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Industrial organisation of the food industry in Latvia: results of an expert survey in the dairy and milling branches

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DISCUSSION PAPER

Institute of Agricultural Development in Central and Eastern Europe

INDUSTRIAL ORGANISATION OF THE FOOD INDUSTRY IN LATVIA: RESULTS OF AN EXPERT SURVEY IN THE DAIRY AND MILLING BRANCHES

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**DISCUSSION PAPER NO. 22
1999**



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ABSTRACT

Based on the analytical framework of the structure-conduct-performance paradigm of the theory of industrial organisation, the paper analyses those economic conditions that determine the degree of competitiveness in the Latvian dairy and milling industry. The analysis is based on information from milk and grain processing enterprises acquired through a survey carried out at the beginning of 1998. It is shown that the development of market conditions and market behaviour in the sectors examined has in general progressed. Privatisation in both sectors has been completed. While in the dairy sector the majority of processing enterprises were privatised as co-operatives, in the milling industry all enterprises have become closed joint-stock companies. Since the legal status of a co-operative has turned out to be quite problematic for enterprise restructuring, more and more dairy enterprises have started to change into joint-stock companies. Competition in the investigated processing sectors can be considered as functioning. However, in the dairy sector tendencies of stronger horizontal concentration can be observed. The majority of enterprises react in quite an active way to the market conditions. Procurement and marketing channels have been diversified, and considerable investments have been undertaken. Further investments, however, are impeded by high interest rates for credits. As for performance, quite a considerable differentiation between the enterprises in the considered branches could be shown. The main problems seen by the processors are the saturation of the domestic Latvian market, the lack of investment funds, the unstable legislation, the absence of any substantial support from the government, and, in the dairy sector, the low quality of the raw milk.

ZUSAMMENFASSUNG

Der Diskussionsbeitrag analysiert mit Hilfe des Structure-Conduct-Performance Ansatzes der Industrieökonomik die Faktoren, die die Wettbewerbsfähigkeit der lettischen Milch- und Mühlenindustrie beeinflussen. Der Untersuchung liegen Informationen zugrunde, die im Rahmen einer Unternehmensbefragung Anfang 1998 gesammelt wurden. Es wird gezeigt, dass bei der Entwicklung marktwirtschaftlicher Rahmenbedingungen und Verhaltensweisen insgesamt beträchtliche Fortschritte erzielt worden sind. Die Privatisierung ist in beiden Sektoren fast abgeschlossen. Während dabei im Milchsektor die meisten Betriebe als Genossenschaften privatisiert worden sind, haben alle Betriebe der Mühlenindustrie die Rechtsform einer geschlossenen Aktiengesellschaft angenommen. Da sich aber Genossenschaften als problematisch für die Unternehmensumstrukturierung erwiesen haben, sind mehr und mehr Milchverarbeitungsbetriebe dazu übergegangen, sich in Aktiengesellschaften umzuwandeln. Der Wettbewerb in den untersuchten Sektoren kann als funktionsfähig bezeichnet werden. Allerdings ist in der Milchindustrie eine zunehmende horizontale Konzentration zu beobachten. Die meisten Betriebe reagieren recht aktiv auf die veränderten marktwirtschaftlichen Rahmenbedingungen. Die Beschaffungs- und Absatzkanäle wurden diversifiziert und es wurden beträchtliche Investitionen getätigt. Weitere Investitionen werden jedoch durch hohe Kreditzinsen behindert. Die Analyse der Leistungsfähigkeit zeigt, dass eine erhebliche Differenzierung zwischen den einzelnen Betrieben in den beiden untersuchten Branchen stattgefunden hat. Als Hauptprobleme der Verarbeitungsbetriebe werden die Sättigung des heimischen Marktes, fehlendes Kapital für Investitionen, eine unsichere Rechtslage und eine fehlende substantielle staatliche Unterstützung betrachtet. Für die Milchindustrie ist darüber hinaus die schlechte Qualität der Rohmilch ein großes Problem.

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1 INTRODUCTION

Since the re-establishment of independence in 1990, tremendous changes have taken place in the Latvian economic and political systems. The introduction of a market economy has had a significant impact on the development of the Latvian industry including the food processing sector. The food industry is one of the most important sectors of the Latvian economy, in terms of its share, in total industrial employment and output as well as its share with regard to total consumer expenditures. On average, 48 % of total household expenditures were devoted to food consumption in 1997. In the same year the food processing industry contributed 30 % to industrial output and accounted for 23 % of industrial employment.

Although considerable progress in the development of market conditions and market behaviour has already been achieved, this sector is still suffering from the inheritance of the centrally planned system of the former Soviet Union.

Inefficiencies in the food processing sector have repercussions on the development of agricultural production as well. Therefore, further improvements in the food industry are a substantial precondition for the development of a competitive agri-food sector.

The aim of this study is twofold. Firstly, those economic conditions that determine the efficiency in the food industry shall be analysed using the example of Latvia's two most important sectors – the dairy and the milling industries. Secondly, on the basis of the results obtained, alternative policy options for state institutions and processing companies to improve the efficiency of the Latvian food industry shall be elaborated. The structure-conduct-performance (SCP) paradigm provides the analytical framework for the study; it attempts to evaluate market performance in relation to a firm's conduct and the market structure.

The analysis of the situation in these food processing branches is mainly based on information acquired through a survey, and in addition on data issued by the Central Statistical Bureau. It was necessary to use this direct way of getting comprehensive data by means of questionnaires for two reasons. Firstly, the officially published statistical data failed to completely cover all important aspects of the restructuring process, especially branch specificities. Secondly, according to Latvian law the Statistical Bureau is not allowed to publish concrete information about individual enterprises.

The study is organised as follows. In chapter 2 the methodological procedure of the survey is laid down. In chapters 3 and 4 the results of the survey are discussed. Chapter 5 provides policy recommendations, identifying a number of measures that are necessary for the future development and improved competitiveness of both the milk and the grain processing sectors. Chapter 6 contains a summary and some concluding remarks.

2 METHODOLOGY

2.1 Selection of the branches to be analysed

Within the framework of a joint research project of IAMO and Institutes from the Baltic States¹ and the Netherlands in a first step those economic conditions have been analysed that give rise to the low

¹ Participating Institutes from the Baltic States were the Latvian State Institute of Agrarian Economics in Riga, the Lithuanian Institute of Agrarian Economics in Vilnius, the Estonian Institute of Agrarian Economics in Saku and the Agricultural Economics Research Institute (LEI-DLO) in The Hague.

degree of competitiveness of Latvia's food industry, using publicly available information.² For a more detailed analysis of the situation in the Latvian food industry, two food processing branches were chosen. As the dairy industry is the most important food branch in Latvia, the survey was carried out in this particular subsector. In addition, the milling industry was chosen as the second branch to be analysed.

In 1997, milk accounted for 17.2 % and grain for 6.8 % of the total output of the food industry. Both branches together employed 21 % (17 % in milk processing and 4 % in milling) of the total number of employees in the food processing industry. The production output per employee was comparatively high with 17.2 and 30.8 thousand lats, respectively.

In 1997, total Latvian milk production increased for the first time since 1990 compared to the previous year, reaching 987600 tons. This indicates that a certain stabilisation of production has been achieved. In addition, there are already enterprises which are able to produce goods of a quality that meets EU requirements, and which can compete with EU countries. Thus, in 1998, six dairies (jstc "Vidzemes piens", jstc "AGM Agro-Eksports", jstc "Rigas piensaimnieks", jstc "Valrit", jstc "Rigas piena kombinats and "Preilu siers") were granted the right to export their produce to EU countries.

Positive trends can also be observed in the grain sector. During the last three years, a constant increase in the sowing areas and in total production has been observed, thereby improving the access of the milling sector to raw material.

2.2 Survey method and structure of the questionnaire

The survey in the dairy and milling branches took the form of face-to-face interviews or discussions with managers, directors and chairmen of the board of directors, i.e. with people who know the situation of their enterprises best. This method of interviewing was used in order to obtain information that is as reliable and as precise as possible on different aspects of the development of the individual enterprises. The survey was carried out at the beginning of 1998.

The aim of the survey was to collect data on the food enterprises' legal status, their incentive structures, and their economic activities during the period 1994-1997, in order to evaluate how the transition process has so far affected the behaviour of economic agents and how this in turn has influenced efficiency in the sector.

The structure of the questionnaire does not exactly follow the SCP approach, according to which the survey results are presented in this study. Practical, i.e. mainly psychological reasons had to be taken into account in interviewing. The questionnaires thus had to be designed so that managers would be willing to provide answers. In detail the questionnaires contained the following eight major items:

1. General questions about the enterprise, including questions about its legal status and ownership structure

Important factors influencing the operation of an enterprise are its legal status and ownership structure. They define the corporate governance system and thus the incentive framework within which managers operate. In addition, this information helps to analyse the degree of vertical and horizontal integration of the enterprises. Other questions in this part of the questionnaire are intended to provide information on the development of employment in the enterprises since the beginning of privatisation, and on the main lines of production.

² The results of this study were published in the IAMO Discussion Paper No. 10, JASJKO, D. et al. (1998): Restructuring the Latvian Food Industry: Problems and Perspectives.

2. Procurement

This item tries to clarify the nature of vertical co-operation or integration between agricultural producers and processors. For this purpose data on expenditures per year for the procurement of raw materials and procurement channels used, as well as details about the contractual on arrangements between the two market partners were gathered.

3. Sales

Information about the use of different marketing channels, export activities and product development give an indication of the behavioural changes of the enterprises. Information about sales of finished products during the last two years, combined with cost data collected allows to assess value added and its development and thus an important performance indicator.

4. Market information system

The institutional environment has a big impact on an enterprise's conduct. The primary function of market institutions is to facilitate the organisation of transactions and thus to reduce market transaction costs. A market information system can do much in this respect by providing easily accessible information about prices and potential market partners. The objective of this part of the questionnaire is to find out what sources of information are used by processors to obtain information concerning prices of products and resources, and what information processors are mostly interested in.

5. Transport and storage

Other important links in the agri-food chain are transport and storage, since they are key elements in an efficient distribution system for food products. Questions about the situation in transport and storage help to clarify whether there is enough competition, what problems in these links of the agri-food chain exist, and how processors solve them.

6. Incentive structure

The incentive structure is a key determinant of enterprise behaviour. The questions in this category focus on the nature of the existing payment system for managers and workers and on the mechanisms applied to dismiss and employ them.

7. General questions about the enterprises' main problems and prospects

The answers reflect the opinion of the managerial staff about the main achievements and problems, as well as their assessment of the future development of their enterprise. In addition, they provide an insight into how the managers intend to improve the performance of their enterprise, and what support they expect to receive from the government.

2.3 Characteristics of selected firms

In order to reflect the characteristic structure and situation in the respective branch, large, medium and small enterprises were selected. The smallest enterprise has less than 50 employees, while the largest one employs more than 500 people. The expenditures of milk processing enterprises for the purchase of raw milk range from 117 thousand Latvian Lats (LVL) to 4946 thousand LVL, and the incomes achieved through sales of finished products from 153 thousand LVL to 13.79 million LVL in 1997.

The same holds for the grain sector. The selected grain processing enterprises are geographically situated in all four regions of Latvia (Kurzeme, Zemgale, Vidzeme, Latgale).

The smallest of the selected grain processing enterprises employs less than 50 persons, whereas between 101 and 500 employees work in the largest ones. According to the expenditure for procurement, the greatest amount spent on grain purchasing in 1997 was 4295 thousand LVL, while the smallest sum was 1057 thousand LVL. As to the amount of sales in 1997, the largest enterprise received 9067 thousand LVL and the smallest 1295 thousand LVL.

2.4 Relevance of the sample

According to information from the Central Statistical Bureau in 1997, there were 70 milk processing enterprises registered officially. However, as stated by the Latvian Dairy Farmers Central Union (LDFCU), only 40 of them are actually engaged in milk processing (STRAKDAS 1997, p. 4). In the survey 18 or 45 % of the currently operating milk processing enterprises were considered. The amount of milk supplied to the milk processing enterprises in 1997 was 361.6 thousand tons, of which the investigated enterprises purchased 303.8 thousand tons or 84 %. As of January 1, 1998, the milk processing sector employed 5528 persons, 3579 (65 %) of whom worked at the milk processing enterprises questioned. Thus, the average size of the firms in the survey is bigger than the average size in the whole Latvian dairy industry.

In the milling industry 17 enterprises were registered. 7 or 41 % of those processing firms were considered in the survey. In 1997 the total amount of food and feed grain purchased by enterprises engaged in grain processing was 324.7 thousand tons, of which 182.6 thousand tons (56 %) were purchased by the questioned enterprises. At the beginning of 1998, 1495 persons worked in grain processing enterprises, of which 1197 (80 %) were employed in the surveyed enterprises. This indicates also in this branch that the firms in the sample are on average bigger than the firms in the Latvian milling sector.

3 DAIRY SECTOR

3.1 Structure

The main elements to analyse the structure of the dairy industry are its ownership structure, the size distribution, and the degree of integration of enterprises with their economic partners.

3.1.1 Ownership structure

Two thirds of the dairy firms surveyed were privatised in 1992 and 1993 according to the law "On the privatisation of milk processing enterprises". By the end of 1995 the privatisation of all considered 18 milk processing enterprises had been completed. Thirteen of them have become co-operatives owned by milk producers, and only 5 have taken the legal form of a joint-stock company. According to the LDFCU, there were altogether 26 co-operative societies (excluding milk collectors and preliminary stage processors) and 14 joint-stock companies actively operating in the country in 1997.

The dominance of co-operatives in the Latvian dairy sector is related to the privatisation method applied in this sector, which favoured the creation of this legal form. One of the main goals of privatisation was to integrate farming and milk processing enterprises. As has been described in JASJKO et al. (1998), the reorganisation of milk collecting and primary processing enterprises in 1992-93 was carried out according to the legislation based on the historical principles of the co-operative movement that existed in Latvia before World War II. This explains why small dairies were

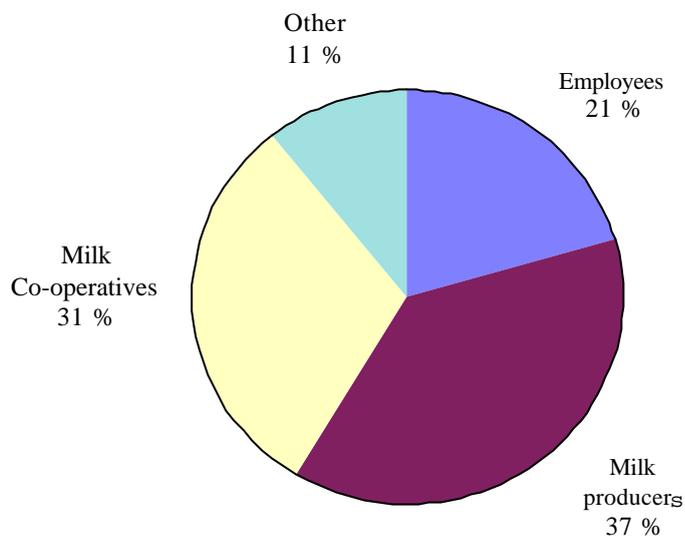
in most cases transformed into co-operatives. Bigger milk processing companies were often reorganised into closed joint-stock companies, whose shares cannot be sold to outsiders.

In quite a few cases successfully operating co-operatives have changed their legal status to joint-stock companies. In the survey this could be observed in six cases. As a result, in 1997 11 of the investigated milk processing enterprises were joint-stock companies and only 7 co-operatives. The main reason for the change in legal status was the interest conflict between farmers in their function as suppliers of raw materials, and farmers in their function as owners of the co-operatives. For many agricultural producers, high procurement prices for milk deliveries were considered more important than dividends from the processing companies resulting from operating profitably. This created obstacles for further investments and the overall development of enterprises. Another factor hampering the successful operation of co-operatives is their organisational structure. Each member has only one vote, irrespective of the amount of shares owned. As a result the interests of large shareholders are hurt which has negative consequences on an effective corporate governance in these enterprises. Since large shareholders have invested large funds in an enterprise they usually have enough incentives to collect information about the respective enterprise and monitor its management. However, their power to influence management depends on the voting rights. Only if the votes of large shareholders corresponds to the amount of their shares, they are able to put pressure on the management (SHLEIFER and VISHNY, 1997, p. 754). Finally, the easier access to credits is an important reason for changing the legal status. For this reason additional two milk co-operatives are currently planning to change their legal status to joint-stock companies.

In spite of these recent changes in the legal status, the results of the questionnaire show that there were no important deviations from the initial ownership structure set by privatisation legislation. Figure 1 shows that at the end of 1997 agricultural producers owned 68 % of the equity in the surveyed firms with 37 % of them belonging directly to producers and 31 % indirectly through producers' co-operatives.

The share of equity owned by employees has changed more substantially. In 1997 they owned 21 %, which was twice as much as the level set by the initial legislation. The remaining 11 % belong to groups of owners, mainly outside investors, but also to the state in the form of pension funds.

Figure 1: Ownership structure of the Latvian milk processing enterprises in the survey, 1997



Source: Survey results.

3.1.2 Size distribution

The analysis of the size distribution of milk processing firms in terms of employment and amounts of procured raw milk shows a substantial difference between joint-stock companies and co-operatives (Table 1). After privatisation the joint stock companies have experienced gradual growth. While at the beginning of privatisation two of the surveyed enterprises had less than 50 employees, at the beginning of 1998 there were no more small joint-stock companies. One of them has moved to the next group of enterprises (with employee numbers of between 51 and 100), having doubled the size of its staff. The other one has turned into one of the biggest dairy enterprises in Latvia with more than 500 employees. Only two joint-stock companies have essentially decreased their staff, but nevertheless remain in the category of between 101 and 500 employees. In contrast, most co-operatives (four out of seven) have decreased their staff.

As to the amounts of procured raw materials, the surveyed joint-stock companies procured on average 4.1 times more raw milk than the respondent co-operatives in 1995. In 1997 this gap widened to 4.4 times.

Table 1: Size distribution and development of the investigated Latvian enterprises measured by the number of employees

	Number of employees per enterprise:							
	50 or less		51 to 100		101 to 500		more than 501	
	before privatisation	on 1/1/1998	before privatisation	on 1/1/1998	before privatisation	on 1/1/1998	before privatisation	on 1/1/1998
Joint-stock companies	2	-	2	2	6	7	1	2
Co-operatives	2	4	3	3	2	-	-	-

Source: Survey results.

3.1.3 Horizontal integration

Horizontal integration, i.e. the co-operation or merger of several processing enterprises, is achieved in Latvia mainly in two ways: through ownership relations (i.e. the exchange of shares) and through informal co-operation. Twelve of the surveyed milk processing enterprises (67 %) have shares in companies with the same production profile. But at the same time, only 3 enterprises mentioned that other milk processing companies owned some of their shares.

This discrepancy in the observed results might have several reasons. First of all, since not all milk processing enterprises participated in the survey, it does not include all potential enterprises which had sold their shares to other processing firms. Another reason might be the reluctance of Latvian dairy companies to reveal that other milk processors have ownership rights in the own company.

One of the aims of horizontal co-operation between different processors is to balance out fluctuation in the supply of raw materials. One processing enterprise supplies another processing enterprise with raw materials to ensure the continuity of its operations if, in that particular region, there is a lack of raw materials.

3.1.4 Vertical integration

Vertical integration in the dairy industry occurs either through ownership relations or through formal or informal contracts.

As has already been mentioned, vertical integration between processors and agricultural producers via ownership relations has been encouraged by the state through the privatisation legislation for the milk processing industry, giving preference to agricultural co-operatives in the acquisition of shares.

At the same time co-operation between processors and their suppliers as well as between processors and their customers based on formal contracts or on "gentlemen's agreements" has become widespread. The reason for this is that, despite the fact that agricultural producers are often majority shareholders in milk processing enterprises, co-operation between the processors and suppliers of raw materials does not really work. The latter are usually more interested in obtaining the highest possible procurement prices, rather than receiving dividends as a result of the successful operation of their processing enterprise. Farmers who have shares do not necessarily deliver milk to the respective processing firm if they can get higher prices somewhere else. This is why relations are governed by contracts.

Latvian processors seek co-operation especially with large farmers' associations or co-operatives which are able to provide them with raw materials of high quality and can ensure a steady flow of deliveries of raw materials between summer and winter. Processors tend to have long-term or at least one-year contracts with them. With smaller milk producers who are not able to continually supply processors with high quality milk, transactions take place on the spot market or on the basis of oral agreements (see Table 2). It should be noted, however, that instead of formal written contracts oral agreements have become more and more widespread.

Table 2: Types of contract for the procurement of milk in the investigated enterprises of Latvia, 1997

Type of supplier	Type of contract		
	Spot market	Up to 1 year	More than 1 year
Household farms (2-3 ha)	8	7	0
Family farms	6	6	1

Agricultural enterprises	4	3	0
Producer co-operatives	5	5	1
Traders	0	0	0
Imports	0	0	0
Other (incl. other processors, statutory companies)	6	3	3

Source: Survey results.

The contracts mostly refer to the quality, volume and price of the delivered milk, as well as to the responsibility for transport. However, despite the fact that 10 dairy enterprises stated that they set the procurement prices of raw milk in the contracts, the majority of processors prefer not to specify a concrete price of milk, because they do not want to take responsibility for possible losses caused by the substantial annual and seasonal fluctuations of domestic milk prices.

In many cases processors offer agricultural producers various support measures, in order to guarantee higher quality raw milk and continual milk supply during the winter season. These support measures often take the form of financial support, such as interest-free credits or the partial coverage of transportation costs. In addition, free milk quality control as well as technical and economic consultations³ are provided. In the survey 12 of the 18 observed milk processing enterprises stated that they provide such services.

As in the case of procurement, co-operation between processors and distributors is based mainly on agreements concluded on the spot market, and on short-term contracts lasting no longer than one year (Table 3).

Table 3: Agreements on sales of finished products in the Latvian dairy sector, 1997

Marketing channel	Type of contract		
	Spot market	Up to 1 year	More than 1 year
Own retail shops	6	1	0
Other retail shops	6	7	2
Consumer markets	2	1	0
Wholesale network	3	6	1
Further processing	2	3	0
Export	1	3	3

Source: Survey results.

The low share of long-term contracts between processors and purchasers of their final products might be due to the reluctance of traders to establish such contracts, in order to be able to choose the best supplier at any given moment. The major problem with long-term contracts is that future uncertainty combined with bounded rationality creates problems in specifying future contingencies. It is impossible, or at least prohibitively costly, to write a comprehensive contract to cover all contingencies. Hence long-term contracts must be incomplete, and this may leave loopholes for opportunistic bargaining should ambiguities arise. Short-term contracts permit sequential decision-making, taking into account new circumstances, which economises on bounded rationality (CLARKE 1985, p. 176).

³ Some of the surveyed dairy enterprises at their own expense even arranged special consultations by the Advisory Centre, a non-profit organisation in the legal status of a corporation of limited liability, which is mostly financed by the state.

Another reason is the importance of personal contacts in establishing business relations in Latvia. Personal contacts often provide a better guarantee for a long-term partnership. Therefore, processors prefer informal agreements. The situation is somewhat different when it comes to exporting. Here processors and traders usually conclude formal contracts. 7 milk processing enterprises in the survey have entered into contracts to export their processed products; 3 of them have contracts running for longer than one year. With respect to exports, the security of constant deliveries guaranteed by medium or long term contracts obviously outweighs the negative aspects mentioned above.

Vertical integration or co-operation activities of dairies are not only related to agricultural production but also to storage and transport. One specific feature of milk production is that it requires immediate or relatively quick processing.

Processors use mainly their own storage facilities not only for the procurement of raw material, but also for selling their final products. Only three of them mentioned problems with storing raw milk in their own facilities; these problems are mainly due to obsolete or insufficient cooling equipment and high operating costs. However, several processors mentioned the lack of space as one of the most important problems. That is why seven of the interviewed enterprises see no other way but to use other storage agents, including trade companies. These seven processing companies include some of the biggest ones, which produce large volumes of dairy products and deliver them directly to traders, and relatively small cheese and ice-cream producers requiring specific storage conditions.

As for transportation, almost two thirds of the raw milk are transported from the agricultural producers to the processors by the processors themselves. The dairy enterprises organise special milk collecting campaigns for small suppliers by providing the transport services to collect milk. Own transport facilities are also used for distributing the final products. On average nearly 60 % of the final products are delivered by the processors themselves. This holds both for small units (with less than 50 employees) and for big processors (with between 101 and 500 employees), who transport up to 73 % of their production. Medium-sized enterprises (51 to 100 employees) and some of the largest companies, however, mostly use transport agents. Four out of nine processing companies which often use transport agents consider competition among transport agents as strong. This indicates that transport companies are slowly establishing a stable niche for themselves on the market, and that they provide dairy processing firms with the necessary services without any serious problems.

3.2 Conduct

3.2.1 Incentive structure

A successful performance of enterprises depends not only on the political and economic external environment, but also on their internal incentive structure, which determines the behaviour of managers and employees. It is assumed that the more employees feel responsible for the outcome of their work, the better the performance of the enterprise. Two ways to enhance employees' interest in the good performance of their firm are the mechanisms to employ and dismiss managers and workers, and the nature of the payment system.

In 17 out of 18 observed dairy enterprises the directors were appointed at shareholders' or co-operative members' meetings. Only in five companies did the directors that led the enterprise before the beginning of transition remain in charge. Practically no barriers exist against entrepreneurs

dismissing workers. Only one milk processing company pointed out that it had experienced some difficulties in terminating contracts with workers.

Thirteen dairy companies have introduced special payment systems in order to stimulate their employees' initiative. Four of them provide workers with extra payments at the end of the financial year if the enterprise has made profits. Usually the extra payments can amount to up to 40 % of the basic salary. In other cases employees' also receive dividends from their shares.

While most of the dairy firms have introduced extra payments for employees, only 10 of them provide similar systems for managers. The others prefer to pay a stable salary to managers which is on average 40 % higher than that of employees. However, compared to western European experiences this seems to be a quite unusual situation. The willingness to pay managers higher and stable salaries which are not dependent on the results of the entrepreneurial activity of the company can be explained by the shortage of experienced and skilled managers, especially in remote regions of Latvia. At the same time, because of the high unemployment rate, exceeding 20 - 27 % of the economically active population in some regions of Latvia in 1997 (CENTRAL STATISTICAL BUREAU OF LATVIA 1997a), the average salaries of employees can be kept quite low.

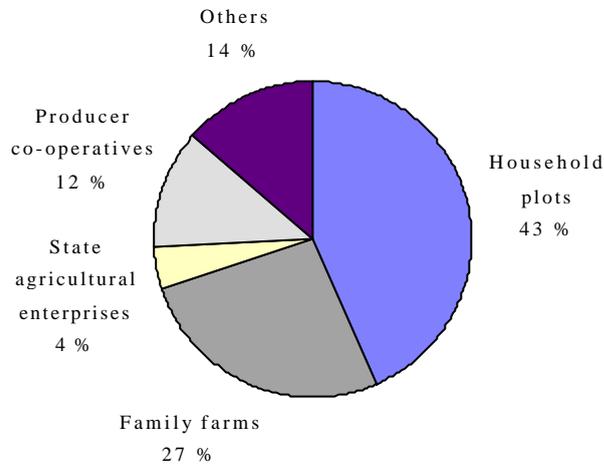
3.2.2 Procurement

According to the results of the survey 43 % of the procured raw milk originate from small household plots, while 27 % are purchased from family farms (Figure 2). Deliveries from agricultural co-operatives make up only 12 % on average. Mainly the strongest dairy enterprises rely on that source; in their case the share of procured milk coming from agricultural co-operatives ranges between 20 % and 40 %.

The dominance of family and household farms in the procurement activities provide a hint with respect to the transaction and transportation costs in obtaining the raw material. Most of the family farms have only one to three cows. Corresponding numbers for The Netherlands and Germany amount in 1997 to 44 and 28, respectively (BMELF 1998 and earlier; FAOSTAT Database 1999). In addition the average milk yield per cow is much lower than in EU countries. While for example in 1997 the average milk yield per cow equals 3559 liters in Latvia, they amount to 5525 liters in Germany and even 6865 liters in The Netherlands in the same year.⁴ These expositions indicate that the Latvian dairy industry has to cope with a very fragmented input sector. This leads to relative high transaction and transportation costs for the processing industry. In addition small farmers often lack e.g. the necessary cooling equipment to secure a high quality milk. This all has negative repercussions for the competitiveness of the dairy industry.

⁴ See ZMP 1998; European Commission 1998; BMELF 1998 and earlier; FAOSTAT Database 1999.

Figure 2: Structure of milk procurement in the investigated enterprises of the Latvian dairy sector in 1997



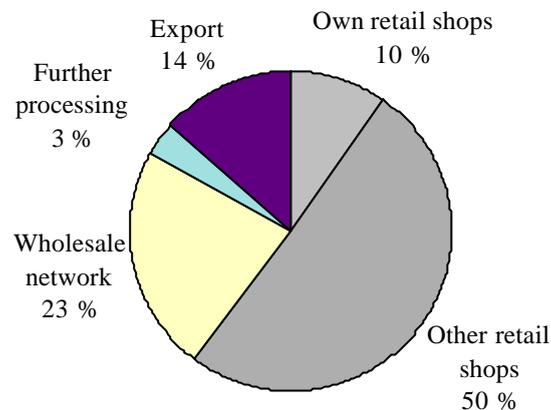
Source: Survey results.

As mentioned in Chapter 3.1.2, the procurement activities of processors are mainly carried out on a contract basis. Most of these contracts are concluded on the spot market or they are short-term contracts running no longer than one year (Table 2).

No problems exist with regard to payment. All observed enterprises stated that their payments to farmers were delayed no longer than is allowed according to the law “on payments for non-processed agricultural products”. The largest gap between delivery and payment is 5 weeks. Many milk processing enterprises settle their accounts with farmers even sooner, so that the average delay in payments to farmers is only 3.6 weeks.

3.2.3 Marketing

Milk processing enterprises sell their output through different marketing channels: their own network of shops, other retail shops, wholesale companies, and other processors. In addition, a substantial share of their output is exported (Figure 3).

Figure 3: Structure of sales in the investigated enterprises of Latvian dairy sector in 1997

Source: Survey results.

The most important marketing channel in the Latvian dairy sector is the retail network. 60 % of all dairy products are marketed through retailers. Most surveyed enterprises (13 out of 18) have their own retail shops, but sell on average only 10 % of their products through this marketing channel. Only three companies sell all their products through their own retail network.

A substantial part (23 %) of finished products is distributed through wholesale companies. Thirteen of the observed processing enterprises use this marketing channel. Those dairy firms that specialise in cheese production sell more than 60 % of their final products to wholesale companies. Typically, big wholesale companies cover not only the domestic market but also foreign markets. Often they operate as big warehouses and provide large lots of commodities for export. This holds especially for cheese, which is one of the most demanded Latvian dairy products on the Russian and Ukrainian markets. For small Latvian cheese producers transaction costs with respect to export activities are relatively high. That is why they are interested in co-operation with big wholesale companies which take over the responsibility for exporting.

Exporting is important for Latvian dairy enterprises. Since the domestic milk market is saturated and competition is fierce, processors are forced to search for new markets abroad, e.g. in the other Baltic states, the CIS countries and the EU. All observed enterprises export part of their produce. On average the export share of the enterprises in the survey amounted in 1997 to 14 % of total dairy production (see Figure 3). Most firms export to the CIS (mostly to Moscow and St. Petersburg). Access to the EU market is much more difficult. In the whole of Latvia, only 6 processing enterprises have been given permission by the EU Veterinary Commission to export their products to the EU; three of them are included in the sample of our survey. The reason is that quality standards and sanitary controls in the Latvian dairy sector still fall short of EU standards. As a result the EU preference quota given to Latvia for exporting butter and skimmed milk powder on preferential terms into the EU is only used to 80 %.

3.2.4 Market information

The importance of personal contacts in entrepreneurial activity already referred to in section 3.1.4 also becomes obvious when looking at the main sources of information used by processors for their

procurement and marketing decisions. According to the present survey, all observed enterprises use personal contacts to obtain the necessary information about input and output prices. Newspapers and marketing research carried out by the enterprises themselves and the LDFCU are further important sources to obtain information. The LDFCU was re-established in 1994 as a union of representatives from the dairy sector to which most of the Latvian dairy enterprises belong. The main objective of this organisation is to support Latvian milk processors in their entrepreneurial activities, to provide them with the necessary information, and to represent the processors' interests vis-à-vis the government. Less important sources of information are advisory centres, the Central Statistical Bureau, and market reports. Processors are usually interested in up-to-date and detailed information about their competitors, technological innovations, and actual and precise prices and their daily fluctuation on local markets in various regions of Latvia. Many facts and figures are accessible to everyone via the mass media.

3.2.5 Investment

Most of the observed enterprises invest considerable amounts of funds in technological modernisation, quality improvement systems and the construction of new production lines. The enterprises rely mainly on self-financing, i.e. they re-invest profits. Since 1995, 13 of the analysed milk processing enterprises have spent between 5 % and 75 % of their profits on investment. This share amounts in the seven economically strongest dairy companies to about 50 % - 75 % of their income. Nine of the surveyed enterprises intend at least to maintain the same investment level and, if possible, increase it by 2 % to 10 % in the near future. Four out of 18 enterprises are not able to make any investments at all. These are small companies, which do not dispose of enough own funds for serious investment programmes. At the same time, they do not consider loans as an acceptable source of financing. The reluctance to take out credits is, however, not limited to small enterprises, but also holds for larger ones. Nine milk processing enterprises reported that, given the very high interest rates for credits and because they are mostly short-term, they impose a severe impediment for investments.

3.2.6 Intended future activities

In order to further adopt to the new market conditions, the milk processing enterprises intend to implement mainly two measures: the reduction of production costs (mainly by lessening the procurement price of raw milk) and the increase of production. From the government, milk processors expect above all the creation of a stable macroeconomic and legislative framework, as well as fewer bureaucratic obstacles to the export of their products at the national borders. In addition, all milk processors would welcome any kind of governmental support, such as tax allowances or subsidies. However, stable economic conditions are considered a first priority.

3.3 Performance

The performance of the dairy enterprises is analysed using indicators such as the development of employment, the amount of sales and the value added, as well as the directors' evaluation of their enterprises' achievements and problems.

3.3.1 Performance indicators

The information gathered in the survey allows us to use the following indicators to assess the performance of the processing enterprises: the amount of sales of final products, the number of

employees, and the value added. It is possible to calculate the latter, because figures for sales and procured milk in monetary terms are available, as are cost structures.

According to the definition of value added by Black (1997), the following formula was applied to calculate this performance indicators per enterprise i in 1997:

$$VA_i = S_i - PM_i - Ce_i - Cc_i - Coth_i, \quad (1)$$

where

VA is the net value added; S the value of sales of finished products; PM the value of procured milk; Ce the energy costs; Cc the capital costs (depreciation); and Coth are other types of costs (packaging etc.).

Thus it can be assessed how efficiently production resources are used. The size of an enterprise measured in terms of its sales, the number of employees and value added, in comparison to figures from other enterprises can provide an indication of the position and role of the given firm on the domestic market.

For each performance indicator the analysis was carried out in three steps:

1. All observed enterprises were sorted in descending order according to the chosen indicator (employment, sales, value added).
2. The list of the sorted enterprises was divided into three equally sized groups. The purpose of this grouping is to work out the differences between the strongest and the weakest enterprises. Since the surveyed companies have been assured that no details would be given about any specific enterprise, it was decided that statements would be made only about **groups of enterprises**. In the dairy sector, 18 enterprises were surveyed, each group thus consists of six enterprises. The first group includes large, the second medium-sized, and the third small enterprises.
3. Various average indicators were calculated to characterise each group.

3.3.1.1 Employment

The results of sorting the milk processing enterprises according to the number of employees are presented in Table 4. Column 3 reveals the number of joint-stock companies in each group. The number of co-operatives can be derived by subtracting the number of joint stock companies from the total number of enterprises in each group, i.e. six. Column 3 shows that, in terms of employment, joint-stock companies are usually bigger than co-operatives. So, the six largest milk processing enterprises and 11 out of the groups I and II are joint-stock companies. However, the size of an enterprise, if measured with respect to the number of employees, does not necessarily say anything about its efficiency and profitability. If we look at the average value added, the sales figures and the amount of milk procured per employee (columns 7, 9 and 11 respectively), it becomes evident that medium-sized processing enterprises, which, in terms of employment, are on average three times smaller than the large ones seem to perform better. They have a higher value added and sell more per employee than large enterprises. However, while labour productivity seems to be higher in medium-sized enterprises the average value of sales per unit of procured milk (column 10) as well as the average value added per unit of procured milk (column 8) is higher in the large companies. This indicates that the raw milk in the large enterprises experience in general a higher level of processing than in the enterprises of medium size.

Table 4: Grouping of the investigated Latvian milk processing enterprises by number of employees, 1997

Group	Average number of employees as of 01/01/97	Number of joint-stock companies within the group	Average value of sales in 1000 LVL	Average value of procurement of milk in 1000 LVL	Average value added in 1000 LVL	Average value added per employee in 1000 LVL per person	Average value added per unit of procured milk in 1000 LVL	Average value of sales per employee in 1000 LVL	Average value of sales per unit of procured milk in 1000 LVL	Average value of procured milk per employee in 1000 LVL
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
I	439	6	7996	3148	3719	7.2	1.2	18.3	2.6	8.0
II	127	5	2778	1336	932	7.4	0.8	21.5	2.3	10.0
III	47	0	722	488	128	1.6	0.2	13.7	1.4	9.9

Source: Calculations of the Latvian State Institute of Agrarian Economics based on the results of the survey.

3.3.1.2 Sales

In Table 5 milk processing enterprises are grouped according to their sales. Table 5 shows that enterprises with high sales have a high average value added per employee and per unit of procured milk (see columns 7 and 8) and thus perform better.

Table 5: Grouping of the investigated Latvian milk processing enterprises by value of sales (procurement), 1997

Group	Average value of sales 1000 LVL	Average value of procurement of milk in 1000 LVL	Number of joint-stock companies within the group	Average number of employees as of 01/01/97	Average value added in 1000 LVL	Average value added per employee in 1000 LVL	Average value added per unit of procured milk in 1000 LVL	Average value of sales per employee in 1000 LVL	Average value of sales per unit of procured milk in 1000 LVL	Average value of procured milk per employee in 1000 LVL
<i>I</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
I	8351	3400	6	424	3809	8.0	1.2	21.6	2.6	10.2
II	2482	1141	4	140	870	7.0	0.9	19.3	2.3	8.8
III	663	432	1	50	99	1.2	0.1	12.5	1.4	8.9

Source: Calculations of the Latvian State Institute of Agrarian Economics based on the results of the survey.

Since the same groups turn out if the enterprises are divided according to procurement instead of sales no extra table is necessary for the analysis.

3.3.1.3 Value added

Although the number of joint-stock companies in each group of enterprises remains the same, when the criteria for classification is no longer volume of sales (Table 5) but amount of value added (Table 6) the composition of firms in the first and second groups changes. In Table 6 the average amount of sales in the first group of enterprises is substantially reduced if compared to the largest group in Table 5. At the same time the amount of sales in the second group even increases. This shows that the biggest enterprises in terms of amount of sales do not necessarily provide the highest value added.

Table 6: Grouping of the investigated Latvian milk processing enterprises by value added, 1997

Group	Average value added, thousand LVL	Number of joint-stock companies within the group	Average value of procurement of milk, thousand LVL	Average value of sales, thousand LVL	Average number of employees as of 01/01/97	Average value added per employee, thousand LVL	Average value added per unit of procured milk, thousand LVL	Average value of sales per employee, thousand LVL	Average value of sales per unit of procured milk, thousand LVL	Average value of procured milk per employee, thousand LVL
1	2	3	4	5	6	7	8	9	10	11
I	3964	6	2576	7445	394	10,4	1,6	20,6	3,1	7,1
II	716	4	1964	3388	170	4,6	0,4	20,3	1,8	11,8
III	99	1	432	663	50	1,2	0,1	12,5	1,4	8,9

Source: Calculations of the Latvian State Institute of Agrarian Economics based on the results of the survey.

The difference between the groups if average value added per employee is taken as an indicator of performance is much larger in Table 6 than in Tables 4 and 5. The deviation between the first and the third group of enterprises is particularly pronounced, with an average value added per employee of 10.4 and 1.2 thousand lats, respectively.

In sum, all indicators in the performance analysis show that the best-performing milk processing enterprises in the sample are exclusively joint-stock companies. Some of the enterprises in the first group had already been large milk processing combines and had a strong position on the domestic market before they were privatised into joint-stock companies. Others had been privatised as co-operatives, but were later transformed into joint-stock companies and developed quite fast. Many small enterprises, mostly co-operatives seem to have not enough potential to survive. Their value added per employee amounts to less than 12 % of the respective value in the best performing enterprises (see Table 6).

3.3.2 Achievements and problems

Most of the dairy enterprises (72 %) consider the increase in production volumes and the introduction of new technology and equipment as their main achievements. All of the interviewed processors understand that it is not possible to strengthen their position on external and internal markets without quality improvements, which requires modern processing technologies. Other achievements mentioned were the extension of their own retail network, and timely payments to farmers for supplied raw milk.

However, not all enterprises have managed to improve their performance. Some milk processors consider their main success the fact that their enterprise is still operating on the market. They are mostly interested in maintaining or increasing the present volumes of procurements of milk without having a clear strategy for the development of their company.

In general, Latvian milk processors are quite optimistic about their future. 13 out of 18 observed companies expect their output to increase in future. The remaining 5 hope to at least maintain the present level of production. A similar optimism exists also regarding profits. Except for one enterprise, they all expect their profits to grow.

Most of the respondents state that overcapacity is a problem in their enterprises. Capacity utilisation rates in the observed enterprises amount in summer time on average to 86 % in the joint stock companies and to 76 % in the co-operatives. In winter time capacity utilisation is in these enterprises with an average of 60 % and 51 %, respectively considerable lower. This is due to the high seasonal fluctuation of raw milk production in Latvia. Overcapacities, however, lead to high fixed costs and thus hamper the competitiveness of the dairies on domestic and international markets. This indicates the importance of providing incentives for a more even raw material supply by farmers by e.g. seasonal price differentiation.

4 MILLING INDUSTRY

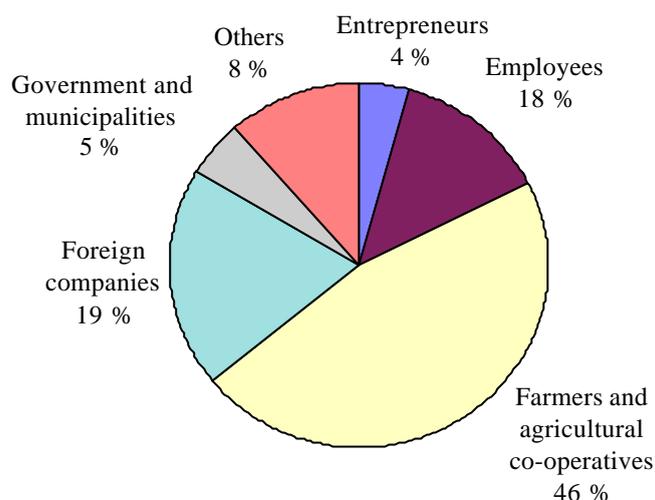
Two subsectors in the grain processing industry can be identified, namely primary grain processing which provides mainly drying and storage services, and the milling industry which deals with the production of final grain products such as flour and feed. In this study, only the milling industry is analysed.

4.1 Structure

4.1.1 Ownership structure

Unlike in the dairy sector, all state milling enterprises were privatised as closed joint-stock companies. Their shares were to be sold to individuals or legal entities. Agricultural producers were expected to acquire up to 75 % of the shares, but in any case no less than the controlling majority of 51 %. The remaining shares were to be distributed among the state, employees and other investors. In a closed joint-stock company the shares cannot be sold without the consent of the other shareholders.

All seven surveyed milling enterprises were privatised during 1994 and 1995. Like in the dairy industry the biggest group of owners are agricultural producers, although with 46 % their share is smaller than in the milk processing sector. 18 % belong to individual farmers and 28 % to agricultural enterprises. Besides agricultural producers, foreign investors are the most important group of owners. Their equity share amounts on average to 19 %. Employees own 18 % and other shareholders 17 % of the shares. The last group consists mainly of state enterprises, municipalities and other enterprises which are not directly related to the milling industry, but which are interested in future investments in this sector. The smallest ownership group are so-called entrepreneurs, which are natural persons.

Figure 4: Ownership structure in the investigated milling enterprises in 1997

Source: Survey results.

4.1.2 Size distribution

The seven milling enterprises considered in the survey vary substantially in size. According to the number of employees, the respondent milling enterprises can be divided into three main groups: small, medium and large companies (Table 7).

Table 7: Size distribution in the investigated enterprises of the Latvian milling industry, 1997

Group of enterprises:	Characteristics			
	Number of enterprises	Average amount of procured grain, in thousand t. per enterprise		
		1995	1996	1997
- with number of employees of up to 100 persons	2	2.4	4.5	5.4
- with number of employees between 101 and 200	2	n.a.	n.a.	n.a.
- with number of employees exceeding 200	3	27.2	59.5	46.2

Note: n.a. not available.

Source: Survey results.

Three of the observed firms are in the group of the largest enterprises with more than 200 employees. They procure about 50 thousand tons of grain annually. This amount is about 2 times greater than for medium sized enterprises and even 8 times greater than for small sized enterprises.

4.1.3 Horizontal integration

Unlike in the dairy sector, there is no horizontal integration via ownership relations in the milling sector. None of the surveyed milling companies hold shares of enterprises with the same production profile. Yet, there is some indication that informal agreements exist between the three largest milling

enterprises in the sample, which in 1997 controlled 58 % of the domestic grain market. In 1998 the Competition Board called on the Cabinet of Ministers to investigate possible agreements among grain processors on the procurement prices for grain. However, so far this suspicion has not been officially confirmed. It is quite difficult to prove that informal agreements on prices exist.

4.1.4 Vertical integration

As in the dairy sector, vertical integration or co-operation between processors and the up- and downstream industries is also widespread in the grain sector. Vertical relations with agricultural producers are based both on ownership relations and on formal or informal contracts. Contractual arrangements are more important in the milling sector than in dairy processing.

In the grain sector transactions between suppliers of raw materials and processors take place only on the spot market or on the basis of short-term contracts running no longer than one year (Table 8). Usually contracts are concluded only for storing but not for purchasing grain. This is because of the law "on payments for non-processed agricultural products", which stipulates that grain processors are obliged to pay agricultural producers for delivered grain within one month. Intended to protect farmers' interests, the law actually has the opposite effect. The grain harvest usually lasts about four months and processors would in principle be able to procure grain the whole year round. The law, however, provides incentives for processors to undertake the following two options: (1) to buy only small amounts of grain, i.e. the amount needed for one month of processing, from agricultural producers on a monthly basis. This does not suit farmers, who are interested in selling large amounts of grains right after harvest, since they do not have their own big storage capacities. (2) Processors offer farmers storage space in their warehouses, but without any guarantee that they will purchase this stored grain. That means that processors only take a fee for storage and farmers get no revenues, since their grain is not sold.

Thus the law makes it undesirable for milling companies to conclude formal agreements on grain purchases, because it does not allow contractual arrangements with longer payment obligations. That is why contracts in most cases only lay down storage fees, the responsibility for transport, as well as the volumes and quality of grain. Grain processing companies are not interested in official long-term contracts with grain suppliers, but rather rely on "gentlemen's agreements" as a basis for informal long-term co-operation.

Table 8: Contractual agreements for procurement in the investigated enterprises of the Latvian milling Sector, 1997

Type of supplier	Type of contract		
	Spot market	Up to 1 year	More than 1 year
Household farms (2-3 ha)	1	2	0
Family farms	1	2	0
Agricultural enterprises	2	1	0
Producer co-operatives	1	2	0
Wholesale traders		1	0
Imports	3	0	0
Other	3	3	0

Source: Survey results.

In contrast to procurement, the spot market plays hardly any role in marketing (Table 9). Almost all observed milling companies have short-term contracts of up to one year with various customers. Only one milling enterprise has contracts on the spot market with wholesale companies, and two

have such contracts with their foreign partners. The reason for the latter is that Latvian milling enterprises are only able to provide occasionally deliveries for exports so that longer running contracts make no sense.

Table 9: Contractual agreements in marketing processed grain products in the investigated enterprises of the Latvian milling sector, 1997

Type of supplier	Type of contract		
	Spot market	Up to 1 year	More than 1 year
Own retail shops	0	2	0
Other retail shops	0	4	1
Wholesale network	1	2	0
Further processing	0	3	0
Exports	2	1	0
Others: consumers	0	1	0

Source: Survey results.

Like in the dairy sector, the Latvian grain processors provide considerable support to their suppliers of raw materials, in order to ensure a constant flow of high-quality grain. The support measures include economic and technical consultations and the provision of interest-free credits for the purchase of fuel, seed and fertiliser. The major difference to the dairy sector is, however, the regulation of transportation. In general, processors do not use their own transport facilities for obtaining the raw materials. Instead, it is the agricultural producers who usually take full responsibility for transporting grain to the processing enterprises. Only one of the surveyed milling companies mentioned that it provided farmers with transport services.

Rather than for procurement, milling enterprises use their own transport facilities for marketing. The observed enterprises deliver an average 63 % of their products this way. Four companies also frequently use other transport agents and indicated that there is strong competition in this service sector.

The milling enterprises are also vertically integrated into storage. Since their own storage capacities are not fully utilised - on average they use 70 % of their warehouses space - they feel no need to use other storage agents.

4.2 Conduct

4.2.1 Incentive structure

All the directors of the investigated milling enterprises except one were already in charge before the beginning of privatisation. During privatisation their position was confirmed by the shareholders. The other director was appointed by the supervisory board of the respective company.

Special payment incentives in order to increase the output per worker and the employees' responsibility for quality exist only in the three largest enterprises. These enterprises have introduced different payment systems for skilled and unskilled workers. Skilled workers can receive additional payments of up to 30 % of their basic salary. For unskilled workers additional awards have been introduced, which depend on the amount of finished goods produced and sold. In some cases these payments are a certain percentage of the company's turnover.

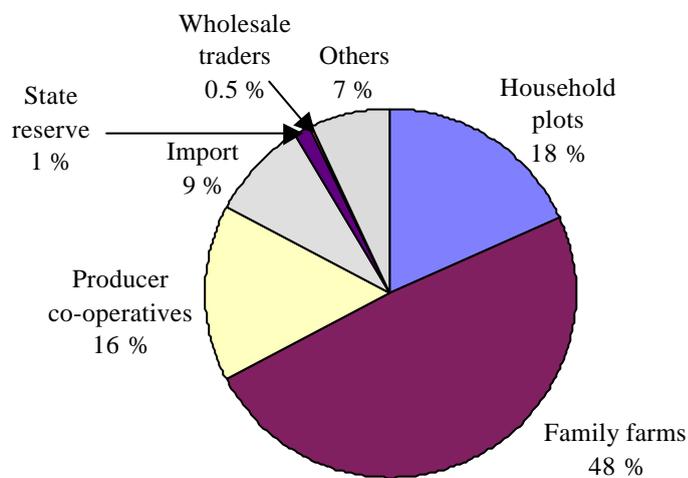
Salaries in the Latvian milling industry are higher than in the dairy industry. This can be explained with the lower labour intensity and the higher labour productivity in this branch compared to the dairy

industry. According to the results of the survey in 1997, compared to the dairy sector average salaries in the milling industry were 15 % and 19 % higher, respectively, for unskilled and skilled workers (CENTRAL STATISTICAL BUREAU OF LATVIA 1997b).

4.2.2 Procurement

The main share (82 %) of the raw material originates from domestic agricultural producers, mostly family farms, followed by household plots and producer co-operatives. The latter are unions of individual grain producers whose main purpose it is to provide particular services to their co-operative members. 9 % of the grain processed in the Latvian milling industry is imported. The remaining part is purchased by the processing companies from the State reserve, whole sale trades and others.

Figure 5: Structure of grain procurements in the Latvian milling industry in 1997



Source: Survey results.

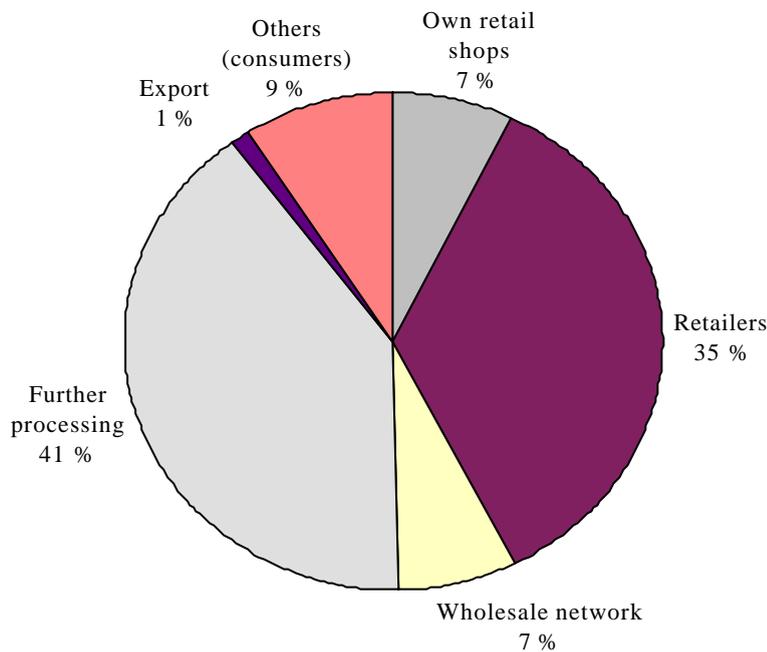
4.2.3 Marketing

The most important marketing channels for milling enterprises are companies of further (secondary) processing and the retail network (Figure 6). Whereas milling companies specialised in flour production tend to sell their products to secondary processors, firms that produce concentrated feed have close ties with the retail network. In some enterprises sales to retailers account for up to 80 % of total sales.

Third in importance as a marketing channel are wholesale companies. Their share accounts for 7 % of sales. Especially concentrated feed and to a lesser degree flour, is distributed through this network. Own retail shops account on average for 7 % of total sales, while others including direct sales to consumers make up 9 %.

Exports are of almost no relevance in the grain sector. Among the observed grain processing companies, only two occasionally export a small percentage of their products abroad, mainly to the other Baltic states and to Russia.

Figure 6: Structure of processed grain sales in the investigated enterprises of the Latvian milling industry in 1997



Source: Survey results.

4.2.4 Market information

“Gentlemen’s agreements” and personal contacts are a major source of information on which the processor’s decision-making process is based. Personal contacts are considered by all interviewed enterprises to be the most reliable information channel for input and output prices. In addition to personal contacts, other important sources of information are the Latvian Grain Market Agency and own marketing research.

The Latvian Grain Market Agency was created in 1992 with the purpose to register market agents operating on the domestic grain market, to carry out state intervention measures, and to arrange the grain purchasing campaign for state reserves. As it deals with a large number of domestic producers and processors, this state organisation carries out its own marketing research and gathers information about the current situation on the Latvian grain market, market actors and prices. Such information is made available to agricultural producers, to processors, as well as to research and state organisations.

Similarly to milk processors, Latvian milling companies hardly use official information resources such as the Central Statistical Bureau, advisory services, and the various market reports. Only two milling companies stated that information obtained from these institutions supported them in their activities. At the same time it was found out during the interviews that quite often processors do not even know where and what kind of information is available.

The three smaller milling enterprises see no need for additional information and are thus not willing to pay for it either. The four biggest grain processing companies seek more precise information about the situation on export markets, for which they are even prepared to pay. This fact provides an indication that there is an essential difference between the biggest milling companies in Latvia and the other groups. The biggest ones are more perceptive and flexible regarding market changes. They are

more interested in precise information in order to be aware of any changes and be able to react to them in time.

4.2.5 Investment activities

Among the enterprises in the sample there is only one which has not made any investments since 1995. All the others have made considerable investments, mainly to modernise their processing technology, and in marketing. Although all enterprises received loans during the last two years, the most important source for financing investments was, like in the dairy sector, the enterprises' profits. Yet, the enterprises' own funds are in general not sufficient to make all the investments necessary for improving their efficiency. There are two major obstacles to raising outside capital. Firstly, like in the dairy sector, high interest rates and the provision of mostly short-term credits makes it relatively unattractive for processors to take out loans. Secondly, since all milling enterprises are closed joint-stock companies, it is difficult to attract outside investors, who could inject much of the needed capital. Some enterprises consider to change their legal status to become open joint-stock companies. This would provide an opportunity to sell and buy shares on the stock exchange and would thus make it easier to raise additional funds. One problem especially for milling enterprises specialised in the production of concentrated feed is the uncertainty of their future development. Due to the dramatic drop in meat production in Latvia of 79 % since 1990, domestic producers of feed do not have clear perspectives for their future development.

4.2.6 Intended future activities

As one of the main measures intended to increase their profitability in the future, the majority of the surveyed firms mentioned the lowering of costs, mainly through the reduction of procurement prices, but also through the reduction of overcapacities. Other activities mentioned are a stronger focus on marketing, such as the search for new marketing channels, the introduction of new products, and the increase of production.

As for state support, like the milk processors all milling enterprises, give high priority to a stable and transparent legal and tax system, and to the abolition of bureaucratic restrictions, especially for quality control procedures, and customs requirements for importing or exporting products. In addition, some Latvian grain processors would like the government to play a more active role in dismantling trade barriers, especially in trade with the CIS countries. To promote exports to the other Baltic states, the enterprises are demanding lower energy costs. These are higher in Latvia than in the other Baltic countries and are a major reason for the higher prices of their final products.

In summary, the analysis of the conduct of milling enterprises reveals quite a well-developed market-oriented attitude. The enterprises demand less support from the state in the form of subsidies or other protective measures – though, as everywhere in the world, they would not object to having them; instead they appreciate a stable legal and economic environment that provides them with some certainty for the decisions they have to make.

4.3 Performance

4.3.1 Performance indicators

The performance of the milling enterprises is analysed using indicators, as it has been done for the dairy industry. The only difference is that the sorted list of enterprises was divided into two groups of equal size, each consisting of three enterprises. Although seven milling enterprises were surveyed,

only six are included in the performance analysis, because for one enterprise no quantitative data has been available.

The grouping of the enterprises according to the number of employed persons, the value of sales as well as value added, leads to the same distribution of enterprises between the two groups. In other words, the different criteria generated identical results, so that it is sufficient to show the results in only one table (Table 10).

Table 10: Grouping results of the investigated milling enterprises in Latvia, 1997

Group	Average value added per employee, thousand LVL	Average value added, thousand LVL	Average number of employees as of 01/01/97	Average value of procurement of grain, thousand LVL	Average value of sales, thousand LVL	Average value added per unit of procured grain, thousand LVL	Average value of sales per employee, thousand LVL	Average value of sales per unit of procured grain, thousand LVL	Average value of procured grain per employee, thousand LVL
	1	2	3	4	5	6	7	8	9
I	16,9	4186	248	3577	8400	1,2	34,0	2,4	14,6
II	8,2	1042	101	1374	2725	1,1	28,4	2,3	16,6

Source: Calculations of the LVAEI based on the results of the survey.

The analysis shows that the average value added per employee achieved by the strongest milling enterprises in the first group is more than 2 times higher than the respective value in the second group (see column 1). This is considerable, but the difference is by far not as large as in the dairy sector. Also the average amount of sales per employee and sales per unit of procured grain is 17 % and 3 % higher in the first compared to the second group. This indicates that the larger milling enterprises operate more efficiently. This provides an indication that economies of scale are of relevance in this branch.

4.3.2 Achievements and problems

As their main success the surveyed milling enterprises consider their debt-free operation on the Latvian market. As in the case of milk processing enterprises, many of the milling enterprises were privatised owing large amounts of money to energy companies, agricultural suppliers and the state. Some of the observed enterprises had debts amounting to up to 2 million LVL. Another success mentioned was the introduction of new technologies and products. At the same time, however, the lack of funds, especially from outside investors, was considered as a big problem that impeded further efficiency-enhancing investments. Other problems mentioned were the saturation of the domestic market and the lack of state support. The saturation of the domestic grain market was caused by the gradual increase of grain production by 50 % during the last three years, and the simultaneous considerable decrease in meat production by almost 50 % during the same period, which in turn has led to an essential reduction of feed demand from Latvian animal husbandry.

Despite all these problems, the majority of the interviewed grain processing companies are optimistic about their future development. Four of them expect an increase in their output and profits, and only one of them sees no perspectives for the further development of its enterprise.

5 POLICY RECOMMENDATIONS

Policy recommendations were developed for problems concerning both sectors alike and each sector separately.

5.1 General policy recommendations

Development of the institutional environment

Deficiencies in the area of institution building with special relevance to the food processing sector still remain in Latvia.

Although a lack of market information is apparently not seen as playing a decisive role, the problem is still acknowledged. Some of the investigated firms would even be willing to pay for additional information. Keeping in mind that most of the companies rely predominantly on personal contacts to obtain market and price information, the further development of market information systems is an essential issue to reduce transaction costs. In addition it seems to be important that the government introduces quality standards and sanitary controls that are in accordance with EU regulations and that those are adopted by domestic enterprises. This is a further important issue to increase the competitiveness of Lithuanian products in international markets especially in Western markets. Securing the application of anti-trust regulation is another important task for the government in the area of setting the right institutional framework. This holds especially if the concentration process in the Latvian food sector continues. In addition foreign direct investments should be encouraged.

A problem of particular relevance for the Latvian processing industry, especially the dairy sector is the fragmentation of the input sector. This is the result of the restructuring and privatisation of the agricultural sector which was carried out in two ways: land was returned to its previous owners (restitution) and non-land assets were transferred to the private sector in exchange for investment vouchers, green vouchers and cash. As a consequence the share of land used by family farms and household plots rose from about 8 % in 1990 to 80 % in 1996, with an average size of about 20 ha. Setting the necessary institutional framework for the development of an effective land market and leasing system by the government could resolve many of the current problems of these fragmented farm structures in the medium to long run. This would lead to substantial gains in operational efficiency and hence to increased competitiveness not only of Latvian agriculture but also of the downstream sector including the dairy industry.

Improvement of investment conditions

Quality improvements are a major precondition to foster the sectors' competitiveness, both on the domestic and foreign markets. This requires not only strict quality controls, but above all more investments in modernising the equipment. The survey has revealed that in both sectors investments are mainly self-financed because of high interest rates for credits. In order to encourage investments, the government should provide favourable macroeconomic conditions, such as low inflation and interest rates.

Improvement of export conditions

Gaining market shares on export markets is becoming more and more important for Latvian processors, since the domestic market is often saturated. An improvement of export conditions for Latvian food producers would therefore be an important government measure to increase the performance of the whole sector. First, the access to foreign markets should be improved by reaching trade agreements that are aimed at reducing trade barriers. Moreover the government could

support the establishment of promotion agencies in those countries that are potential importers of Latvian food products. Such trade agencies should help to find new markets and trade partners, organise exhibitions, presentations and seminars in order to spread information about Latvian products. In addition, the state could provide support for creating brands for food products that meet international quality requirements in order to improve the image of exported Latvian products and thus help gain market shares on foreign markets. Finally producers can co-operate and undertake joint efforts to intensify and improve their export activities themselves.

Development of rural and regional policies

At present, instead of cutting jobs, processing enterprises are in many cases reducing wages. This is possible because so far in rural areas often no other job opportunities exist. In order to increase their efficiency, processing enterprises will in the long run probably be forced to lay off more employees than at present. An appropriate rural and regional development policy that aims at creating alternative employment opportunities could foster such development while at the same time reducing the social costs of unemployment.

5.2 Recommendations for the dairy sector

The production of high-quality milk products depends not only on the use of appropriate processing technologies, but also on the quality of the raw milk. Therefore it is important that quality control in the milk sector occurs at all stages of the production and marketing chains, including agricultural production.

5.3 Recommendations for the grain sector

In the grain sector the law “On payments for non-processed agricultural products” should be abolished. Intended to protect farmers’ interest, the law has in fact weakened the position of agricultural producers vis-à-vis processors (see chapter 4.2.1). Instead of buying from farmers the grain after harvest, the law has created great uncertainty, since processors are only prepared to store but not necessarily to purchase the grain.

6 SUMMARY AND CONCLUSIONS

The development of market conditions and market behaviour in the sectors examined has in general progressed. Privatisation in both sectors has been completed. While in the dairy sector the majority of processing enterprises were privatised as co-operatives, in the milling industry all enterprises have become joint-stock companies. However, in both cases agricultural producers, who were given preference in the acquisition of shares in processing firms, are the largest ownership group.

As a result of the privatisation process, vertical integration with agro-producers through ownership relations is quite considerable in both branches. At present the ownership share of agro-producers is on average 68 % in the dairy sector and 46 % in the milling industry. Yet, especially in the dairy sector, such an ownership structure has turned out to be quite problematic for enterprise restructuring, mainly for two reasons. Firstly, there is an essential conflict of interests between farmers in their function as suppliers of raw materials, and farmers in their function as owners of the co-operative. Secondly, co-operatives experience more difficulties in obtaining credits than joint-stock companies. That is why more and more co-operatives have started to change into joint-stock companies.

Vertical co-operation between processors and agricultural producers and also between processors and distributors, take also place in form of contractual arrangements. In both sectors mainly short-term contracts, spot transactions and informal contracts - so-called "gentlemen's agreements" - are concluded, which have the advantage of greater flexibility to react to changed market conditions. As for procurement, processors in both examined sectors often provide support to their suppliers of raw materials, such as organising economic and technical consultations and providing interest-free credits for quality improvements of the raw material.

Most processors are also vertically integrated into transport and storage. In the dairy sector, processors take responsibility both for obtaining the raw materials from their suppliers and for the delivery of final products to their customers, whereas in the grain sector the milling enterprises only carry out the transport of the final products to their customers. Both milk and grain processors also make very intensive use of their own storage facilities. This is, however, more the case in milling than in dairy where more sophisticated and thus more expensive storage equipment, especially for cooling, is required. Some dairy enterprises therefore also use independent storage agents.

Competition in the analysed processing sectors can be considered as functioning. This is not only due to the relatively large number of competing domestic processing enterprises, but also to the strong competition from foreign products. However, in both branches tendencies of stronger horizontal concentration can be observed. Dairy enterprises have started to exchange shares and co-operate on the basis of "gentlemen's agreements". On the one hand, these are legitimate entrepreneurial activities to improve an enterprise's performance on the market. On the other hand, if such tendencies become widespread, the application of restrictive practices by dominant firms becomes more likely. That is why the Competition Board should carefully monitor horizontal concentration processes in the dairy industry. Unlike in the dairy sector, in the milling sector there is no horizontal integration via ownership relations. But nevertheless the strongest milling enterprises are suspected of collusion on procurement prices. However, so far investigations by the Competition Board have not found any proof of that.

Another indication that competition is working in the surveyed agro-food sectors can be derived from the conduct analysis. The majority of enterprises react in quite an active way to the market conditions. Procurement and marketing channels have been diversified, and considerable investments have been undertaken. Most enterprises would like to increase their investment activities; however, this is impeded by a lack of funds. Investments have so far been financed mainly by the enterprises' profits, because of high interest rates for credits. This shows the necessity of the creation of favourable investment conditions through low inflation and interest rates.

The market-oriented attitude of most of the surveyed processing firms also becomes obvious when looking at their intended future activities and their expectations with respect to future governmental activities. Most enterprises intend to increase their competitiveness through investments into quality improvement, as well as through cost reduction, the development of new products and the opening up of new markets. Taking into account the saturation of the domestic market, the last point includes also a stronger orientation towards export markets. The main requirement processors have asked of the Latvian government is the creation of stable conditions necessary for entrepreneurial activity, which includes e.g. securing low inflation rates, and solving bureaucratic problems on the borders of Latvia. In addition, the majority of processors find that any governmental support (through tax allowances or subsidies for finished products) would be very helpful for processors.

With respect to the performance analysis the results reveal for the Latvian dairy market a considerable heterogeneity between firms in the branch. The differences are especially pronounced

between the groups of the six best and the group of the six worst performing enterprises. While for example average value added per employee amounts to 10.7 thousand LVL in the former it only reaches and 1.2 thousand LVL in the latter. The firms belonging to the group of best-performing milk processing enterprises are exclusively joint-stock companies. From the analysis it seems that many small enterprises, mostly co-operatives, do not have enough potential to survive. They have the lowest value added per employee, which indicates a rather weak position on the Latvian dairy market. Also in the milling sector differences between groups of firms are considerable. However, they are not as pronounced as in the dairy sector.

The main achievement of the processing firms investigated in the survey is that they are now free of debt, and the stabilisation and in some cases even increases in production volumes. The main problems seen by the processors are the saturation of the domestic Latvian market, the lack of investment funds, the unstable legislation, the absence of any substantial support from the government, and, in the dairy sector, the low quality of the purchased milk.

Economic policy has to address these problems to improve the efficiency of the food processing sector. The authors recommend the following policy measures to improve efficiency in the relevant sectors:

- Improve export conditions through WTO membership, free trade agreements and agreements with the CIS to prevent unfair and insecure import regulations. In addition government could support the establishment of promotion agencies in those countries that are potential importers of Latvian food products.
- Introduce quality standards and sanitary controls that are in accordance with EU regulations and that those are adopted by domestic enterprises. This also implies the introduction of a comprehensive milk quality control system for the whole milk production chain. These are further important measures to increase the competitiveness of Lithuanian products in international markets especially in Western markets.
- Set the necessary institutional framework for the development of an effective land market and leasing system to overcome the problems associated with the fragmented farm structure.
- Stimulate investments including those from abroad through favourable investment conditions. Only that way it seems possible that enough funds exist for the enterprises in the food industry to adjust to stricter quality standards and sanitary controls.
- Improve market information systems and thereby reduce transaction costs for enterprises in the food sector.
- Secure the application of anti-trust regulation. This will become especially important if the concentration process in the Baltic food sector continues.
- Abolish of the law “on payments for non-processed agricultural products” in Latvia.
- Development of rural and regional policies to lower the social costs of laying off employees in the restructuring process.

REFERENCES

- BLACK, J. (1997): Dictionary of Economics, Oxford, New York.
- BMELF (BUNDESMINISTERIUM FÜR ERNÄHRUNG, LANDWIRTSCHAFT UND FORSTEN) (1998 and earlier): Statistisches Jahrbuch für Ernährung, Landwirtschaft und Forsten der Bundesrepublik Deutschland, Bonn.
- CENTRAL STATISTICAL BUREAU OF LATVIA (1997a): Monthly Bulletin of Latvian Statistics, No. 12 (43), 1997.
- CENTRAL STATISTICAL BUREAU OF LATVIA (1997b): Main indicators of the Latvian Industry, No. 4, 1997.
- CENTRAL STATISTICAL BUREAU OF LATVIA (1998): Agricultural Farms in Latvia in 1997.
- CLARKE, R. (1985): Industrial Economics, Oxford.
- EUROPEAN COMMISSION (1998): Agricultural Situation and Prospects in the Central and Eastern European Countries: Latvia, Brussels.
- FAO (ed.) (1999): FAOStAT Database, Rome.
- JASJKO, D., HARTMANN, M., KOPSIDIS, M., MIGLAVS, A., WANDEL, J. (1998): Restructuring The Latvian Food Industry: Problems and Perspectives, IAMO Discussion Paper No. 10, Halle (Saale).
- KRASTIÒ, O. (1998): Statistika un ekonometrija, Rīga.
- SHLEIFER, A., VISHNY, R. (1997): A Survey of Corporate Governance, in: Journal of Finance, Vol. LII, No. 2, June, pp. 737-783.
- STRAKĀS, A. (1997): Publiskās akciju sabiedrības- modes lieta vai nepieciešamība? (The public joint stock company: Is it a fashion or a necessity?), in: Latvijas lopkopis un piensaimnieks, June 1997.
- ZMP (ZENTRALE MARKT- UND PREISBERICHTSSTELLE GMBH) (1998): Agrarmärkte in Zahlen - Mittel- und Osteuropa '97, Bonn.

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