Agroinds dairy. Planika Kobarid dairy is even a full cooperative company. Next to these five companies, there are two very small dairies in operation. One is Kele & Kele which is a small family business which produces kefir (Bulgarian yoghurt) and the other is Skofja Loka that produces mainly cheeses.

Table 5. List of largest dairies with ownership structure and intake in 2005

Company name	Ownership structure	Estimated milk intake (in tonnes)
Ljubljanske Mlekarne	Joint stock company	280,000
Mlekarna Celeia	Limited liability (majority ownership by cooperative)	n.a.
Pomurke Mlekarne	Joint stock company	n.a.
Mlekarna Planika Kobarid	Cooperative	15,000
Agroind Vipava 1894 Vipava	Joint stock company (majority ownership by cooperative)	17,000
KGZ Skofja Loka	Agricultural cooperative	2,000
Kele & Kele mlekarna Krepko	Family company	n.a.

Source: company websites and verbal information

Most milk is sold to the dairies through agricultural cooperatives. The number of these cooperatives is around 120 and most of them (98) are registered as approved

purchasers of milk (website AAMRD). Nearly all farmers are member of a cooperative. In practice, dairies purchase most milk from cooperatives. For instance, Ljubljana Mlekarne purchases milk from only ten cooperatives (personal communication). Next to these cooperatives, the company purchases milk from a limited number of private farmers directly. It is estimated that in whole Slovenia around 50 farmers are selling their milk to dairies independently from cooperatives. These are the larger farmers.

Different from what happened in other new member countries, foreign investors have not entered (yet) the Slovenian dairy market. Evidence from other studies focused on the dairy sector in transition countries suggests that foreign investment has been important for the development of the sector, mainly as an initiator of change and institutional innovation (e.g. Van Berkum, 2006; White and Gorton, 2006). In Romania, for example, increased competition from internationally operating companies has encouraged the tendency of specialization in the sector and initiated further efforts to implement strict quality standards right along the dairy chain. The latter – the quality of the milk – has not been a problem in Slovenia; since many years almost all milk processed complies to all EU standards and is of first or extra quality grade. Yet, the push foreign competitors gave to domestic producers in many other transition countries to economize and specialise, was absent in Slovenia in the years before EU accession. Relative high protection rates for dairy products hampered imports to come in at competitive prices, while direct investments failed to occur. In verbal interviews, some explanations for the latter were put forward. Potential foreign investors found the Slovenian companies too expensive at that time, and/or found the Slovenian market too small and already too saturated for being attractive to local investments. Fact is that foreign investors ignored the Slovenian dairy industry and instead put their money elsewhere in the Central and East European region where they evaluated relatively much better market opportunities than in Slovenia.

2.3 Production, consumption and trade developments

The supply and demand balance sheet summarises the key developments in production, consumption and trade since 1997 (see table 6). Production increased until 2002 but importantly decreased since thereafter. Since the independence of Slovenia in 1991, exports have exceeded imports, leading the country being a net-exporter of dairy products. What should be noticed, however, is that imports have gone up significantly since 2002, while exports fluctuate. Production and imports together, minus exports and stock changes give available supply for domestic consumption. Consumption is rather stable at around 230-240 kg/capita in recent years. Comparisons with other EU-25 countries indicate that the average consumption per capita of butter and cheese is significant lower than in most other countries, while the per capita consumption of liquid milk is far above the EU-25 average (160 kg against 74 kg in 2005, Dutch Dairy Board, 2006).

Table 6. Supply/demand balance sheet on dairy products (in tonnes milk equivalent)

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Usable production	586,735	599,279	633,832	648,628	652,835	725,579	661,651	650,400	608,240
Imports	20,871	21,807	22,736	24,905	22,641	28,034	34,393	47,337	88,100
Exports	87,175	117,228	141,407	126,309	124,477	119,342	153,250	134,872	173,639
Change in stocks	124	3,338	-4,755	4,249	1,473	13,485	-11,383	4,684	-7,435
Domestic uses	520,307	500,520	519,915	542,975	549,526	620,786	554,178	558,180	530,136
Losses	7,755	8,491	8,789	9,012	9,250	9,646	9,776	9,994	9,407
Animal feed	91,518	73,872	81,218	84,088	82,781	105,881	75,516	72,955	59,213
Human consumption	421,034	418,157	429,907	449,874	457,495	505,259	468,886	475,231	461,516
Human consumption/capita	211.9	210.9	216.5	226.0	229.7	253.2	234.8	238.0	230.6
Self sufficiency %	112.8	119.7	121.9	119.5	118.8	116.9	119.4	116.5	114.7

Source: Agricultural Institute of Slovenia.

Production of raw milk

Production of raw milk increased gradually over the period of 1992 to 2002. Since 2002, however, production declined by 17% to reach 608,000 ton in 2005. As said, the proportion of milk produced that is delivered to dairies for processing went up from 60 to 70% in the 1990s to over 80% in 2005 (see figure 3).

However, early 2006 important developments occurred. Compared to the first two months of last year, the quantity of milk collected from farms in the first two months of 2006 decreased by 0.2% (SORS, Rapid report, no 94/2006, 14 April 2006). However, in the same period the quantity of milk collected by Slovenian dairies decreased by 24.9%. This very unusual development occurred because of milk trading with Italy. Farmers decided not to sell their milk anymore to the dairies they used to sell it to, when they found that prices they could receive from Italian dairies were considerable higher - some 10% or even more. Especially farmers near to Italy took the opportunity to gain from these price differences (see also section 2.1).

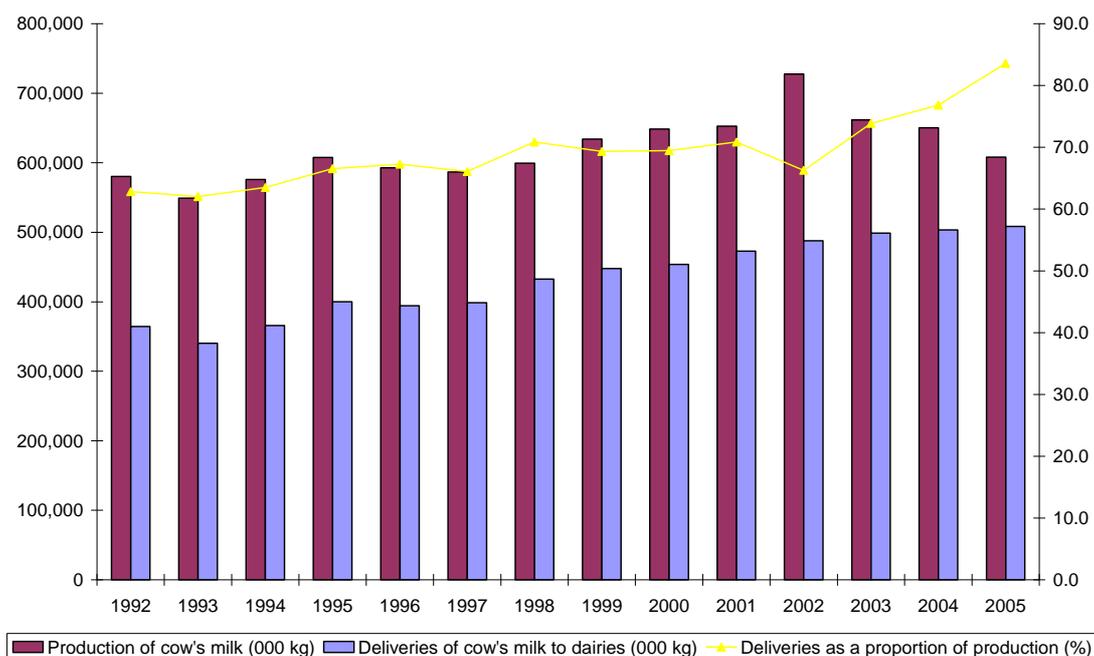


Figure 3. Milk production and deliveries to dairies

Production and consumption trends for dairy products

Production developments in the main dairy products more or less show a similar pattern as the milk production trend shown above. The production of fresh milk and fresh processed products went up until 2002 but then decreased to a level similar to 1994. The production of cheese peaked in 2003 after years of gradually increased production, but is again almost 30% less in 2005. The production of butter and milk powder – on a much lower level than the first two categories mentioned – also declined after 2002.

Data show that the consumption of fresh milk has declined since 2002 from 145 to 110 kg/capita in 2005 (Agricultural Institute of Slovenia). On the other hand, the consumption of cheese increased gradually over the period 1992-2005 to reach 12.2 kg/capita in 2005. Because of this increase and the decline in production, Slovenia became an importer of cheese in 2005, after years of being a net exporter of cheese. The consumption of butter is stable. Around 50% of the production is being exported.

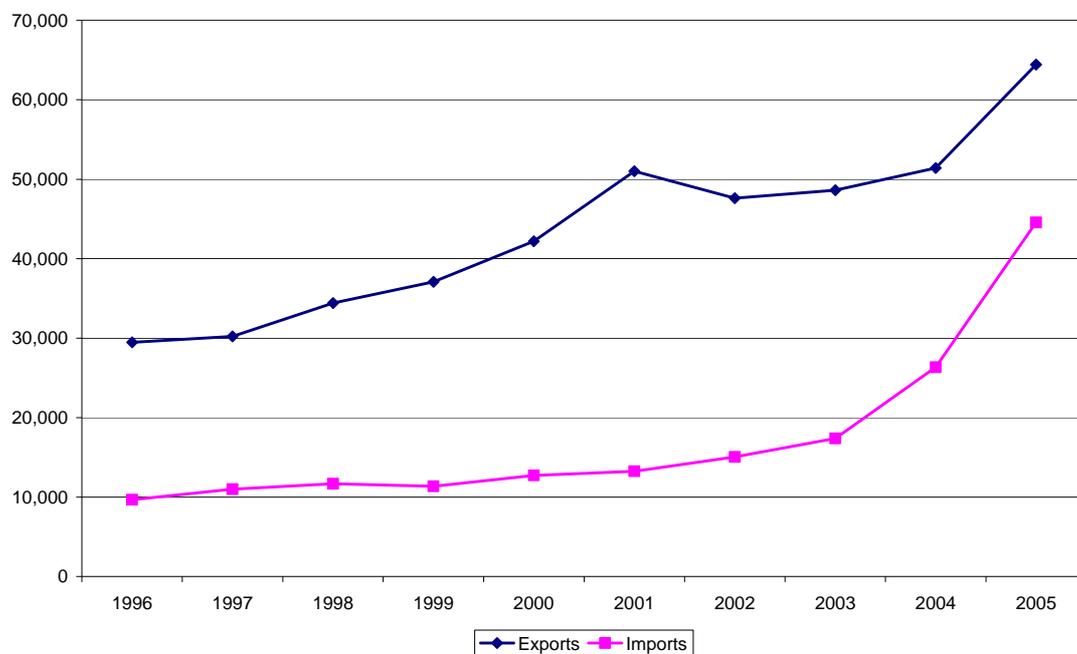


Figure 4. Value of exports and imports of dairy products (in million euro)

Trade

Slovenia is a net importer of agricultural products, but the country has always been a net exporter of dairy products. The export value has increased (almost) year after year to reach 64 million euro in 2005. However, the imports of dairy products have grown significantly in recent years, considerably reducing the net export position of the country in dairy products (see figure 4).

Another feature of the Slovenian dairy trade is the changing relations with trade partners. On the export side, the ex-Yugoslavian republics used to be the major market for Slovenian products. Nowadays, EU-15 has taken this position, while exports to ex-Yugoslavia are only a bit more than one third of all dairy exports (see table 7). On the import side the EU-15 has become an even more dominant supplier of dairy products. Ex-Yugoslavia has lost its second position as country of origin to the group of new member states (EU-10).

Table 7. Export and import, major destinations and origins (1997-2005)

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Exports (mio EUR)									
Total agro-food products ¹⁾	296.1	315.3	317.2	356.8	386.3	407.5	403.2	357.4	413.9
of which Dairy ²⁾	30.2	34.4	37.1	42.2	51.0	47.6	48.6	51.4	64.4
EU-15 (%)	17	23	19	12	11	13	21	29	58
EU-10 (%)	0	0	0	0	0	0	8	8	4
ex-Yugoslavia (%)	76	71	75	84	84	83	65	59	36
Other countries (%)	7	5	6	4	5	4	6	4	1
Imports (mio EUR)									
Total agro-food products ¹⁾	661.6	656.4	644.7	700.1	747.7	759.1	772.9	888.5	1,013.4
of which Dairy products ²⁾	11.0	11.7	11.4	12.7	13.2	15.1	17.4	26.3	44.6
EU-15 (%)	57	59	61	62	62	72	76	85	84
EU-10 (%)	0	0	0	0	0	0	2	6	11
ex-Yugoslavia (%)	30	32	31	30	31	24	21	8	4
Other countries (%)	13	9	8	8	6	4	1	0	0

Source: SORS. Notes: 1) CN chapters 01-24; 2) CN chapter 04.

Major foreign markets for Slovenian dairy products are Italy and France in the EU-15 and Bosnia-Herzegovina and Croatia. Exports to Italy largely consist of (probably raw) milk and cream (with an export value of 27.7 million euro in 2005) and some cheese, while exports to ex-Yugoslavian countries are mainly cheeses. Imports of dairy products are primarily cheese and some butter. Most important sources of these imports are Germany, Austria and Italy. Trade data also show that Slovenia imported fresh (raw?) milk from Austria, Czech Republic and Hungary in 2005.

3. PERFORMANCE OF THE DAIRY SECTOR

3.1 Performance at farm level

It has already been noted that Slovenia dairy farming is characterised by small-scale farming. With an average herd size of 6.6 cows the country's dairy sector has a very different size structure to that in the EU-15 (section 2.2.1). The small-scale structure of Slovenian milk production results in the sector operating with a number of inefficiencies at the production level.

Yields

One of the areas of low technical efficiency is that of milk yields. The average milk yield per cow in Slovenia is compared to those levels achieved in the EU. At 4,500 litres per cow p.a. in 2005 the Slovenian average yields was 76% of the EU-25 average and 72% of the EU-15 average. It should be noted that differences in yields are wide among EU countries: the lowest yield countries were Lithuania and Latvia (4,200 litres) while the highest average yields (over 7,000 litres/cow) are achieved in the Netherlands and the Scandinavian countries.

Part of the explanation of Slovenian average yields being on the lower end of the range in the EU may be due to the dominant breed on a large number of farms. Around 50% of the Slovenian cow herd is Simmental type of cow. These cows are predominantly on the smaller scale of farms and in the less favoured, hilly areas. An increase of the percentage of Holstein-Friesian type of cows would probably allow an

increase of yields of milk in future. However, these animals are not as suitable for hilly areas as Simmental or Brown Swiss cows and not as suitable for beef production as the Simmental.

Major difference exists between the country's performance of cow yields on average and the yield registered at those farms that are in the milk control programme (see the difference between the yellow and green price line in figure 5). The latter, with around 60% of all dairy cows of Slovenia on their farms, are presumably the bigger and more commercially oriented farms. These farms have largely Holstein-Friesian cows and use much more feed concentrates than the typical small-scale farms.

Land

Another issue that affects efficient farming negatively is the fragmented land structure in Slovenia. This is particular the case in hilly and mountainous regions but also in the flat areas. Personal communications indicate that often farmers use land that is scattered over a wide area – sometimes 5 to 8 kilometres from their cow stables. Moreover, typical for most part of Slovenia agricultural land is divided into small parcels, which is a further disadvantage to use land efficiently. Farmers who want to develop their farm have difficulties in purchasing land: either land is not available in the vicinity of their farm or prices for land are relatively high. Near to cities where business and services expand, the demand for land force up prices to levels farmers cannot pay: Anecdotal evidence suggests land prices of 50,000-60,000 euro/ha. Land rents would be around 150 euro/ha for a 10 year lease period. Landowners who stopped farming and/or live in the city are willing to rent out land to farmers that continue business but are not keen on selling land. The reason is that the EU hectare premium coupled to the land. This premium accrues to the landowner, not to the user of the land.

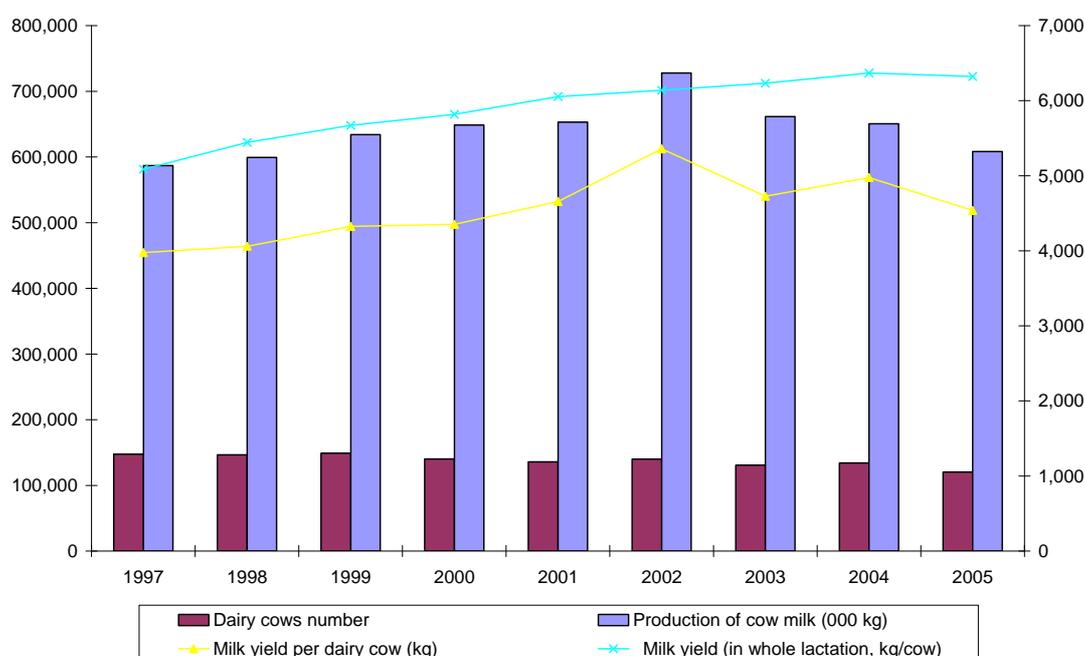


Figure 5. Cowherd, milk production and milk yields, 1997-2005

Sources: SORS for herd, production and average yield; Cattle Breeding Service of Slovenia for milk yield in whole lactation by dairy farms in milk control program.

Quota prices

The introduction of the milk quota system sets limits to the total national milk production and to each individual farm. Farmers who want to expand their business to benefit from scale economies have to opt for extra quota. At present buying milk quota to enlarge dairy farming operations is not considered a big problem in Slovenia. Anecdotal evidence indicates that deals were closed where farmers bought 50,000 liters for 49 SIT/liter. Compared to present milk prices (see below) this quota price is relatively cheap. Expectations are that quota prices will remain low for this and next year as Slovenia produces still less than allowed according to the national quota granted. Important is, however, what will happen if milk quotas become binding. Quota prices then may rise significantly, implying that farmers can expand only at relatively high costs. The consequence could be that only the most efficient farmers operating in the most suitable areas for dairy farming will be able to invest in milk quota. In some EU countries, such as Germany, France, Ireland and Poland, the government has set conditions to tradability of milk quotas to balance between efficiency criteria and regional distribution of milk production.

Milk prices

Milk prices have increased (in euro terms) since independence until 2002 (see figure 6). The increase has been part of the governmental policy to support the dairy sector. In early 2000s milk prices to farmers came under pressure due to several reasons. First, there was a change in policy, in anticipation of EU entrance. This meant in practice less support through price and trade policy. Second, the changing balance of power in the food chain had an impact on of-farm milk prices. Due to consolidation in the retail, dairies had to economize their business and one way to do that was to lower the prices paid for the raw milk to farmers.

The figure below on prices shows the declining tendency of the Slovenian milk price since 2002. Since accession in 2004 prices are subject to the EU dairy market regime. In 2003 a reform of the Common Agricultural Policy was adopted that implied (among others) a lowering of (intervention) support prices to butter and milk powder in the period 2004-2007. This policy measure also contributed to the downturn of the milk prices.

Figure 6 also shows the difference between the prices paid by the dairies and the prices received by the farmers. This difference is 2-3 SIT/litre, or 7-10% of the dairy-gate price. This rather high difference may be due to several costs that go with the transport of the milk and other services linked to milk trading between a farm and a dairy company. 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 around 2 SIT/litre of milk. Milk from the small farms and from farms on difficult accessible locations is usually brought by farmers themselves to a collection centre. Such collection centres are mostly managed by an agricultural cooperative. For this, farmers are charged by paying a percentage of the milk price per litre, as well as for the cooperative's administrative handling of the milk delivery contracts between the dairy and the farmers². The cooperatives are said to take 3-4% commission fee for their administrative services, some sources even indicate a higher percentage. Compared to what an intermediary for a sale usually would take in a well-

² As said before, agricultural cooperatives play an important role as intermediate between farmer and the dairy company as 'approved purchaser' of milk.

functioning market³, the commission taken by cooperatives is considerable. At the same time, it should be noted that cooperatives provide more services to their members than only the handling of milk, such as extension and purchase of inputs (compound feed, fertilizers, etc).⁴ It would be interesting to analyse the commission fee and make more transparent which components contribute to it.

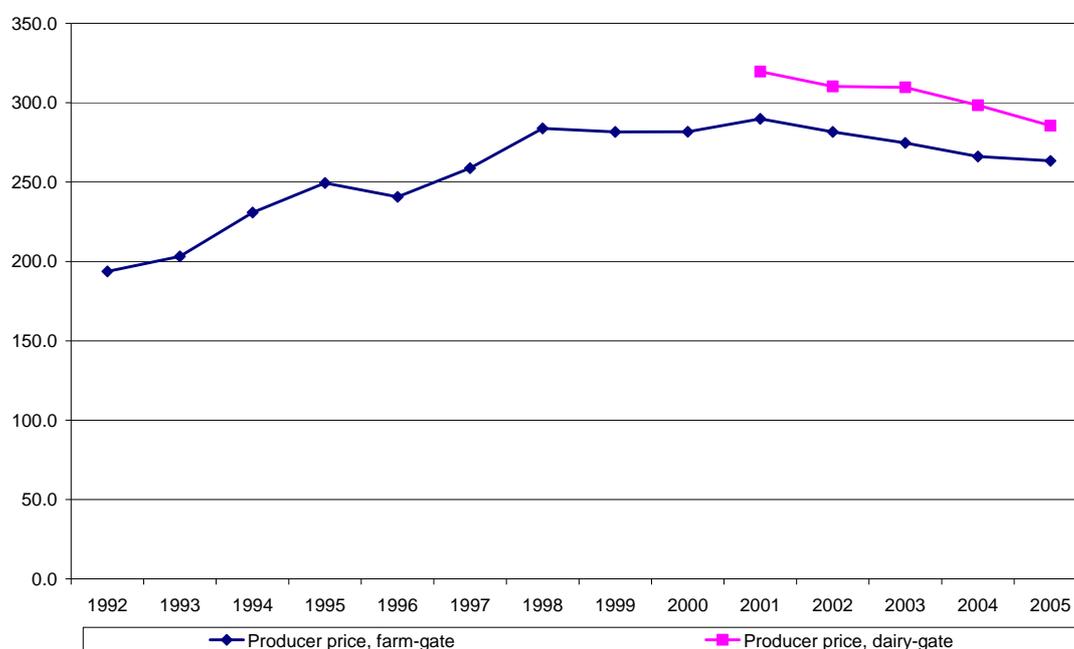


Figure 6. Milk prices in euro/ton.

Sources: farm-gate prices by SORS, dairy-gate prices by Ministry of Agriculture.

Farmers selling to Italy stated they receive 69 SIT/litre or 0.29 euro/litre for their milk (in June 2006). Personal communications indicate that selling their milk to Slovenian dairies would bring them 0.26 euro/litre. EU broad milk price comparisons are fraught with difficulties: it depends on the market situation (shortages or not), different currencies and on the content of the milk. Eurostat data of end December 2004 indicate a wide variety of milk prices in the EU15 countries, from 25.17 euro/100kg in the UK to 35.50 euro/100kg in Italy. The Slovenian milk price of 28.04 euro/100kg was at that time quite close to the average EU-15 milk price of 30.78 euro/100kg. An international price comparison based on a sample of 16 dairies in 8 different EU members states indicates an average milk price of 25,95 euro/100kg for April 2006 deliveries, which brings the rolling average of the last 12 month to 28.46 euro/kg

³ A middleman or agent in goods or, for instance, in personal property would take 1-1.5% of the total trade's sum.

⁴ Agricultural cooperatives can have many different activities. Next to the marketing of the products of their members, and the purchase of inputs (feed, fertilizers, etc.) for their members, operate shops, provide advice, help farmers to fill in application forms for government subsidies, etceteras. For some of these services farmers pay, others are free of charge. It is difficult to assess to what extend the charge (or commission) is directly related to the costs of the services provided. Also several cooperatives are owner (full, majority or minority) of companies (dairies, slaughter houses) and own other assets (buildings, sometimes for renting out). This generates money that can be used for cross-subsidizing services, or if businesses are not going well, charges on services could be used to support other activities of the cooperative.

(LTO, 2006). These figures indicate that the Slovenian milk prices follow the trend in de EU, but that prices in nearby Italy are always significantly higher than in Slovenia.

Gross margins

The question of whether an enterprise is capable of producing a positive margin is an important element of competitiveness. Table 8 sets out a gross margin on an average Slovenian dairy farm, and on a small and large sized farm.

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 4167 kg/cow and a milk price of 27.1 euro/100 kg (in mid 2006), the farms achieve:

- a gross margin (total income less variable costs) of 8346 euro
- a gross margin of 16.69 euro per 100 kg of milk;
- and a gross margin rate of return on milk sale of 62% (16.69 / 27.09).

Comparisons with gross margin calculations are fraught with difficulties (different levels of support, different currencies, differing levels of dependence on purchased inputs, etc) but it is useful to make some comparisons with milk production in other EU countries. Such comparisons indicate that the Slovenian gross margin performance is lower than what can be found in most other major milk producing countries in the EU-15. Based on 2002 data, an EU-15 average gross margin rate was calculated 86%, with some countries like the UK and Denmark (both 73%) below this average and the Netherlands (87%) and Italy (82%) above that EU-15 average (Beldman et al., 2006).

Table 8 Gross margins at Slovenian dairy farms

	Average dairy farm	Small dairy farm	Large dairy farm
Number of cows	12	8	40
Yield (kg/cow)	4167	3642	6556
Grassland (ha)	7	7	15
Other crop (ha)	5	0	15
Values in € per 100 kg milk			
Total revenues	30.23	30.39	27.79
- Milk and dairy products *	27.09	27.09	27.09
- Turnover (calf sales) *	3.14	3.30	0.70
Total calculated costs	13.54	7.54	13.17
- Feed concentrates	3.65	2.61	5.51
- Health care	0.91	0.91	1.11
- AI and Milk recording	0.77	0.88	0.49
- Fertilizers	1.90	1.32	1.82
- Seeds and crop protection *	2.00	0.00	1.14
- Other costs *	4.31	1.82	3.10
Gross margin per 100 kg of milk	16.69	22.85	14.62
Gross margin rate (of return on milk sale)	62%	75%	53%
Gross margin (total revenues less variable costs)	8346	4994	38349

Source: Twinning project calculations and estimates.

Note: * is estimation. Milk premium is not taken into account.

Table 8 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 lower revenues on sales of young stock, while at these farms calculated costs are higher, 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

Turnover and employment in the dairy industry

Total sales of the dairy industry have gone up over the period 2000-2004 (see figure 7). Personal communication revealed that 2005 sales declined by 10%. Biggest part of the sales is realised at the domestic market. Only 17-18% of total sales are achieved at export markets. This shows the limited export-orientation of the Slovenian dairy sector. For comparison: the export sales of the fish, fruit & vegetables, beverages and tobacco industry are around 30-35% of their total sales.

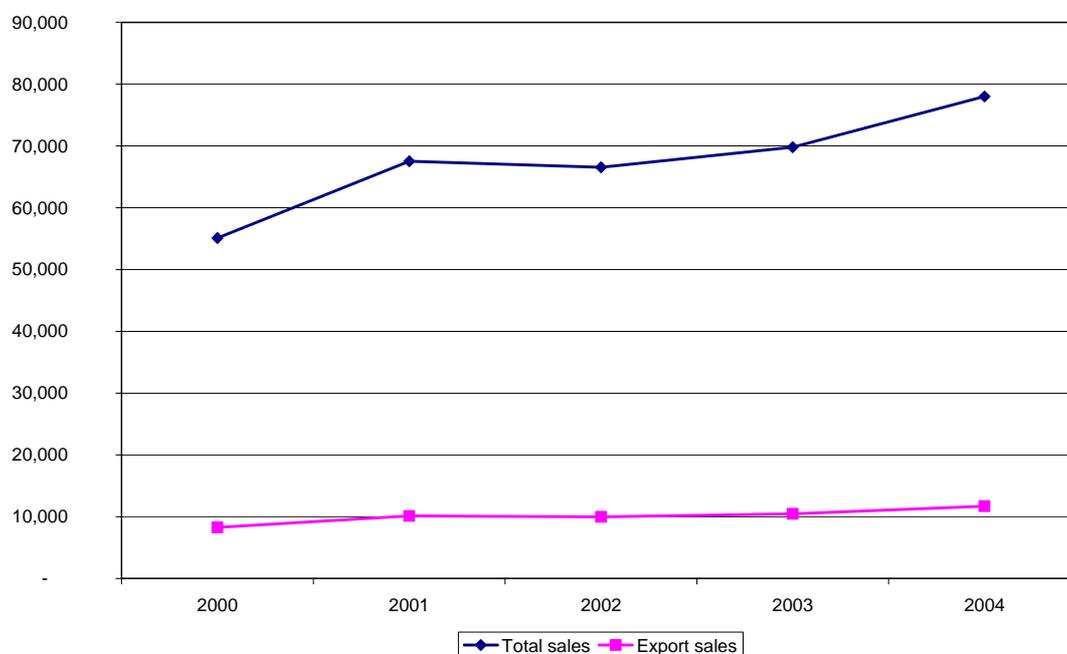


Figure 7. Total and export sales of the Slovenian dairy industry, 2000-2004 (in '000 SIT)

Value added and profits

Slovenian milk processing companies have been profitable over many years but data for recent years indicate that results fluctuated from year to year (Table 9). Part of this can be explained by investment efforts in the run-up to EU accession, when requirements of the *Acquis communautaire* had to be fulfilled and investments in equipment and organisation had to be done. On the other hand, at least some of the dairies benefited from SAPARD funds aimed at the modernisation of the food industries.

Table 9. Performance indicators of the dairy industry (in 1000 SIT)

	Net Profit	Value Added	Value Added Per Employee	Productivity	Net Profit/Employee
2000	635,770	8,507,450	4,845	31,588	362
2001	-1,629,723	9,529,650	5,486	34,640	- 938
2002	1,219,642	10,730,254	6,059	35,979	689
2003	1,000,650	10,334,425	6,061	38,496	587
2004	-2,318,652	7,457,529	4,484	38,970	- 1,394

Source: Kuhar, 2006

The indicator of Gross Value Added (GVA) per employee can be used for comparisons of competitiveness and economic potential of companies and activities. The GVA per employee in the dairy sector is almost equal to the average for all food industry sectors and about 10% higher than for the manufacturing industry as a whole (Table 10). Yet, the dairy industry has lost much of its strong position it had before: over the period 1999 to 2003 the gross value added per employee declined by almost 20% - largely because of a stronger decline of productivity in dairy industry compared to other food processing activities. In the same period GVA/employee in the food industry increased slightly and the overall manufacturing sector did much better – an increase by almost 17%. The dairy industry recorded a decline in profits per employee by almost two third in the period 1999-2003.

Table 10 Gross Value Added and profits per employee in the dairy sector, food industry and manufacturing

	GVA per employee, 2003		Profit/loss per employee, 2003	
	2003 (1000 SIT)	2003/1999 index	2003 (1000 SIT)	2003/1999 index
Dairy industry (15.5)	6.061	80.7	586.9	-919.8 *
Food industry (15)	6.107	101.0	541.2	61.5
Manufacturing (D)	5.741	116.9	577	151.6

Note: * absolute change in 1000 SIT

Source: Kuhar, 2005: 15

The indicator of GVA per employee is also often used for international comparisons of competitiveness and economic potential of companies and activities. Comparing this indicator of the Slovenian dairy industry with the EU-15 competitors shows that 2003 GVA/employee in the Slovenian dairy sector only reaches 48.5% of the average EU-15 level (latest available data are 2001 figures) (Kuhar, 2005: 17). Eurostat data for 2003 give even a bleaker picture of the Slovenian dairy industry in comparison with most of its competitors from the EU. Where the GVA/employee in the Slovenia dairies is 7.700 euro, only the figure for Slovakia is near. In many European countries GVA/employee in the dairy industry is much higher, range to 74,000 euro in the Netherlands and 81,000 euro in Ireland (Eurostat, 2006).

Market share developments

On fresh product milk and yoghurts the Slovenian dairies are losing market shares to foreign competitors. For milk, nearly all domestic consumption was from produce sold by Slovenian dairies until 2003, but then the Slovenian dairies' market share

declined to reach 92% in 2005 (figure 8). The same tendency appeared for yoghurt, starting with a market share of 96% in 2001 but declining to 68% in 2005. Meanwhile the market for yoghurt gradually expanded, by over 20% in this period.

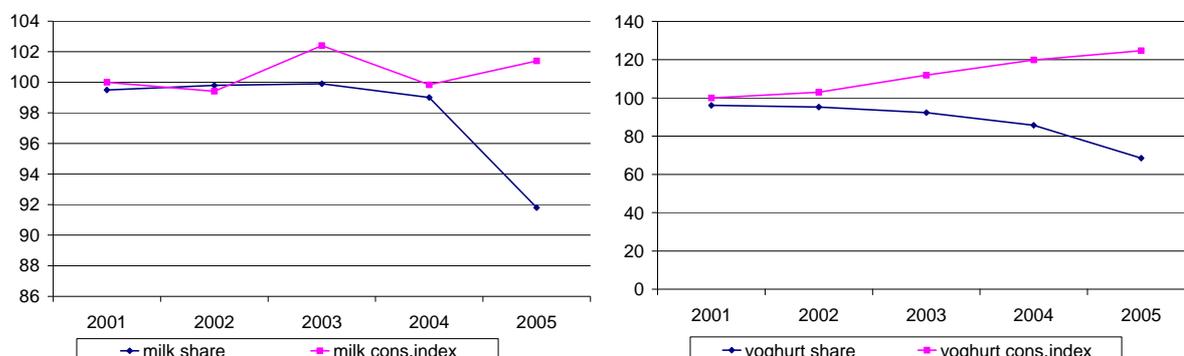


Figure 8. Share of Slovenian dairies' sales (in %) in the total domestic consumption of liquid milk and yoghurt, and development of consumption of these products (consumer index, 2001=100) (Source: Slovene Dairy Association)

Data on market shares for cheese and butter indicate the same tendency as noted above for milk and yoghurt. Over the period 2001 to 2005 the market share for cheese declined from 88% to 73%, and for butter from 95% to 88% (figure 9). Especially in the case of cheeses, the consumption has expanded since 2001. The Slovenian dairy industry has, however, not been able to benefit from this increase in consumption; on the contrary, it lost shares on this market with increasing perspectives.

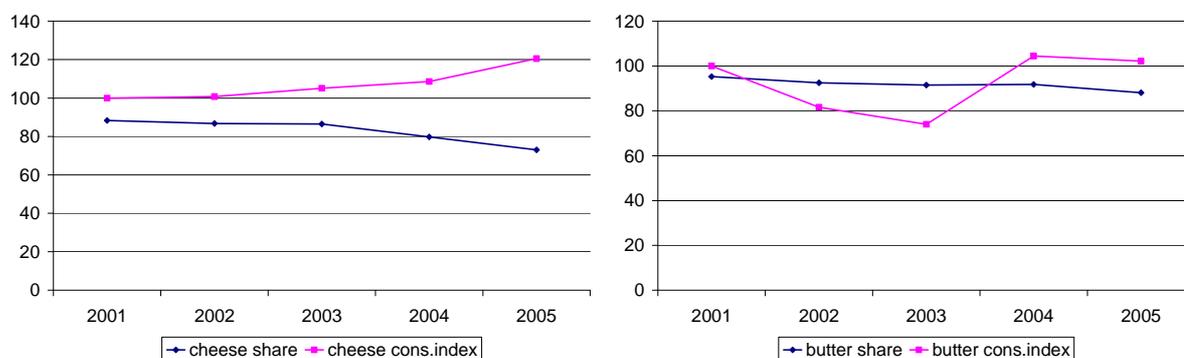


Figure 9. Share of Slovenian dairies' sales (in %) in the total domestic consumption of cheese and butter, and development of consumption of these products (consumer index, 2001 = 100) (Source: Slovene Dairy Association)

Competitiveness at retail level

At the retail level a wide variety of products can be observed and comparisons are fraught with problems 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 a local retail manager, representing one of the largest retail chains operating in the country.

- Slovenian dairy products are well represented in all major dairy product categories;
- Generally, the quality of Slovenian products is perceived similar (not lower!) to foreign competitors;
- The retailers' private labels are almost exclusively produced by Slovenian dairies. These products have to be the cheapest and are known for their low margins (both to retailer and to producer);
- Slovenian company brands in yoghurts and cheeses are not among the cheapest. For instance, Danone continuously offers yoghurt at lower prices than Slovenian dairies offer in the main Slovenian food retailer. At the same time, this well-regarded foreign brand is known for its high quality products.

Personal communications with the retail sector indicate that:

- Slovenian dairies have major difficulties in competing with foreign 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.
- Slovenian dairies have a too 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 Slovenian dairy products are not considered outstanding to consumers. However, some companies sell products with market perspectives (e.g. Kefir, Pinjenec, Nanos cheese, Tolmina cheese), some of which have a certificate of special agricultural product. Furthermore, many Slovenians consider Slovenian 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 Slovenian primary dairy sector is clearly handicapped by:

- a small scale of production - especially in the hilly and less favoured areas - which is very labour intensive;
- low average yields on small-scale farms which in many instances are due to the type of breed (mixed for meat and milk purposes)
- a fragmented land structure that requires a well-considered land consolidation policy.

In addition, it has been observed that:

- milk prices for producers are slightly below those of EU producers;
- gross margins for milk production are low relative to EU states, especially for the larger dairy farms;
- transport costs of milk from farmers to dairies are significant, while the organisation of milk payment through the intervention of cooperatives seems rather inefficient.

As far as the milk processing sector is concerned:

- in recent years dairy processors lost their relative strong position by declining labour productivity and their performance levels in terms of value added and market share dwindled;
- 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 Slovenian 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 Slovenian dairy chain uses its market opportunities in the best way. The next chapter will sketch the challenges and some of the market opportunities for the dairy chain. Moreover, some recommendations for government policies are formulated aimed at strengthening the sector's ability to face future challenges.

4. OUTLOOK

While section 2 and 3 analysed the present structure, conduct and performance of the sector, this chapter briefly describes the context in which the Slovenian dairy chain has to try to overcome its major identified bottlenecks for improved performance and in which the sector has to look for its market opportunities. This chapter starts with summarising major relevant policy and international market developments, and concludes with commenting on the implications these developments have for Slovenian dairy sector development.

4.1 Policy developments

In 2003, the EU decided to expand the milk quota (by 1.5%) and reduce the intervention prices for butter (-25%) and skimmed milk powder (-15%). As the agricultural Ministers agreed then, these measures will be evaluated in 2008. This evaluation will focus on the size of the quota related to the market situation. Important is how internal and international markets will develop in the years to come. Also, the division of quota among the member states can be an issue of debate. Production developments in some new member states may lead to an application of extra quota by these countries. Others may join such applications, and then this may result in a discussion of the effectiveness of the quota system in controlling the production and in supporting internal prices. One option then might be to decide to abolish the quota system at a fixed time, for instance in 2015.

Changes in the CAP are strongly connected with the WTO Doha Round outcome. The eventual outcome of the Doha Round is still uncertain. However, most plausible is that the WTO Round results into a trade agreement that induces the EU to further

reform the dairy policy⁵. The trade negotiations have focused largely on the full phasing-out of export support and a reduction of import protection; income payments may remain as part of the 'green box' (considered as not trade distorting support, decoupled from production). The EU has brought in these elements in the trade negotiation or endorses the basic ideas indicated. Seen the trade negotiation process until July 2006, it is plausible to assume that in the medium term dairy exports will be without government support. This may have negative consequences for EU's export position as export to certain 'third markets' will become more difficult. On import tariffs the framework for the reduction has become clear at the Hong Kong Summit in December 2005 but when negotiations resume details still need to be filled in. However, it should be anticipated that the most probable outcome of the WTO negotiations will lead to further downward pressure on internal EU dairy prices.

4.2 Trends in the market

In terms of consumption quantities not much expansion may be expected on the EU market. Although several international organizations like OECD, FAO and FAPRI are rather optimistic about international markets developments for dairy products, growth of demand will largely be in developing countries and not in the saturated (old) EU-market. In terms of products, there is a difference between the still increasing demands for cheese and 'other fresh dairy products' like yoghurts and other deserts, and the further decline of demand for commodities, like fresh milk, butter and milk powder.

Change in market structure has been enormous in the last decade and a half. Most evident has been a rapid concentration in the dairy industry, especially taken place in the 1990s and, although at a lower pace, still continues. Companies like Arla Foods, Lactalis, Friesland Foods, Campina and Nordmilch all became multinationals with strong positions in the EU in this era. These companies now belong to the ten biggest dairy companies in the EU that process 40 million ton or 30% of all raw milk in EU-25. At the same time, a further specialization has taken place, separating the milk suppliers from the brand manufacturers. In other words: firms specialize on the business-to-business market or on the consumer market (or separate their organizations in two business units that focus on different markets). Traditionally, dairy firms were, for example, cooperatives that owned their own processing plants that processed the raw milk into fresh milk, yoghurt, butter, and the like. Some part of the raw milk as well as milk powder was sold to food processing firms for products like ice cream and chocolate.

This trend towards specialization is merely caused by increased competition and price pressure, not only between dairy firms, but also between retailers. Retail competition puts pressure on the prices that are paid for raw milk. Dairy firms as a consequence either focus on economies of scale to reduce costs or to add value, justifying higher selling prices for differentiated products. Branding and new product development are typically means by which firms pursue these differentiation strategies. Investments in product development through Research & Development and

⁵ The WTO negotiations in the Doha Round were suspended in July 2006. Yet, talks on this subject may be expected to resume following the general consensus among most WTO members that trade liberalisation will lead to increase overall economic welfare.

branding require high budgets, as the product marketing does, and this again requires scale.

4.3 Implications of trends in policy and markets for the Slovenian dairy chain

The changes in demand and in the structure of the supply chain noted in other European countries have affected the Slovenian dairy sector too. The processing industry has already been involved in the process of concentration although this process was restricted to domestic players only⁶ and was rather limited in scope. The trends sketched above will, however, urge the sector to:

- Be more cost effective and economize on (transaction) costs on both production and distribution levels;
- Search for value added by new product development;
- Invest in marketing of existing 'special' products.⁷

To develop actions in these directions it would help the agricultural cooperatives (as important intermediate between small-scale farmers on the one hand and upstream and downstream industries on the other hand) and dairy companies to increase their scale of operation. A larger scale would help strengthen the farmers' (cooperatives') bargaining power in the chain. The example presented in Box 1 shows what can be reached if cooperatives join forces. Further, dairies could benefit from increasing scale by further specialisation, and at the same time spread investments in product development and marketing over a larger production volume which would lower costs per unit. Furthermore, the marketing of Slovenian's regional/local special products would be improved with a well-thought promotion concept behind it, making consumers aware of the benefits and positive attributes of these products. A generic marketing programme (meaning for 'special' products in general) could be supported by the government. Yet, targeted promotion for specific products are much more in the realm of the companies themselves, producing the product. This needs specific marketing knowledge which is presently lacking in most companies (see also a study by Kuipers et al., 2006 in which more specific recommendations are made about the market opportunities of special regional products in Slovenia and how to use them).

Box 1 Agricultural cooperatives selling milk jointly

In 2005 seven agricultural cooperatives established a milk trading company – Mlecop. Through this company the cooperatives sell jointly the milk of their members. At present, 60% of the milk supplied by the cooperatives (50 million kg, approximately 10% of all Slovenian milk production) is sold to two dairies in Italy, on a one year contract. The rest is sold to several Slovenian companies, mainly to Ljubljana Dairy. Every cooperative receives the same milk prices per litre. The price a farmer gets for his milk depends on the costs that each cooperative passes on to their own members. The company states that the average milk price received has been higher than what farmers got earlier when each individual cooperative sold its members' milk. Moreover, Mlecop claims the present milk price the company makes is higher than the national average milk price paid out by Slovenian dairies.

⁶ Yet, there were rumours that foreign companies showed interest in Slovenian largest dairies.

⁷ The production of special regional products has already some tradition in Slovenia. Nineteen Slovenian protected special agricultural products and foodstuffs are known, with reference to their production methods (e.g. environmental-friendly, traditional). These products are EU certified. At least three cheeses belong to this group and also several meat products.

Also the primary sector will be confronted with increased competition and (further) price pressures, due to government withdrawal from market intervention measures (price support and/or export subsidies) and the increased market power at retail level. Farmers may choose between two strategies: further specialisation of their dairy farm into milk production, or diversification of their farm taking a second or third branch such as suckler cows, fattening bulls, agro-tourism, etc. Most opportunities for specialisation are at those farms situated at the flat areas, while diversification seems more appropriate for farms located in the less favoured areas for agriculture, where due to natural conditions only extensive farming is possible.

4.4 Recommendations for government policies

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

- 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;
- Regional policy – aimed at supporting small-scale farming in less-favoured areas, by stimulating the combination of agricultural activities and nature conservation/management, or agro-tourism. In this policy area, much can be done under the present EU Common Agricultural Policy measures. In Box 2 the example from Austria shows what can be done for less-favored areas if a government wants to protect that area for environmental reasons by using the options provided by the EU’s agricultural policy. Measures like those applied in Austria can take away much of the concerns with respect to agricultural development in Slovenia as expressed by professor Osterc of the University of Ljubljana (see Box 3);
- 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 Slovenian ‘special’ products, and by ensuring as much as possible market transparency providing public information on supply, demand, prices and trade of milk, milk quota, land and other agricultural inputs.

Box 2 Regional policy in Austria

Austria is a country with similar natural conditions for farming as Slovenia. Austria applies agricultural support, which can be provided by using several measures and programs in the CAP, in a way that compensates farms in less-favored areas for agriculture for natural barriers to farming. This policy is largely aiming at maintaining farms in the mountainous areas by providing them direct payments for farming according to environmental protection and nature conservation requirements. The ÖPUL is an Austrian program for environmental protection with 32 measures, of which organic farming is made most payments for. The EU pays 50% of the premium under this program, and the rest comes from the national budget (30%) and the regional (Bundes) budget. Next, a so-called Ausgleichzahlung (AZ) is being paid to

farmers in less-favored areas. This payment is balancing difficulties in the mountainous areas. Areas are classified into four categories, and the highest premium is paid in the most difficult area for agriculture. Again, a significant part of the direct payments under this program is being paid by the EU (32% in 2005). As a consequence of these policies regional income differences between more and less-favored areas are small in Austria. Moreover, since the introduction of the ÖPUL and AZ measures, the decline of the number of farmers in the less-favored areas in Austria has been much less than the decline of the number of farms in other areas of the country (Lederer, 2006).

Next to the above suggested measures specifically targeted at the dairy sector the Slovenian government has scope for accompanying measures in the framework of rural development policy as part of the Common Agricultural Policy (CAP). Regions in the country where milk production declines because of changes in the EU dairy policy or market developments may be confronted with more general economic development problems such as an increase in unemployment rates as dairies close and dairy farmers stop their business. Rural development programmes aimed at developing alternative employment, early retirement schemes, farmers' exit programmes are some of the instruments that could be applied to assist the regions that are economically most affected by policy and/or market changes. Important to note is that this part of the CAP has developed further as the Agricultural Council adopted the strategic guidelines of the rural development policy for 2007-2013 in early 2006. This policy, funded by the new European Agricultural Fund for Rural Development, 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.

Box 3 Personal view from Slovenia by professor Osterc, University of Ljubljana, Biotechnical Faculty

In Slovenia three quarters of agricultural land has restricted conditions for farming. The majority of farmers can not increase the size of their farms: in hilly and mountain areas because of the natural conditions and on the flat land due to overpopulation. For this reason agricultural production in Slovenia is limited, like in Austria. This is also valid for the dairy sector. In spite of that after independence of Slovenia and the entrance of Slovenia into the EU big changes happened in milk production as consequence of measures of agricultural policy, different financial subsidies and transfer of new knowledge to the dairy sector. In the period from 1990 to 2005 the number of farms, which have sold milk to dairies decreased from 43,000 to 10,000, the number of dairy cows decreased in the same period from 162,000 to 111,000 and the number of dairy cows per farm increased from 3.5 to 10.5. In the same time the total quantity of milk sold to dairies increased from 359 mio. litres of milk to 507 mio. litres of milk and per cow from 2,217 litres of milk to 4,549 litres of milk.

The increase in milk volume is also caused by changes in breeds. The part of Simmental cows decreased in this period from 55 to 48%, Brown cows from 31 to 18% and Holstein-Friesian cows increased from 10 to 29%. Holstein-Friesian cows are mostly on the larger farms on flat land. The microbiological quality of milk also

improved very much: share of milk in first class (under 100.000 m.o./ml milk) sold to dairies increased from 60 to 98% and share of milk with less than 400.000 somatic cell count/ml milk increased from 75 to 92%.

Slovenia has less than 10 acres of fields per inhabitant. For this reason the agricultural policy should not focus only on flat land and on intensifying agriculture in this small area of land. With the emphasis on Holstein-Friesian cows just this happens. The agricultural policy would be sustainable when preserving first of all the dairy production in hilly and mountain areas.

It should be noted that also large differences exist between regions This can be expressed by the quantities of sold milk per farm: from 25.000 kg of milk in Pomurje region (East Slovenia) to 82,000 kg of milk in Gorenjska region (North-West Slovenia). One of the most important tasks in Slovenia till 2015 will be how to reduce these big differences between regions. Otherwise the social problems in some regions will continue.

25 % of the total quantity of milk from Slovenian farms was sold to Italian dairies in 2006. The agricultural policy can devote more economical interest in the structure of processing milk in domestic dairies and in offering products to the market with added value. Moreover, a large number of farms which have intensive production and buy all concentrates do have a high number of animal units/ha. Those farms will be obliged to look for proper solutions how to use manure in accordance with the European environmental standards.

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