A systematic analysis of the agribusiness sector in transition economies:

The Bulgarian dairy sector
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Executive Summary

This report is organised based on the structure of the dairy value chain and the EBRD transition assessment indicators of the extent and structure of markets, policies and institutions, and business conduct. It combines information gathered from secondary sources with qualitative interviews conducted in Bulgaria in the summer of 2007. Among the companies and institutions that have contributed to this report by sharing their views and insights are government agencies, related institutions and interest groups, dairy processors, one wholesaler and one retail business.

Primary production: The Bulgarian dairy sector is characterised by a very small-scale primary production structure: 97% of all dairy farms keep less than ten cows and only 62% of total milk output is sold to the processing sector. 83% of all dairy farms hold only one or two cows, they produce 75% of all processed milk and own 45% of the total dairy herd. Currently, the share of small-scale farms is declining in favour of medium- and large-scale farms as regulations pertaining to farm location and milk quality are becoming stricter. A shortage in raw milk supply is projected for 2007/08.

Relevant policies for the Bulgarian dairy sector are the Common Market Organisation for milk and dairy products as part of the EU Common Agricultural Policy (including market support measures, direct payments and supply control regulations, i.e. a milk quota system), and Regulations on the specific rules for hygiene of foodstuffs and food of animal origin ((EC) 852/2004 and 853/2004). Compliance with hygiene and milk quality regulations becomes compulsory for the whole sector as of January 1st, 2010. By then a grace period for the domestic sale and trade of non-EU-compliant milk will run out, forcing producers of sub-standard milk to sell their production quota or switch to on-farm consumption only. Government policies to facilitate the improvement of milk quality between 2006 and 2009 so far largely fail to communicate to the primary production level the urgency and necessity of milk quality upgrading. Governmental quota-assignment, upgrading activities and efforts to implement EU regulations often overlook or even disadvantage the small-scale sector.

In Bulgaria, annual milk yields per cow are much lower than the EU-25 average. Better feed use and investments in better genetic material are necessary to improve milk productivity. Major challenges in upgrading the production base and practices are 1) the seasonality of milk production, 2) the role and function of the Agency for Selection and Reproduction in Animal Husbandry, and especially 3) poor raw milk quality. Only about 20%-30% of current Bulgarian milk output are compliant with EU standards, and another 15%-20% can be expected to comply by 2010. For those 94,000 [mostly small-scale] dairy farms out of a total of 96,000 that produce the remaining 50% of milk, prospects are dismal: Neither do they comply with EU regulations now, nor can they be expected to do so in the near future. Sufficient upgrades of buildings, equipment and milk quality require substantial investments that are impossible for most small-scale farmers. Come 2010, many of them will thus be shut out of the commercial sector, and many rural families will lose important income from milk sales. Social unrest in rural regions and a shortage of EU-standard milk to be delivered to processors are likely to emerge. The need for alternative ways to ‘save’ at least part of the affected farms from closure is evident.

One solution that would leave farmers with minimal responsibility regarding compliance with EU regulations would be the upgrading of milk collection stations instead of individual farms. As of now, the prevalent system of milk collection from [small-scale] farms through
collection stations exacerbates the quality problem because collection stations seldom separate milk of different qualities and sources and perform only very basic quality tests. Improvements in the dairy cold chain could be achieved through investments in cooling tanks and efficient quality control mechanisms, turning collection stations into so-called ‘milking parlours’ with specialised personnel. Instead of farmers themselves, the processing industry could initiate and finance such projects – it owns most collection points anyway and should be additionally motivated by the threat of a shortage in EU-standard milk. Also to be considered is involving the government that thus far seems to be largely overlooking the gravity of the situation.

Difficult access to funds, both for seasonal working capital and long-term investments, is another challenge on the primary production level. Banks refuse to accept animals and buildings in villages as collateral, rendering farmers effectively unable to participate in investment programmes of the State Fund “Agriculture” and SAPARD1, since these make funds for the upgrading of production facilities available only after the project has been completed. The establishment of multi-party lending structures, bank loan guarantees by dairy companies, or a government fund for the pre-financing of EU projects could alleviate the situation.

**Dairy processing:** The number of processing establishments declined by 11% and 26% in 2005 and 2006, respectively. In 2006, 225 companies remained. Over the last two years, the Bulgarian dairy market grew by 5%-6% in value terms and by 2%-3% in volume terms. It is very fragmented and still dominated by domestic producers with small local distribution networks: The two largest dairy producers are owned by international investors, but only hold value shares of dairy product sales of 19% and 12%, respectively. The rest of the market is distributed among manufacturers with 5% or less market share. Processors are divided in two groups: On the one hand there are bigger processors with access to highly productive, EU-standard farms, while on the other there are mostly small processors who mainly source from small-scale farms through collection points. Sector policies will not only affect both groups differently, but small producers are also prone to suffer the consequences of small-scale farms’ disappearance from the commercial sector once the grace period ends, and will likely have an additional negative impact on rural economic activities and employment.

Small and medium-sized processors were so far able to successfully compete with larger ones, possibly due to consumer perceptions of yoghurt and milk as national and/or traditional products, and because they benefited from lower production and distribution costs when incomes were lower and consumer attitudes value-oriented. As income levels improve and marketing and national distribution become more relevant, however, strong penetrative policies, larger marketing budgets and production are beginning to work in favour of the larger players whose entrance into particular product areas such as milk or yoghurt has contributed to the overall consolidation of these sub-sectors. There is some evidence of increased concentration in the sector as a whole.

Prices in the Bulgarian dairy sector are increasing, for instance due to higher costs to comply with quality and safety standards, increased demand for milk because of active FDI, and a decline in the supply base as fewer dairies accept sub-standard milk. Higher and seasonally volatile farm gate prices for milk stimulate the import of milk substitutes such as milk powder and whey. Already, not last due to lower import duties, in the first half of 2007 imports of milk and cream and whey from other EU-27 countries increased by 87% and 45%.

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1 SAPARD = Special Accession Programme for Agriculture and Rural Development
respectively. Bulgaria is a net-importer of milk, cream and whey products and a net-exporter of cheeses (95% of all dairy exports) and yoghurts. Dairy exports grew by 10% between 2005 and 2006, but 2007 could see exports shrink and dairy [cheese] imports grow as Bulgarian dairies face increased EU competition while milk shortages and climbing expenses for food safety and labour cause domestic prices to increase. So far, though, cheese remains Bulgaria’s most important dairy export with a share of 78% in the first half of 2007. After all, dairy product price increases are reported internationally, counteracting the tendency to import dairy products for further processing.

The main policies relevant to the dairy processing sector are EU regulations with respect to the hygiene of foodstuffs. According to these regulations, Bulgarian dairy companies belong in one of three groups: 1) 34 companies fully meet EU food safety norms, process EU-standard quality milk and trade freely on the EU market; 2) 68 companies meet EU food safety norms, but process both sub-standard milk for the local market and EU-standard milk for the EU market; 3) 123 companies process only sub-standard milk and work for the local market exclusively, as permitted during the grace period. Non-compliance with hygiene standards, a lack of functioning HACCP\(^2\) systems as well as problems regarding control over traceability and segregation of standard and sub-standard milk for processing remain problems at the processing level. In February 2007, they led to an EU Commission proposal to cut 60% of Bulgarian meat and dairy processors allowed to export to the EU. Eventually, only 16 milk processors were given permission to trade EU-wide. The high number of category-two dairies was criticised and companies were advised to take the necessary measures to either switch to category one or three. So far, limited human capital capacities and an inadequate understanding of HACCP food safety regulations and their practical application are at least partially responsible for preventing the successful upgrading and certification of dairy plants.

The main challenge for the processing sector will be to secure sufficient quantities of EU-standard raw milk for processing after the grace period. Linkages and full vertical integration between dairy processors and farms are becoming more frequent as processors increasingly work with their own selected network of farms (which they subject to regular inspection and provide with access to technical assistance and financial help) in order to secure good, EU-standard product quality. Similarly, the share of processors setting up farms of their own is growing. For now, most dairy companies still accept milk from collection stations, but almost all are working to achieve 100% milk procurement from farms with on-farm cooling equipment.

Additional problems are a high degree of tax evasion (especially among smaller dairy companies that underlie less intense scrutiny by tax authorities than their larger competitors), 20% VAT on EU-standard dairy products that is perceived as creating a situation of unfair competition by rendering EU-standard processors unable to compete with sub-standard companies on the domestic market, and a perceived lack of producer-to-processor loyalty. The last point refers to frequently occurring breaches of contract between processors and suppliers. Big farms able to deliver large quantities of high quality milk inhabit a strong bargaining position, and as processors compete strongly for regular suppliers, farms can afford to switch from one processor to another if offered a higher price for their product.

\(^2\) HACCP = Hazard Analysis and Critical Control Points
Retail of milk and dairy products: The Bulgarian dairy retail sector is still very fragmented. Individual retailers do not inhabit strong bargaining positions, but face demands by major dairy producers, e.g. in terms of pricing or shelf space. Over the last decade, significant structural changes and growth occurred. The number of retail outlets tripled between 1990 and 2002 as especially hypermarkets and supermarkets began to emerge. Big supermarket outlets, which are already very successful in the bigger cities, but still have limited sales in the provinces, are increasing in importance and expected to gain a 35% market share by 2011, as compared to 16% in 2005. Eventually, hypermarkets, supermarkets and other large-scale stores will replace small, family-owned shops, independent consumer goods companies and specialised food outlets that still dominate the market. An investment incentive act and the simplification and liberalisation of legislation (e.g. regarding prices, opening hours and outlet numbers) have made investing in Bulgaria more profitable. The country is attractive for large international chains that expand steadily.

Some retailers have begun to build distribution centres for fresh products, and thereby influence the way in which products are delivered, e.g. regarding delivery volume and packaging. Still, the scope of most chains is not yet sufficient to justify the construction of such centres. EU food legislation and rising incomes contribute to a change in customer attitudes towards food quality, and a market exists for imported, relatively more expensive products. Foreign, high-quality products are rising in numbers and can be expected to form a considerable competition parameter in the near future. Already, the selection of products in retail units is to a large extent based on international brands.

Overall, there is room for additional investments in the retail sector, and a further expansion of large-scale retailing can be expected. Future developments are likely to follow patterns already observed in other emerging markets: (a) the rise of the large-scale retail sector, (b) the spread of large-scale retail outlets from large cities to medium and small cities and then even to rural towns, (c) the multi-nationalisation of the sector, (d) its consolidation, as well as (e) transformations in product procurement systems. This shift of supermarkets’ procurement systems can be summarised as follows: (a) a shift from local, decentralised procurement to centralisation; (b) regionalised procurement; (c) a shift from the use of traditional wholesalers to specialised/dedicated wholesalers; (d) the establishment of joint ventures with multinational logistics companies; (e) a shift from the use of spot markets to the use of preferred supplier systems; (f) a shift from informal standards to the establishment of private standards. High real estate and land prices are a main inhibitor of development that will cause 99% of new supermarket developments to be shopping malls – not as Greenfield investments, but through renovation.

Policy recommendations: Measures suitable to address the transition challenges present in Bulgaria’s dairy sector vary depending on supply chain level and the specificities of the challenge. Some require solutions on the EU or national policy level, others can be met through capacity building and yet others necessitate public and/or private investment.

Primary production:

- Capacity building: Education and training for farmers and veterinary service providers to combat low average cow milk yield and high seasonality of production due to poor genetic base and inadequate feeding practices
Capacity building: Educate farmers about the implications of EU milk quality indicators and farm-level measures to change milking practices and improve raw milk quality

Regulation: Review functioning and role of the Agency for Selection and Reproduction, aim to break down its monopoly position and to increase the role of the private sector in breeding practices and the provision of high quality genetic material

Policy: Review the milk quota system at EU level, support its abolishment in light of how its restrictions hamper rapid sector restructuring

Policy: Request extension of the milk-quality grace period for non-compliant farms and make sure a credible system of control is in place to ensure the separation of products destined for the domestic and for EU markets

Policy: Devise adequate social policies to counteract the effect of the loss of income from milk sales

Public-private investment: Review options for upgrading milk quality at the smallest dairy farms, e.g. through milking parlour projects

Policy/public investment: Improve farmers’ access to investment finance from EU structural and other funds by devising suitable policies and/or setting national governments up to help bear the burden of pre-financing EU projects

Processing sector:

Capacity building: In light of upcoming limits to high quality milk supply, increase awareness of potentials for traditional dairy product production from milk other than cow’s (sheep, goat, buffalo); look to other EU countries for lessons to be learned about typical or traditional product development

Capacity building: Provide HACCP training and auditing courses for veterinary services personnel, information sessions on EU food safety regulations, and updates on policy changes to combat limited human capital capacities and inadequate understanding of food safety practices

Policy: Ensure that policies in the dairy sector take into account the divide between different types of processors, acknowledge that policy choices will not necessarily be equally beneficial to them both

Policy: On the national policy level, establish functioning and credible tax control offices, ensure indiscriminate implementation of tax law to fight widespread tax evasion

Private investment: As dairy product prices will inevitably increase, processors’ efforts should focus on supply chain efficiency (upgrading the supply base by consolidating at the farm level, e.g. through investments in the number of cows) to minimize the weakening of their competitive position
1. Introduction

The report will be organised based on the structure of the dairy value chain (Table 1) and the EBRD transition assessment indicators of the extent and structure of markets; policies and institutions; and business conduct.

Table 1. The Dairy Value Chain

<table>
<thead>
<tr>
<th>Value chain segments</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary production</td>
<td>Milk production</td>
</tr>
<tr>
<td>[Milk wholesale – milk trade]</td>
<td></td>
</tr>
<tr>
<td>Processing</td>
<td>Milk processing: Processed milk production (fresh / long shelf life); cheese, yoghurt; ice cream; butter; powdered milk; …</td>
</tr>
<tr>
<td>[Logistics – dairy product wholesale trade]</td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>Open market sales</td>
</tr>
<tr>
<td></td>
<td>Small-scale retail trade</td>
</tr>
<tr>
<td></td>
<td>Large-scale retail trade</td>
</tr>
</tbody>
</table>

Information gathered from secondary sources (including data gathered by FAO in “Bulgaria Dairy Report – February 12 2007” and “Bulgaria Dairy Sector Report (addition) – February 22 2007”) was complemented by qualitative interviews conducted in Bulgaria in the period 4-8 June 2007. The following companies and institutions have contributed to this report by sharing their views and insights:

(1) Government agencies, related institutions and interest groups:
- National Association of Milk Processors
- Association of Dairy Processors in Bulgaria
- National Milk Board
- National Veterinary Medical Institute Bulgaria / National Veterinary Service
- Ministry of Agriculture and Forestry, Food Safety and Control Directorate
- USDA

(2) Dairy processors:
- United Milk Company AD
- Danone AD
- My Day Ltd. (former Meggle)
- Josi Ltd.
- LB Bulgaricum

(3) Wholesale activity:
- Milky Group

(4) Retail business
- Piccadilly EAD
2. Primary production

2.1. Structure and extent of markets

Dairy farms represent 70% of all farms in Bulgaria. The main dairy livestock includes cows, sheep, buffaloes and goats. (CEEC AGRI POLICY – FP6 project). Unless stated otherwise, this report will focus on dairy from milking cows. Table 2 gives an overview of the structure of the milk production sector. An important segment of this sector is formed by very small-scale farms. Farms holding no more than 2 cows represent 83% of all dairy farms while they own almost half (45%) of the total dairy herd. In Poland (a country traditionally known for its small-scale farming sector) the share of cows held in these types of farms is only 27%, while the importance of medium-scale dairy farms (3-49 cows) is much higher (66% of cows in Poland as compared to only 44% in Bulgaria).

Table 2. Structure of dairy farms in Bulgaria (BG) and Poland (PL)

<table>
<thead>
<tr>
<th>Herd size</th>
<th># farms</th>
<th>% farms</th>
<th># cows</th>
<th>% cows</th>
<th>PL, 2002*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 2</td>
<td>125,604</td>
<td>83</td>
<td>155,500</td>
<td>45</td>
<td>27</td>
</tr>
<tr>
<td>3 to 9</td>
<td>21,186</td>
<td>14</td>
<td>90,100</td>
<td>26</td>
<td>37</td>
</tr>
<tr>
<td>10 to 19</td>
<td>3,026</td>
<td>2</td>
<td>34,900</td>
<td>10</td>
<td>[10 to 49]</td>
</tr>
<tr>
<td>20 to 49</td>
<td>757</td>
<td>0.5</td>
<td>27,816</td>
<td>8</td>
<td>29</td>
</tr>
<tr>
<td>50 and more</td>
<td>757</td>
<td>0.5</td>
<td>38,247</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>151,330</td>
<td>100</td>
<td>347,700</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: CEEC AGRI POLICY – FP6 project and IERiGZ

* Due to data limitations and to increase the comparability of the data we present information on the structure of the Polish dairy sector for the year 2002, i.e. two years before the year of accession to the EU (where 2005 was also 2 years before Bulgaria acceded to the EU).

Average annual milk production per farm in Bulgaria was 8019 kg in 2005. In comparison, annual milk production per farm was 286,346 kg in the EU-15 in 2004, with highest production levels per farm in the United Kingdom (737,127 kg) and Denmark (675,346 kg). But even compared to East European standards, the Bulgarian milk production sector is very small-scale: 31,852 kg per farm in Poland, 80,115 kg per farm in Hungary, 238,819 kg per farm in the Czech Republic. Comparable farm sizes are found in Lithuania (9845 kg per farm) (Beldman et al., 2006).

However, the share of cows in farms with herd sizes of 1-2 cows is continuously falling (from 56% in 2003, to 50% in 2004 and 45% in 2005) in favour of medium- and large-scale dairy farms. This process will probably continue in the next couple of years and it may even intensify. One reason for this is that small farms (1-2 cows) have a grace period until the end

3 In 2005, the bulk of milk collected for processing was cows milk (94.6%), followed by sheep milk (5%) and goat/buffalo milk (0.4%).

4 Based on the numbers in Table 2 and an annual milk yield of 3049 kg per cow.
of 2007 by which they have to move out beyond the boundaries of residential areas. As a result, an important share of cows in this group are likely to be sold and/or slaughtered. Finally, it is projected that many 1-2 cow farms which are currently operating for on-farm consumption purposes only will be shut down by veterinary authorities. This has led to a forecasted decline in milk supply in 2007-2008 (USDA, 2006).

Table 3 provides an overview of total milk production and its main uses. In 2005, 62% of total Bulgarian milk output was processed by the dairy industry. In comparison, 63% of Polish milk output was processed in 2002, while in 2005 this percentage had risen to 76%. We can expect the share of milk being delivered to processors in Bulgaria to increase over the years. This projection is confirmed by the recent request by Bulgaria to switch a large share of its national ‘Direct sales’ quota to ‘Deliveries’ quota (see section 2.2 for an overview of policies and institutions relevant to the Bulgarian dairy sector). According to deputy agricultural minister Bachvarova, the direct sales quota that was agreed under Bulgaria’s accession package had grossly over-estimated farmers’ interest to sell milk on local markets. The transfer (which the Commission is expected to approve) will increase Bulgaria’s Deliveries quota to 902,000 ton (or 92% of the total national quota). This is largely comparable to the share of delivered milk in total quota in Poland where it is 95%.

Table 3. Production and use of milk in Bulgaria (BG) and Poland (PL)

<table>
<thead>
<tr>
<th></th>
<th>BG, 2005 (Metric ton)</th>
<th>PL, 2002 (%)</th>
<th>PL, 2005 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total milk</td>
<td>1,286,909</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Processed</td>
<td>803,076</td>
<td>62</td>
<td>63</td>
</tr>
<tr>
<td>Direct sales</td>
<td>206,036</td>
<td>16</td>
<td>-</td>
</tr>
<tr>
<td>On-farm consumption</td>
<td>231,488</td>
<td>18</td>
<td>-</td>
</tr>
<tr>
<td>Other use</td>
<td>46,309</td>
<td>4</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: USDA (2006) and IERiGZ

2.2. Market institutions and policies

Since January 2007, the Bulgarian dairy market is organised under the Common Market Organization for milk and derived dairy products as part of the EU Common Agricultural Policy.

The basic regulation establishing the Common Market Organization for milk and milk products dates back to 1968 (Reg. EEC 804/68). The support system comprises three groups of measures. The first group consists of market support measures, which intend to stabilize the market and support internal prices. This group includes: measures stimulating demand (special disposal measures for butter, milk powder, cream), measures stabilizing the market (market intervention for butter and skimmed milk powder, private storage system) and international trade control measures (border protection and export subsidies). The second group of measures includes direct payments, introduced in 1992, which directly support farmers’ incomes by covering losses caused by decreases in intervention prices.
The third group of measures consists of supply control regulations, i.e. a milk quota system. The main purpose of the milk quota system was to restrict milk production to limit market support to certain quantities of milk. The central element of the system is the referenced quantity of milk and milk products that can be delivered yearly to the market in each particular country. As a result, each producer in each country has an individual referenced quantity for deliveries to processing (‘Deliveries’ quota) and/or for direct sales to consumers (‘Direct sales’ quota), which should not be exceeded. When total production is above the national quota, every farmer that contributed to this excess has to pay the super-levy. Important to note is that each individual quota consists of a referenced volume of milk at a certain fat content (3.91%). Therefore, when milk deliveries contain higher fat content than referenced, the total quota will be filled more rapidly. Quota can be traded within a particular country but not internationally. Possibilities of quota transfers and their administrative restrictions are important for the structural development of milk production. The more restricted are the milk quota transfers the less stimulating effects there are for the concentration process and structural changes (Oskam and Speijers 1991).

The total milk quota for Bulgaria is about 980,000 tons of milk per year. This quota is divided among 96,000 dairy farms. About 92,000 ton is assigned to the national reserve. This quota reserve will be assigned primarily to farms that at the moment have projects with SAPARD finance (these farms may not yet have started producing milk but will need to have – additional – quota from the moment that they have finished these investments). Quota from the national reserve are available without charge. Quota from farms that are quitting their commercial activities will also be transferred to the national reserve to enable other farms to grow. At this moment there are discussions of setting up a quota exchange for trading quota in the market. This quota exchange is expected to be operational starting April 2008. From that point onwards, quota will no longer be traded for free and a price will be formed on the quota market.

The regulations laying down specific rules for hygiene of foodstuffs and food of animal origin in particular are Regulation (EC) No 852/2004 and Regulation (EC) No 853/2004. The basis for Regulation 852/2004 is the implementation of HACCP\(^5\) principles at the level of each operator in the food chain. However, it is recognised that the application of HACCP principles to primary production is not yet generally feasible. Instead, guides to good practice should encourage the use of appropriate hygiene practices at the farm level. Furthermore, Regulation 852/2004 is not applicable in the case of the direct supply of small quantities of primary products, by the food business operator producing them, to the final consumer or to a local retail establishment. Such cases should be regulated by national law. Other activities that are exempt from the rules in this Regulation are primary production for private domestic use and domestic preparation for private use only. Regulation 852/2004 also allows for flexibility in regions that are subject to special geographical constraints and in the production, processing, and distribution of food prepared using traditional methods, without compromising food hygiene objectives. The main provisions in Regulation 852/2004 that are relevant to operators in the dairy sector include: (1) maintaining the cold chain for all food that cannot be stored safely at ambient temperatures; (2) compliance with microbiological criteria for foodstuffs; (3) compliance with temperature control requirements; (4) sampling and analysis; (5) record-keeping (nature and origin of animal feed, veterinary medicinal

\(^5\) HACCP = Hazard Analysis and Critical Control Points
products, analyses results etc.); (6) layout, design, construction etc. of food premises; (7) transport of foodstuffs.

Regulation 853/2004 lays down specific hygiene rules for food of animal origin. Again, this Regulation does not apply to primary production (or preparation) for private domestic use and in cases where small quantities of primary products are supplied directly to end consumers or to a local retail establishment, public health should be protected by national law. Flexibility is appropriate to enable the continued use of traditional methods and for regions that are subject to special geographical constraints. The provisions in Regulation 853/2004 cover requirements for raw milk at the primary production level, requirements for dairy products, and requirements with respect to the packaging and labelling of dairy products. Requirements for raw milk include provisions about the health of animals that produce the milk; hygiene on milk production holdings (premises and equipment, hygiene during milking, collection and transport, and staff hygiene), and criteria for raw milk. Some of the most critical (in the sense that they are most difficult for small farmers to comply with) requirements include: Premises for storage of milk must have adequate separation from premises where animals are housed and must have suitable refrigeration equipment; immediately after milking; milk must be held in a clean place designed and equipped to avoid contamination. It must be cooled immediately to not more than 8°C in the case of daily collection or not more than 6°C if collection is not daily; during transport, the cold chain must be maintained and, on arrival at the establishment of destination, the temperature of the milk must not be more than 10°C. These temperature requirements are not compulsory in case the milk is processed within two hours after milking or when a higher temperature is required in a specific production technique; finally, raw milk must meet the following criteria (based on a geometric average of at least two samples per month over a two month period): plate count (germ count) should be below 100,000 per ml; somatic cell count should be below 400,000 per ml.6

In terms of quality policy, Bulgaria was granted a grace period of milk quality standards until the end of 2009. Starting January 2010, milk which does not meet the standard EU requirements will not be purchased and traded and can be consumed only on-farm. Producers of sub-standard milk will have the right to sell their milk quota or switch to on-farm consumption only. The Ministry of Agriculture has introduced a Strategy and Action Plan for improvement of fresh milk quality in the period 2006-2009 based on EU Regulation 853/2004/EEC. Two transitional periods are granted to dairy farms which produce non-EU standard milk. First, until the end of 2007, target reductions will be from 500,000 to 300,000 micro-organisms per millilitre and from 500,000 to 400,000 somatic cells per millilitre. In the second period, from January 2008 until the end of December 2009, the target reduction is set from 300,000 to 100,000 micro-organisms per millilitre and up to 400,000 somatic cells per millilitre (USDA, 2006).

A generally recurring feeling in many of the interviews was that the small-scale farm sector was overlooked or even disadvantaged by certain government policies and by the way of implementing specific EU regulations. For example, it was mentioned that when assigning the milk quota, the quota requested by the group of smallest producers was consistently lowered, while quota requests by the larger producers were generally granted. Furthermore, it seemed that most of the upgrading activities in the dairy sector up to the moment of accession were focused at the dairy industry, while the farm sector (especially the small-scale farm sector which would be facing most problems in complying with EU rules) was scarcely informed

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6 For raw milk from other species than cows, the plate count should not exceed 1,500,000 germs per ml.
about the upcoming policy changes and was in no way stimulated to make adjustments. Even after accession, the urgency and the necessity of milk quality upgrading seems to be communicated very poorly to the primary production level.

Another issue which is getting little attention at the government level at this point has to do with environmental requirements. Some private actors in the sector recognise the growing importance of environmental policy at the international level but feel that the Bulgarian government is purposefully avoiding to tackle this issue. The fear exists that – as was the case with upgrading the primary production level to fulfil hygiene and quality requirements – soon there will be another crisis as there will not be enough time left to upgrade facilities to meet all environmental requirements. One international dairy processor is going ahead and is including environmental issues in the checklist that they use to monitor and control their supplying farms. However, the majority of dairy processors and milk farmers will be waiting for Bulgarian policy makers to devote attention on environmental regulations.

2.3. Business conduct and skills

Small-scale farms (1-2 cows, 75% of processed milk) have no possibility to invest and cannot maintain the necessary hygiene, feeding, genetics, best practices and overall management leading to the production of good quality milk (CEEC AGRI POLICY – FP6 project).

Farms are characterised by inferior production processes, technologically primitive breeding methods and a lack of mechanization. During the summer months animals graze on common village pastures, which in most villages are available for use without charge, while during the winter months they are fed fodder and industrial concentrates. Animals spend the night inside the buildings. Cows are milked individually twice a day (in the morning and evening) and their milk is then delivered to a common cooling tank, or milk collection point\(^7\). The tank is emptied once a day by the processor. All farms visited suffered from a lack of hygiene standards, and this was recognised as the most urgent need for investment. Furthermore, none of the small farms had any modern equipment or adequate storage facility for the milk. (Expanding ProCredit’s Operations in Rural Areas).

Average annual milk yield was 3,490 kg per cow in 2005. This is much lower than the EU-25 average: 6,069 kg per cow per year. In comparison, milk yields are on average 4,336 kg per cow per year in Poland and 3,565 kg per cow per year in Romania (FAOSTAT). Improvements in milk productivity can be sought for example through better feed use and investments in genetic material to increase the share of highly productive milk cow breeds. A major challenge in upgrading the production base and practices in the Bulgarian dairy sector will be to lower the seasonality in milk production.

A major concern remains the role and function of the Agency for Selection and Reproduction in Animal Husbandry, which is involved in sales of genetic materials and breeding livestock. According to USDA (2007b), the Agency continues to misuse its monopoly and dumps low quality product on the market, thus competing with the private sector. At the same time, the Agency continues to execute control over breeding activities and refuses to transfer this responsibility to the breeding organisations.

\(^7\) There are about 3500 registered collection points in Bulgaria.
A major challenge at the primary production stage is milk quality. According to experts’ estimates, the volume of milk in compliance with EU (minimal) quality standards, i.e. standard milk, is not more than 20-30% of total milk (USDA, 2007). Although the situation is still grave, average milk quality has improved over time as the share of standard milk was only 1-2% of total raw milk in 2005 (CEEC AGRI POLICY – FP6 project). Of the 96,000 farms that have been assigned milk quota, about 1,150 are fully compliant with EU regulations both in terms of hygiene rules in buildings and equipment and in terms of milk quality standards. These 1,150 farms are delivering the 20-30% EU-standard milk to the processing sector. A second group of farms (about 1,300) are able to meet EU requirements on buildings and equipment, but are at this point not yet delivering standard milk. It is estimated that this group of farms delivers 15%-20% of total Bulgarian processed milk. The remaining 94,000 farms are small-scale milk producers, unable to meet hygiene rules on buildings and equipment as well as quality rules on raw milk. This means that the bulk of Bulgarian dairy farms is unable to meet EU requirements. According to the industry, the maximum number of micro-organisms in milk is the most difficult requirement to meet. Currently, Bulgarian milk contains on average 360,000 micro-organisms per millilitre and the EU standard requires less than 100,0008 micro-organisms per millilitre. In other words, on average the level of micro-organisms should be reduced to less than one third of the current level (CEEC AGRI POLICY – FP6 project).

In comparison, Table 4 gives an overview of milk quality in Belgium in the period 2000-2002. Milk quality is based on 6 indicators: germ count (bacteriological contamination), somatic cell count (udder health), presence of antibiotic residue (treatment of animal diseases) and disinfectants (used to clean installations), freezing point (added water), and visible cleanliness (clean udder and udder environment). In the Belgian system, each failure to meet the requirements for one of these indicators will lead to a penalty point. Each penalty point will result in a reduction in the milk price. Apart from the price penalty system, underperforming farmers can also be punished by a restriction of their deliveries of up to 14 days. Table 4 shows that out of 15,000 Belgian milk producers, 93% have never received a quality penalty in 2002. In terms of delivered milk volume, these 93% of farms represent 98% of total milk supply.

Table 4. Quality of milk deliveries in Belgium, 2000-2002

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germ Count</td>
<td>96.08</td>
<td>97.01</td>
<td>96.99</td>
</tr>
<tr>
<td>Somatic Cell Count</td>
<td>96.87</td>
<td>96.76</td>
<td>97.02</td>
</tr>
<tr>
<td>Antibiotics Residue</td>
<td>99.07</td>
<td>99.82</td>
<td>99.89</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>99.15</td>
<td>99.08</td>
<td>99.17</td>
</tr>
<tr>
<td>Cleanliness</td>
<td>99.55</td>
<td>99.60</td>
<td>99.72</td>
</tr>
<tr>
<td>All Parameters</td>
<td>91.57</td>
<td>92.99</td>
<td>93.47</td>
</tr>
</tbody>
</table>

Source: FAVV (2002)

8 Fresh milk quality indicators should reach 100,000 micro-organisms per millilitre and 400,000 somatic cells per millilitre.
Upgrading average milk quality will require substantial investments in collection stations, cooling tanks, and efficient quality control mechanisms to improve the dairy cold chain. According to the results of the CEEC AGRI POLICY – FP6 project, small dairy farms are currently not motivated to produce high-quality milk since milk purchase prices are based mainly on the volume in litres, and to a lesser extent on quality characteristics. However, the interviews showed that quality parameters are becoming more important for price-setting. For example, most dairy companies pay a higher price for milk that meets EU quality requirements. One dairy was implementing a system that is more similar to the pricing method explained above, where farmers are penalised with a lower milk price in case they under-perform on certain quality indicators.

The problem of quality control is exacerbated by the system of milk collection through collection stations. Frequently, testing at these stations is very basic (due to a lack of or poor equipment) and not performed on an individual basis farmer-by-farmer, but rather as a general test of the full amount of milk delivered to the collection point. This system encourages fraud by farmers trying to mitigate the effect of poor-quality milk by diluting it with their neighbours’ milk, knowing that the chance of being caught is minimal. Furthermore, many collection stations mix milk from different sources (cow, sheep and goat milk). Separating milk of different quality and different sources will result in significantly higher costs for logistics, collection and testing (CEEC AGRI POLICY – FP6 project).

It is expected that a push towards increased milk-quality standards will be stimulated by the dairy processing sector. This is observed from the fact that in some cases processors already refuse sub-standard milk in order to keep the EU and local markets open for all dairy products they produce. Furthermore, in April 2007, a number of large-scale dairies have reduced purchase prices for milk from 0.20 € per litre to 0.15 € per litre for sub-standard milk (USDA, 2007b).

Dries and Noev (2006) also provide evidence of the role that the processing sector plays in upgrading quality standards at the primary production level. The two foreign companies that were studied, Danone and Meggle, both have a quality policy that seems to go further than that of domestic companies. Danone uses its own quality classification system, based on germ counts, where the top-category (lowest germ count) is labelled ‘Danone class’. Farmers delivering Danone class milk are rewarded with a price bonus. Furthermore, the company has introduced a system of ‘traceability’ for their suppliers, the Danone Quality Control System (imposed by the International Danone Group). Once per year all suppliers are visited and evaluated on the basis of 26 criteria related to the quality and safety of milk production. Suppliers that are evaluated positively on all 26 criteria are labelled ‘Traced and Controlled Danone’ and are preferred suppliers for Danone. Suppliers that do not fulfil all 26 criteria are labelled ‘Traced and Controlled’, ‘Traced and not-controlled’, and ‘Not-traced and not-controlled’. Collection stations are mainly labelled ‘Traced and not-controlled’ (the manager of the collection station is required to have a detailed list of all cows that supply milk to this station). Meggle has a somewhat similar traceability requirement for its suppliers. All Meggle suppliers have to keep a diary reporting for each animal: identification, inseminations, veterinary services, feeding details, quality and quantity of milk.

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9 This policy increases the likelihood of fraud through dilution of milk with water by farmers to attain a higher volume of delivered milk. The attractiveness of this type of fraud will be significantly reduced when quality characteristics are taken into account in determining farm gate milk prices.
2.4. Remaining transition challenges and how to tackle them

The main challenge identified at the primary production level is the huge share of small-scale dairy farms in total milk supply. At this moment, only 20-30% of total milk deliveries meet EU minimum hygiene requirements (specifically with respect to maximum germ counts). This so-called standard milk is provided by a small number (about 1,150) medium- to large-scale farms with a sufficient number of cows to justify investments in on-farm milking and cooling equipment. Another 1,300 farms are expected to be able to fulfil EU requirements by the end of the grace period. The rest of the 96,000 farms that have received quota are in general small-scale farms which will be unable to supply standard milk unless they make substantial investments. For the majority of these small-scale farms, the required investments (constructing new farm buildings to separate animal housing from storage rooms, installing milking equipment and a cooling tank etc.) will be impossible to make on an individual basis. There are several reasons for this. First, it will be extremely difficult for a 1-3 cow farm to gain access to the necessary financial means. Second, buying new animals (in order to justify these kinds of investments) will be restricted by the quota system. Third, in many of these farms the entrepreneurial will to upgrade production facilities and invest in the farm business is lacking.

This should raise major concern about the future viability of rural areas, especially after the end of the grace period in 2009. As of January 2010, sub-standard milk cannot be accepted anymore by dairy companies. That means that all those small-scale farms that have been unable to upgrade their production facilities by that time will be excluded from the commercial sector. Even though only part of the milk production in 1-3 cow farms is delivered to a dairy processor, and each individual delivery may be limited in volume, this may still represent an important source of cash flow for a high number of rural families. Taking away these earnings may cause major problems for an already poor (and aging) rural population. The potential for rural unrest is recognised by several of the interviewed dairy companies. One company that is certified to export dairy products to the EU and hence only uses standard milk in its processing lines even introduced a policy with which they continue to buy (sub-standard) milk from their collection points which they then sell onwards to other dairy companies. Although this trading activity is hardly profitable (and not part of the company’s core business), the company finds it important to stay loyal to its suppliers. The dairy recognises, however, that this ‘loyalty’ can only be upheld until the grace period runs out.

Since it will be impossible to upgrade all small-scale facilities to comply with EU Regulations 852/2004 and 853/2004 before the end of the grace period, it may be interesting to look at alternative ways to ‘save’ at least part of the 94,000 farms that are threatened by closure. One idea would be not to upgrade each farm individually, but to upgrade the collection stations by turning them into ‘milking parlours’. This way, each individual farmer would bring his cows to the parlour, where all necessary hygienic activities (cleaning the udder etc.) are seen to by specialised personnel, cows are milked using adequate milking equipment (no hand milking) and the fresh milk is transferred automatically to a cooling tank where it is chilled to the appropriate temperature. Thus, the possibility of contamination is minimised. The main advantage of this investment would be to reduce farmers’ responsibility to keeping his animals healthy (keeping records and notifying the collection station manager for example about any treatments that his animals have undergone). Hygienic regulations would only be
applied to the milking parlour, not to each individual farm house (with the exception of some basic animal welfare regulations). However, some questions remain about the potential success of this proposal. First, who should be responsible for initiating such a project, or else, how should such a project be financed? Many interviewees pointed out that there is a lack of willingness among farmers in Bulgaria to cooperate or to be involved in joint projects. If this is so, convincing the farm community of the advantages or even necessity of these types of investments is likely to prove insufficient to make things happen. Furthermore, even if there is willingness, the financial position of small-scale farmers may make it impossible for them to do something about it. In that respect, involving the dairy processing industry may promise a better chance of success. After all, many dairy companies are likely to face a shortage in milk supply as soon as the stringent EU hygiene requirements become compulsory throughout the sector. Herein lies an important incentive for the processing sector to become involved. Furthermore, most of the existing collection points are already owned by the dairy factories, hence it seems natural that upgrading the facilities in these collection points would at least partly be the responsibility of the dairies. Finally, it seems that at this moment the seriousness of the situation is overlooked by government institutions. If the government is willing to commit to maintain at least part of its small-scale dairy sector, involvement in milking parlour projects may be a step forward. On the other hand, if this problem is not seen as a priority by the Ministry of Agriculture, at least some attention should be given to the social problems that may result from the forced ending of commercial activities by a large number of rural families at the end of the grace period.

To conclude, it is interesting to draw a parallel with the situation in Poland, before and after accession to the EU. The Polish dairy sector has historically been based on small-scale dairy farms. Unlike in Bulgaria, the Polish dairy sector had a much more homogenous size distribution among its farms at the start of the transition period. As a result, dairy companies wanting to upgrade the quality of their milk supply were forced to work with small-scale farms. Dries and Swinnen (2004) document the assistance programs that dairies used to help their supplying farms to improve the quality of their milk, make on-farm investments, increase their herd size and so on. Interestingly, these programs were accessible for farms of all sizes (even the smallest) as long as the farm operator could lay down a feasible business plan. As a result, farms have been growing gradually (starting well before EU accession) and dairy companies are increasingly collecting milk from farms having their own cooling tanks, instead of from collection stations. For example, a sample of 4 dairy companies in the northeastern part of Poland was collecting only 17% of its milk from farmers with own cooling tanks in 1998; by 2003, the share of delivering farms with own cooling tanks had increased to about 55%. More recent work has shown that in a sample of 10 dairies in the same region, the share of milk coming from collection stations has decreased from 35% in 2003 to merely 20% in 2005. This gradual but continuous upgrading of the Polish dairy sector has only been possible because of the assistance by dairy companies and more importantly, the indiscriminate assistance that was also accessible to small-scale dairy farms. Unfortunately, as Dries and Noev (2006) pointed out, the assistance programs that exist in the Bulgarian dairy sector are almost exclusively focused on large-scale dairy farms. As a result, there are very few chances for the small-scale dairy sector to upgrade and grow in a similar way as their Polish colleagues have done so successfully over the past few years.

10 Annex I includes a comparison with the Portugese farm sector, which is also small-scale in nature but which has been restructuring rapidly in recent years.
There may be potential for the production of dairy products promoting their natural origin or traditional production method. Especially dairy production in mountainous areas may be suitable for this purpose. As mentioned in section 2.2, flexibility is allowed in the implementation of EU hygiene regulations in disadvantaged geographic areas. In this respect, it is also interesting to mention the potential that may lie in the sheep, goat, and buffalo milk sector. Dairy products using these types of milk are often produced in mountainous areas, as opposed to cow milk production in the Bulgarian plains. Furthermore, sheep, goat and buffalo dairy products are often considered to be of a more traditional origin. An additional positive element in these dairy segments is that there are no milk quota for sheep, goat or buffalo milk. Hence, production costs may be lower than in the cow milk sub-sector in the future and an expansion of production is easier. Finally, it may be easier to comply with EU regulations at least in terms of milk quality requirements as the maximum germ count for non-cow milk is set at 1,500,000 germs per ml in contrast to the maximum of 100,000 germs per ml for cow milk.

A final challenge for the primary production sector is the difficulty in accessing funds to make investments. Major lending opportunities lie in the provision of seasonal working capital for buying fodder, medicine and insemination, as well as with longer-term investments in cooling tanks, improved milking machines, equipment for sample testing, the refurbishment of buildings, the financing of feed grain production, and the purchase of agricultural machinery. A significant problem arises from the inaccessibility of bank credits for farmers due to banks’ refusal to accept animals and buildings in villages as collateral, which makes it impossible for them to participate in the investment programs of the State Fund “Agriculture” and SAPARD. (CEEC AGRI POLICY – FP6 project).

There is an inherent problem with the way EU projects for upgrading production facilities are financed. One of the dairy companies that were interviewed had successfully assisted one of its supplying farms in getting a SAPARD project approved. The problem is, however, that funds are only accessible after the project has been completed. This means that a farmer who has such a project approved should find his own means to finance the project (own resources, bank loans, dairy loans etc.). This has often proven to be a major constraint on the application of SAPARD funds in the agricultural sector. The banking sector is very reluctant to lend to farmers because they are unable to provide sufficient guarantees (until recently, the farming sector was not very attractive as an investment opportunity). The dairy company in this case has provided the bank loan guarantee because they recognise the necessity to secure a stable supply of milk for the future. However, bank loan guarantees by the dairy sector are not very common because most dairies do not have the financial means of their own to do this on a large scale.

Some ideas have been posted to improve the situation. There have been very moderate initiatives in which the weight of bank guarantees for loans has been distributed among banks, processors and farms, but unfortunately, this idea has not been very successful and has created very little interest. However, there are several examples of these types of multi-party lending constructions that have been applied in different agri-food sectors throughout the transition region (see Swinnen, 2006 for an overview).

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11 SAPARD is a pre-accession funding tool. However, some projects are still running using SAPARD funds. Furthermore, the idea of pre-financing projects and being reimbursed afterwards is common for most EU funding.
With respect to the pre-finance of approved EU projects, there may also be a role for the government. The idea could be to set up a sort of guarantee fund that can be used to help farmers make the approved investments. The fund would be replenished once the project is completed and the investment reimbursed from the EU budget.

3. Dairy processing

3.1. Structure and extent of markets

In 2005, due to the restructuring of the dairy industry and introduction of more stringent sanitary and hygiene norms (see section 3.2), many dairies were shut down or were in the process of being halted. According to the Ministry of Agriculture, 303 plants remained active in 2005. This meant a decrease in the number of dairy processors of 11% compared to the previous year. The reduction in the number of establishments came mainly from the smaller dairies which accounted for 16% of processed milk in 2005. (USDA, 2006) In 2006, only 225 dairy companies remained (a decrease of 26% compared to the previous year). (USDA, 2007)

Bulgaria’s dairy market has been growing between 5% and 6% in value terms and 2% to 3% in volume terms over the last two years. However, it consists of a large number of small companies along with a few multinationals. (Agra Europe Weekly, May 2007)

The largest dairy processor in the Bulgarian market is Obedinena Mlechna Kompania (OMK12) with a 19% value share of dairy products sales, followed by Danone Serdika AD with about 12% market share. The rest of the market is distributed among manufacturers holding shares of less than 5%. The market is still dominated by domestic producers, with small local distribution networks. Both Danone Serdika and OMK are owned by international investors, but, unlike in other sectors, that does not provide them with a dominant position and a significant portion of overall sales. This is probably due to strong competition and the perception that yoghurt and milk in general is a national, traditional product, a view held by many consumers, especially among particular demographic groups. (Euromonitor, 2006)

Small producers such as Sofbiolife BG AD, Topalitsa 2000 OOD and Markeli OOD are losing popularity because of the strong penetrative policy of the large players Danone and OMK, which benefit from their larger marketing budgets and production base. Over the past decade, small and medium-sized producers tried to compete with the dominant companies. Initially, as lower incomes constituted a more value-oriented consumer attitude, these manufacturers benefited from lower production and distribution costs. As income levels improved the focus shifted more and more to marketing and national distribution, which gave an edge to the larger companies. The entrance of larger players into particular product areas has also contributed to the overall consolidation of specific sub-sectors. For instance in the milk market, OMK has significantly increased its market share from around 19% in 2001 to 31% in 2004. In the yoghurt market, Danone Serdika is market leader with a share of over 38% in 2004. (Euromonitor, 2006)

There is some evidence of increased concentration in the sector, although overall concentration remains low. In 2003, OMK acquired Vitalact Milk from ice cream producer Delta Bulgaria. Vitalact Milk, which previously traded under the name Serdika, is one of the

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12 In some publications also referred to as UMC (United Milk Company)
major producers of milk and yoghurt in the north-eastern region of Bulgaria. This acquisition expanded OMK’s already extensive production network. (Euromonitor, 2006)

In May 2007, AgraFood East Europe reported that the Bulgarian dairy sector was preparing for a possible rush of takeovers after the acquisition of its leading milk producer (OMK) by the Greek food giant Vivartia. According to the chairman of the association of milk processing companies, the acquisition was a signal that foreign investors are targeting large-scale production in Bulgaria. Vivartia’s acquisition was seen as a strategic move by the Greek company to expand and take advantage of Bulgarian production capacity. (Agra Europe Weekly, May 2007) Apparently, Bulgaria is attractive for Greek dairy investors due to its larger milk quota. In 2004, another Greek company invested in a new processing facility in Bulgaria with a capacity of 300 metric ton per day. (USDA, 2007b)

Another important trend in the Bulgarian dairy sector has been increasing prices. Some of the factors behind this development are: higher costs to comply with quality and safety standards; increased demand for milk because of active foreign investments in the sector; higher fuel costs (higher excise duties on fuel after accession); decline in the supply base as sub-standard milk is not accepted by an increasing number of dairies; etc. As a result, dairies will be forced to increase their ex-farm prices and may lose their competitive advantage.

Ex-farm prices for cow milk in 2005 were 5.3% higher than in 2004 at 0.40 leva/litre (€0.20/litre). Prices fluctuated considerably from 0.33 leva/litre (€0.17/litre) in June to 0.45 leva/litre (€0.23/litre) in January and December. The volatility of farm gate prices is connected with the seasonality of milk production, and it is one of the factors that is hindering the development of milk farming. Improving the continuity in milk production year-round through better breeding and feed practices will have a positive impact on the stabilisation of farm gate prices. The production cost of milk is affected mainly by feeding costs. Over the last several years, the share of feed in production costs has been about 70%. In 2005, average feed prices were lower than in 2004 (40% down for corn, 32% for feed wheat and 25% for feed barley) which, combined with higher ex-farm prices, resulted in higher farm profitability. In the first half of 2006, feed prices increased, by 13%-14% for wheat and corn, and by 29% for feed barley. As a result, the ex-farm milk price reached 0.43 leva/litre (€0.22/litre) or 5% more than in 2005. Processed dairy product prices in 2005 followed the trend in fresh milk prices and also increased, between 3.8% (butter) to 12.4% (cows cheese) for wholesale prices, and between 3.7% (sheep cheese) and 5.7% (cows cheese) for retail prices. In the first half of 2006, wholesale and retail prices were stable, but at a higher level than in 2005. More specifically, wholesale prices were 3.2% (cows cheese) to 8.5% (yogurt) higher; followed by retail prices that climbed between 2.6% (butter) and 7.5% (yogurt). (USDA, XXXX)

Table 5 compares farm gate milk prices in a number of EU countries. We see that farm gate prices for milk in CEE are comparable to milk prices in EU-15 countries (Germany and France). Bulgaria and Romania are still lagging behind with milk prices just above 22 € per 100 kg as compared to milk prices above 25 € per 100 kg in the other EU countries. Milk prices in Bulgaria are increasing (6% compared to the previous year), but a similar or even stronger price evolution can be seen in other CEE dairy sectors, in Poland, Slovakia, Hungary and Romania.
Table 5. Farm gate milk prices in € per 100 kg in the first six months of 2007

<table>
<thead>
<tr>
<th>Country (region)</th>
<th>Average price 2007</th>
<th>Change from 2006 in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayern (Germany)</td>
<td>28.82</td>
<td>+ 4.70</td>
</tr>
<tr>
<td>Rhône Alpes (France)</td>
<td>25.27</td>
<td>- 4.81</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>22.29</td>
<td>+ 6.01</td>
</tr>
<tr>
<td>Poland</td>
<td>26.81</td>
<td>+ 5.46</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>27.70</td>
<td>+ 0.49</td>
</tr>
<tr>
<td>Slovakia</td>
<td>27.85</td>
<td>+ 10.23</td>
</tr>
<tr>
<td>Romania</td>
<td>22.40</td>
<td>+ 17.79</td>
</tr>
<tr>
<td>Hungary</td>
<td>27.05</td>
<td>+ 11.67</td>
</tr>
</tbody>
</table>

Source: CLAL (2007)

A major contributor to the increase in milk and dairy product prices in recent months has been the weak grain harvest – the worst in the past five years – due to extreme drought in the summer of 2007. As a result, animal feed prices are pushed and dairy farm production costs are surging (Eurocapital). A possible solution to higher milk prices might be increased imports of fresh milk from neighbouring countries where prices are comparable. Furthermore, the drop of import duties for milk powder and whey is likely to make imports of these products more attractive as fresh milk substitutes. (Agra Europe Weekly, November 2006; USDA, 2007).

Table 6 gives an overview of Bulgarian dairy product imports originating from other EU-27 member states. The table shows that imports of milk, cream and whey have increased importantly in the first half of 2007: Compared to dairy product imports in the period January to May 2006, imports of milk and cream have increased by 87% in the same period in 2007, while imports of whey have increased by 45%.

Table 6. Imports of milk, cream and whey in Bulgaria from other EU-27 member states in 2006 and 2007, in Euro

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Milk and cream*</td>
<td>4,567,000</td>
<td>8,542,792</td>
<td>+87 %</td>
</tr>
<tr>
<td>Whey</td>
<td>1,664,000</td>
<td>2,417,424</td>
<td>+45 %</td>
</tr>
</tbody>
</table>

Source: Eurostat (2007)
* including fresh, powdered and concentrated milk and cream.

Dairy product exports grew in 2006 and were 10% higher than in 2005. About 95% of dairy exports are cheeses, mainly destined for the Greek market and to some extent for the German market. In 2007, however, Bulgarian dairies will face increased competition from EU cheeses as imports are likely to grow in volume and be less expensive due to the elimination of duties.
EU cheeses show a general price decline due to declining intervention prices and a subsequent reduction in milk farm prices, while local cheese costs will be increasing as a result of milk shortages and climbing expenses on food safety and labour. As a result, cheese exports may be restricted. (USDA, 2007)

Table 7 gives an overview of dairy product exports from Bulgaria to other EU-27 member states. The table shows that cheese remains the most important export category for the Bulgarian dairy sector, accounting for 78% of total dairy exports in the first half of 2007. Another interesting development is the surge in exports of yoghurts, milk and cream. Comparing the data in Tables 6 and 7, we conclude that Bulgaria is an important net-importer of milk and cream and whey products, and a net-exporter of cheeses and yoghurts. The increase in exports in the first half of 2007 was also confirmed by the interviews conducted in the field.

### Table 7. Exports of dairy products from Bulgaria to other EU-27 member states in 2006 and 2007, in Euro

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>5,308,000</td>
<td>8,946,705</td>
<td>+ 69 %</td>
</tr>
<tr>
<td>o.w. cheese</td>
<td>4,465,000</td>
<td>7,005,818</td>
<td>+ 57 %</td>
</tr>
<tr>
<td>o.w. oils and fats</td>
<td>719,000</td>
<td>2,045</td>
<td>- 99 %</td>
</tr>
<tr>
<td>o.w. yoghurt</td>
<td>76,000</td>
<td>1,054,807</td>
<td>+ 1387 %</td>
</tr>
<tr>
<td>o.w. milk and cream</td>
<td>40,000</td>
<td>752,633</td>
<td>+ 1882 %</td>
</tr>
</tbody>
</table>

Source: Eurostat (2007)

### 3.2. Market institutions and policies

LB Bulgaricum Plc. is the only state-owned firm in the Bulgarian milk-processing sector. It is the legal successor of the intellectual property, licensing activity and export positions of the former State economic enterprise Milk Industry founded in 1965. In 1991, the company was renamed LB Bulgaricum and in 1993 it was transformed into a sole-owned joint-stock company. It is banned for privatization, first by government decree of March 17th, 1992, then by a law of March 19, 2002. Sole proprietor of the company’s stocks is the Ministry of Economy of the Republic of Bulgaria. (Euromonitor, 2006)

Regulations (EC) No 852/2004 and 853/2004 lay down hygiene rules for dairy processing companies. As mentioned in section 2.2, Regulation 852/2004 states that food businesses should operate food safety programmes and procedures based on HACCP principles. All food businesses should produce documents and keep records that prove the establishment of and compliance with the HACCP system and provide the competent authority with evidence of this compliance. Hygiene requirements also include provisions concerning buildings, equipment and personnel.

Regulation 853/2004 includes several provisions that concern dairy products. First, there are specific temperature requirements. Dairy processors must ensure that, upon acceptance at the
processing facility, milk is cooled quickly to not more than 6°C and kept at this temperature until processing. Furthermore, the Regulation specifies requirements for the heat treatment of milk, i.e. pasteurisation and Ultra High Temperature treatment. There are also specific criteria for the raw cow milk that is used for processing: immediately before processing, raw cow milk used to prepare dairy products has a plate count of less than 300,000 germs per ml and processed cow milk used to prepare dairy products has a plate count of less than 100,000 germs per ml. Finally, there are also provisions about the packaging and labelling of dairy products.

Since 2000, the Bulgarian vet office (the Competent Authority) has been shutting down meat, dairy and other food establishments that were unable to meet EU hygiene standards. As a result, the number of entities has dropped from 2400 in 2000 to 528 in 2006, of which 225 belong to the dairy sector. In preparation for European Commission inspection visits in November 2006, the remaining dairies were divided in three categories (USDA, 2007):

(1) First category (34 plants): companies that fully meet EU food safety norms, process EU standard quality milk and trade freely on the EU market;
(2) Second category (68 plants): companies that meet EU food safety norms but that can process both sub-standard milk for the local market and standard milk for the EU market. Complete segregation of the technological processes is required at the factory level. According to industry sources, this category processes 50 %-70% of collected fresh milk in the country;
(3) Third category (123 plants): companies that process only sub-standard milk and work only for the local market. The dairy sector was granted a grace period of three years following accession to use and process sub-standard milk for the local market.

However, in February 2007, EU member states have backed the European Commission proposal to cut 60% of the Bulgarian meat and dairy processors that were allowed to export to the EU because of their non-compliance with EU hygiene standards, lack of functioning HACCP systems, and lack of a functioning traceability system. As a result, only 16 milk processors will be allowed to trade their products within the EU. This decision resulted from inspection visits made by the EU Food and Veterinary Office. These visits highlighted that the number of companies in the second category – those that process both types of milk – is too high and that major problems exist in terms of control over traceability and segregation of milk for processing. It is often impossible to segregate sub-standard and standard milk throughout the dairy chain, especially at milk collection points. In order to reduce the number of dairies in category two, the companies either have to make significant cuts to their supply base to be able to switch to category one, or they switch to category three and lose the EU market as a potential sales outlet.

Some of the problems with upgrading and certifying dairy plants are the result of limited capacity in human capital and an inadequate understanding of food safety practices. Companies that are trying to put in place a HACCP system faced serious challenges to find and retain qualified personnel. Furthermore, most state veterinary officers lacked experience and a good understanding of HACCP regulations, especially concerning their practical application.

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13 Hazard Analysis Critical Control Points
3.3. Business conduct and skills

Due to quality issues, the major processors who want to secure good quality and safety of their products work with their own selected network of farms. These farms are regularly inspected by the processors and have access to technical assistance and financial help. Such policy is performed by market leaders Danone, OMK, BBB group, TriBul, L B Bulgaricum, Zorov Ltd. and by other small dairy plants, most often on a regional basis (CEEC AGRI POLICY – FP6 project). These linkages between dairy processors and milk producers were also observed in a study of foreign direct investments in the Bulgarian dairy sector by Dries and Noev (2006).

Recently, there seems to be an increase in vertical integration in the sector. According to our interviews, the share of dairy companies that are setting up their own farms is increasing. The stringent EU requirements on the hygiene and quality of both raw milk and processed dairy products are the main reason behind this development. Vertical integration is the dairy companies’ way of exercising full control over the primary production stage and thus guaranteeing compliance with EU regulations.

Despite the increasing importance of farms that have their own on-farm cooling tank in total milk supply, most dairy companies are still accepting milk from collection stations at this point. However, almost all interviewed dairy companies have achieved or are taking measures to achieve the goal of 100% milk procurement from farms with own cooling tanks.

There is a widespread view among several participants in the dairy chain that there is a very high degree of tax evasion by Bulgarian dairy companies. Several interviewees point out that larger dairy companies are disadvantaged in this respect as they are scrutinised by the tax authority and forced to comply with tax law while smaller dairy companies get away with paying only part of their taxes or even escape completely from their obligations. A common complaint in this respect is that the 20% VAT on compliant dairy products makes it impossible for EU-standard dairies to compete with the products of non-compliant factories. One of the interviewed companies even stated that this situation of unfair competition on the domestic market is the main reason why 90% of their products are being exported.

According to a number of interviewed dairy companies, there is no loyalty in the dairy sector and breaches of contract between processors and supplying farms occur frequently. One of the dairies even stated that they have stopped providing cooling tanks and milk lines to their suppliers because farms would switch to deliver to competitors as soon as another dairy offers a slightly higher price for their milk. It used to be enough that a dairy paid a reasonable price for delivered milk at regular times. Recently, farmers seem to have become much more opportunistic.

In essence, we could say that the bargaining power in the dairy chain lies with the large dairy farms that are able to deliver large quantities of high quality milk. There is strong competition between dairy processors to have these farms as their regular suppliers. Large farms take advantage of this situation. For example, one of the interviewed processors stated that it frequently happens that one of their suppliers calls the company to say that they have been offered a better price for their milk by another dairy. As a result, the processor negotiates with the farm and often agrees on a new price to keep the farmer’s milk supply.
3.4. Remaining transition challenges and how to tackle them

The main challenge for the dairy processing sector will be to acquire sufficient quantities of EU-standard raw milk. On the one hand, there is the aforementioned threat to the survival of the small-scale dairy sector and the incapacity to upgrade a significant share of current milk supply to meet EU requirements. However, the problem is exacerbated by the fact that an important share of the dairy sector operates in the grey economy. This means that at the time that the reference volume of milk for the quota was established (reference year: 2001/2002), the actual volume of processed milk was underestimated, as the reference volume was based on official statistics. Hence, the assigned quota was significantly lower than the actual amount of milk that was used by the processing sector. As a result, the total amount of quota requested by farmers was much higher than the total quota that could be divided in the dairy sector. This led to a decrease in the quota volume assigned to the smallest farms by about 50% (compared to what they had requested).

The dairy processing sector is divided. This is illustrated for example by the split of the existing dairy processors association in 2006. Since then, two associations exist. The first has mainly bigger processors as members, which together process about 67% of total milk supply in Bulgaria. The second association unites all the small-scale processors (about 170 members), many of whom are located in the more backward agricultural regions in northeastern Bulgaria. It seems obvious that the priorities and difficulties faced by these two groups of processors are very different, with large-scale dairies (possessing a more stable cash flow and profitability) having preferential access to large-scale farms that deliver high quality milk, and smaller dairy companies mainly sourcing from small-scale farms through collection points. Hence, the potential exclusion of a large share of small-scale farms from the commercial sector in the coming years will have important repercussions for the dairies that are dependent on this milk supply for their activities. As such, it may have an additional negative impact on rural economic activities and employment.

4. Retail of milk and dairy products

4.1. Structure and extent of markets

Over the past 10 years, the retail sector in Bulgaria has undergone significant structural changes and growth. Over the period 1990-2002, the number of retail outlets has tripled. After the economic crisis in 1997, the market situation quickly changed. (USDA, 2004) Hypermarkets and supermarkets began to emerge in 1997-1998. The retail sector in Bulgaria has a vast array of different types of outlets. Everything from the very small basement shop to enormous hypermarkets is represented. However, especially hypermarkets investing in the country are causing the picture of the retail market to change rapidly. Small-scale domestic grocery players, such as the stores Fantastico, Familia and Oazis, still characterize the market, but in 2005, the market share of big supermarket chains was already 16 %, and it is expected to increase even further in the future.

Figure 1 shows the (projected) evolution in the number of hypermarkets and their sales since 2004. We see a rapid increase in outlets in 2006 and a more gradual but continuing increase for the following years. Figure 2 gives a similar overview of sales and the number of outlets for the supermarket sector. Growth in this retail segment started earlier than for hypermarkets.
with a first rapid increase in outlets in 2003. Figure 3 shows that the Bulgarian retail market is dominated by convenience stores and small-scale retail outlets. However, according to Planet Retail predictions, the importance of supermarket outlets will increase rapidly to gain a 35% market share by 2011.

**Figure 1. Number of outlets and sales* in hypermarkets, 2004-2011**

![Figure 1](image1)

Source: Planet Retail (2007)

* RBS = Retail Banner Sales

**Figure 2. Number of outlets and sales* in supermarkets, 2002-2011**

![Figure 2](image2)

Source: Planet Retail (2007)

* RBS = Retail Banner Sales
In the past few years, Bulgaria has become attractive for large international retail chains. The past five years have seen a steady expansion of retail stores chains such as Billa, Metro Cash & Carry, Ramstore, Kaufland Stiftung & Co KG and HIT Co. This has created a picture of hypermarkets and supermarkets and other large-scale retail stores dominating the market and slowly taking the place of small family-owned shops as well as independent consumer goods companies and specialised food outlets such as bakers, butchers and cheese stores. Domestic supermarket chains such as Fantastico and Piccadilly are competing successfully with foreign chains and their number of stores is increasing rapidly. At this moment, large supermarket chains are very successful in the bigger cities, but their sales are limited in the provinces. However, tough competition in a market that is approaching saturation has led international retail chains to expand to towns through cooperation with small stores. Table 8 gives an overview of the main retail players in the Bulgarian market.
Table 8. Key Food Retailers

<table>
<thead>
<tr>
<th>Formats</th>
<th>Group name</th>
<th>Store brands</th>
<th>Number of stores</th>
<th>Net sales (EUR m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOOD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypermartkets</td>
<td>Migros Turk KOC Group</td>
<td>Ramstore</td>
<td>4</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>Dohle</td>
<td>Hit</td>
<td>1</td>
<td>n/a</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>Billa Bulgaria REWE Group</td>
<td>Billa</td>
<td>13</td>
<td>74.3</td>
</tr>
<tr>
<td></td>
<td>Boliaari</td>
<td>Piccadilly</td>
<td>4</td>
<td>22.7</td>
</tr>
<tr>
<td>Convenience</td>
<td>CBA Bulgaria</td>
<td>CBA</td>
<td>200</td>
<td>n/a</td>
</tr>
<tr>
<td>stores</td>
<td>VAN Holding</td>
<td>Fantastico</td>
<td>24</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>Magazino Familia Plus</td>
<td>Familia</td>
<td>15</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Boliaari</td>
<td>Mambo</td>
<td>4</td>
<td>n/a</td>
</tr>
<tr>
<td>Cash and carry</td>
<td>METRO</td>
<td>Metro</td>
<td>7</td>
<td>319.7</td>
</tr>
</tbody>
</table>

Source: PWC

The expansion of the large-scale retail sector is also confirmed by recent announcements in the specialized press. For example, Mercator (Slovenia) has announced plans of entering the Bulgarian market by 2010; Tengelmann has confirmed its plans to open their first Plus discounter in Bulgaria in 2008; Fantastico is investing in two more new stores in 2007; Carrefour is building its first outlet in Sofia and expects to open in 2008; Piccadilly is selling a majority stake in the company to the Serbian Delta Group in order to attract fresh capital to invest in the development of the chain; etc. (Planet Retail)

On the other hand, there are indications that the expansion of the large-scale retail segment is being hampered at least in some cases. For example, Dohle (HIT hypermarkets) has halted its expansion in Bulgaria for the time being because of the extraordinarily high prices for land plots. Furthermore, Migros Turk has stopped its operations in Bulgaria by selling one of its three hypermarkets and closing down the others.

The increased importance of hypermarkets and supermarkets had a serious influence on sales. Proof of this is an increase in the sales of Arot, the line manufactured especially for the Metro Cash & Carry hypermarket chain. Arot has been among the best performers, with more than one percentage point value share growth in cheese in 2003 and a near one percentage point gain in 2004. Furthermore, the increase in the share of packaged cheese in total sales volumes was also stimulated by hypermarket and supermarkets as they put pressure on the big cheese producers to switch from unpackaged to packaged cheese in a relatively short period. (Euromonitor, 2006)

4.2. Market institutions and policies

A simplification of legislation and an investment incentive act have made investing in Bulgaria a more profitable venture. Legislation concerning retail outlets is also very liberal.
There are no restrictions on pricing, except for pharmaceuticals, and there are no restrictions on opening hours or on the number of outlets a retailer can have.

4.3. Business conduct and skills

Some retailers have started to build Distribution Centres (DCs) that also handle fresh products. This means that where dairy processors were delivering their products to each individual retail outlet in the chain before, they are now delivering to one central warehouse. Sometimes this is having an impact on the way products are delivered as the retailer is setting new requirements in terms of packaging and regarding the volume in which the products have to be delivered to the DC. However, most retail chains have not yet reached sufficient scope to justify the building of a distribution centre for fresh products.

Dairy processors either use their own (refrigerated) transport trucks to deliver products to retail outlets (or to the DCs), or organise distribution through traditional wholesalers. In one case, the dairy processor has an exclusive contract with a specialised wholesaler in charge of their distribution network. Large retailers use a pre-order system, while small-retailers in principle buy ‘ex-van’, i.e. there are no advance orders.

Since the Bulgarian retail sector is still very fragmented, individual retailers do not yet hold strong bargaining power in the dairy sector. In general, the major dairy processors have the power to put demands and requirements in terms of pricing, shelf space etc. on the retailers, not the other way around. Some of the main dairy processors are seen as being quite aggressive in their policy towards the retail sector.

The policies of the low-cost international retailers are new to the Bulgarian market and some of the interviewed dairy processors had stopped supplying to these chains, the policies of which included buying at cost price (leaving a new profit margin for the processor), postponed payment, returned products etc.

As Bulgarian consumers have started to change their attitudes towards food quality and EU food legislation has become integrated in Bulgarian law, the number of foreign higher quality products is continuously rising. It is therefore estimated that high-quality products will be a considerable competition parameter in the near future. The selection of products in Bulgarian retail units is to a large extent based on international brands. This also implies that there is a market for imported products, which are relatively expensive compared to domestic products. Another factor contributing to this development are rising income levels, which are changing consumption habits in the sense that Bulgarian consumers have begun to prioritise high-quality products.

4.4. Remaining transition challenges and how to tackle them

The retail sector is still very fragmented. There is room for additional investments, and a further expansion of the large-scale retail sector can be expected. Future developments in the retail market are likely to follow development patterns observed in other emerging markets: (a) the rise of the large-scale retail sector; (b) the spread of large-scale retail outlets from large cities into medium or small cities and then even rural towns; (c) the multi-nationalization of the sector; (d) its consolidation; (e) the transformation of product procurement systems.
This change of supermarkets’ procurement systems can be summarized as follows: (a) a shift from local, decentralized procurement to centralization; (b) regionalization of procurement; (c) a shift from the use of traditional wholesalers to specialized/dedicated wholesalers; (d) the establishment of joint ventures with multinational logistics companies; (e) a shift from the use of spot markets to the use of preferred supplier systems; (f) a shift from informal standards to the establishment of private standards.

High real estate and land prices are identified as a main development inhibitor. As a consequence, 99% of new supermarket developments will be in shopping malls, and not as Greenfield investments, but rather through renovation. According to one of the interviewees, it is impossible for a retailer to compete with real estate agencies for land, seeing as a retail outlet only has one floor, which is why the return is much lower compared to the return on, for example, an apartment building.

5. Recommendations

The analysis of the Bulgarian dairy sector has revealed a number of transition challenges at different levels in the supply chain. Below, recommendations are made as to how a variety of policy and regulatory, capacity building, public and/or private investment measures may serve to overcome them.

5.1. Primary production

At the primary production level, a low average annual cow milk yield and the high seasonality of production are due to a poor genetic base and inadequate feeding practices. It is recommended to review existing regulation in the field, specifically the functioning and role of the Agency for Selection and Reproduction in Animal Husbandry. Its monopoly position should be broken down and the role of the private sector in breeding practices and the provision of high-quality genetic material increased. Capacity building measures that improve awareness of the importance of feeding practices and the genetic base for animal performance are advised, e.g. through training of veterinary service providers and field extension officers.

Restrictions imposed by the quota system currently hamper a rapid restructuring of the primary production sector, since the freeing up of quota by the declining number of small and smallest farms is too slow to sustain growth in the medium- to large-scale dairy farm sector. A review of the milk quota system at EU policy level (with a view to its abolishment) is therefore recommended.

Another challenge at the primary production level is that of low raw milk quality. An estimated 50% of total Bulgarian milk supply will be non-compliant with EU regulations on food quality and safety by the end of 2009, and an important share of this sub-standard milk is produced on 1-3 cow farms headed by old farm operators. In terms of suitable policy, an extension of the grace period during which sub-standard milk can be used for domestic trade and consumption only should be requested. Additionally, a credible system of control needs to be put in place to ensure the separation of products destined for the local and for EU markets. Options for upgrading milk quality at the smallest dairy farms should be reviewed and the creation of milk parlours with professional staff and milk testing equipment by means of public-private investment considered. Capacity building measures to help overcome the
challenge of low milk quality should devote special attention to informing dairy farmers of the implications of stringent EU milk quality indicators and educating them on the actions that can be undertaken at farm level to change milking practices. Ultimately, it is just as important that adequate social policies be devised to counter the effects that the end of the grace period on January 1 2010 is likely to have on many rural families who rely on milk sales as a main or complementary source of income, but who will be shut out of the market and lose all or part of their income because they are unable to deliver EU-standard milk.

Finally, access to investment finance from EU structural and other funds for credit-constrained primary producers is presently limited by the pre-finance element of EU- and other programmes. By means of adequate policy and public investments, national governments could step in and bear at least part of the burden of pre-financing EU projects.

5.2. Processing sector

Foreseeable limits on high-quality milk supplies are a major threat for a large number of small- to medium-scale dairy processors. Since the source of this problem lies in the primary production sector, the same recommendations apply as above. In addition, capacity building measures should be undertaken at the processing level, including efforts to raise awareness of potentials for traditional dairy product production from milk other than cow’s, such as sheep, goat or buffalo. Important lessons about typical or traditional product development can also be learned from other EU countries.

The clear divide between different types of processing companies and the implications this has for future policymaking need to be recognised: On the one hand, medium- to large-scale dairy companies have access to high-quality milk supplies, while on the other hand small- to medium-scale processors operate at the lower-quality end of the market. Obviously, the challenges faced by these two groups will be very different in the coming years. Thus, sector policies should take into account the divide and acknowledge that policy choices beneficial to one group of processors may hamper the development of the other group.

Another challenge at the processing level is that of rising prices for dairy products, seeing as price increases could damage processors’ competitive position. Since many of the developments that cause dairy product prices to increase are inevitable (such as higher raw milk prices due to increased quality requirements and higher feed prices), dairy processors should focus their efforts on the improvement of dairy supply chain efficiency. One of the key elements in achieving this will be to upgrade the supply base, in other words, to consolidate at the farm level. This can be done through growth on individual farms, e.g. through investments in numbers of cows etc.

Limited capacity in human capital and an inadequate understanding of food safety practices can be countered by capacity building measures. Training of veterinary services personnel, HACCP training and auditing courses, as well as information sessions on EU food safety regulations with regular updates of changing policies are recommended. Finally, the problem of widespread tax evasion, especially among smaller processing companies, needs to be addressed through the establishment of functioning and credible tax control offices and an indiscriminate implementation of tax law.
Annex I. Structure is the Portuguese dairy farm sector.

INE reports that there are presently 41,181 dairy farms in Portugal, accounting for 10% of all farms. Milk production is concentrated regionally, with the "Entre Douro e Minho" (EDM) and Beira Litoral (BL) regions making up 71% of all farms and 40% of national cow milk output (Portugal has a milk quota that is about twice as high as that of Bulgaria). The Azorean islands, which represent a minor 2% of Portugal’s total mainland area, account for 24% of total milk collected in the country.

The sector has undergone major changes during the 90's. Geographical dairy concentration has increased in a few councils of the traditional dairy districts of EDM and BL, and in the "Higher Alentejo," where some of the larger-scale dairy units have settled. During this period, the total number of producers dropped by 55% and the number of dairy cows declined by 7.5%. EU programmes that led to the retirement of some 17,000 dairy producers during 1992 and 1993 played a decisive role in reshaping the sector. In spite of this reduction, the number of small farm units with one or two dairy cows remains significant (see Table below). However, modern, highly specialized units are also very important as shown in the Table below, where it can be noted that the "over 100 head" category accounts for a higher percentage of the total national dairy herd than the "1-2 head."

Dairy cooperative policies have also brought about changes in the sector. Forced by heightened competition, the cooperatives have been closing milk collection centres at a rate of 4,000 per year. This controversial policy has been important for the cooperatives’ financial consolidation, given the high costs of milk collecting and the low quality of that specific type of product. Price penalties for low-quality milk, as tends to be the case with milk which is produced on the small traditional farms, are another factor contributing to the decline in the number of smaller producers.

**Portugal: Structure of the Dairy Sector**

<table>
<thead>
<tr>
<th>Cow Head/Farm</th>
<th>1-2</th>
<th>3-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>&gt;100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share in Dairy Head Total (%)</td>
<td>10.7</td>
<td>8.8</td>
<td>10.6</td>
<td>8.6</td>
<td>7.0</td>
<td>13.0</td>
<td>9.4</td>
<td>6.4</td>
<td>4.2</td>
<td>10.7</td>
<td>11.8</td>
</tr>
</tbody>
</table>

Source: National Statistics Institute INE

Due to the still excessive weight of the small-farm component in total, the dairy sector will continue to concentrate in the medium-term future. This trend is driven namely by the aforementioned policy of cooperatives closing small collection centres, the effects of new EU rules, new farmer retirement programs, and market competition.