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SUPPLY CHAIN IN POLAND

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1. Milk market in Poland (basic data)

1.1. Role of dairy industry in national economy

The dairy industry is of great significance in the national economy. Milk is one of the most important agricultural products and its share of Poland's total and commodity agricultural production in 2005 was 16.8% and 19.0%, respectively. Only pigmeat had a higher share of commodity production. Milk production is the essential source of incomes and food for some 730,000 farms. According to the family budget investigations, dairy produce represents approx. 15% of all food expenditure. Among agricultural families, 82% of milk, 70% of cream and 55% of cottage cheeses consumed in the household in 2005 came from their own production.

The dairy industry accounts for 15.2% of the sales and 12.3% of the employment in the food processing industry. The dairy industry is a net exporter and its positive trade balance in 2005 was approx € 765 m. The share in export of the agricultural and food products has risen to 13.6% and in import to 3% since EU-Accession.

1.2. Livestock population and milk production

Since 2000 the milk production has been remaining on the level of approx. 11.9 m tonnes. The decline in the size of livestock population is compensated by systematic increase in its milking capacity. In the years 2000-2005, the number of cows on farms decreased by approx. 300,000 (by 10%), and their average milk yield increased from approx. 3,780 litres to almost 4,270 litres i.e. by 100 litres per year on average. This was affected, first of all, by the modernisation and milk production concentration process, growth in milk production profitability and improvement in hygiene and veterinary conditions.

1.3. Processing

The integration with the European Union considerably increased the pace of changes in production structures of the dairy industry. The number of enterprises, which purchase and process milk has been reduced by 36% since 2000 and now it is 267 plants (including 26 plants, which produce ice-cream). In the ownership structure of the plants, cooperatives still predominate (65%) in spite of the inflow of foreign and private capital. Foreign investments in the Polish dairy industry were more than € 165mn in total until 2004, and foreign companies now account for a quarter of the sector's turnover.

As processing was becoming more concentrated, the milk procurement was growing dynamically. Productivity measured as the quantity of processed milk and sales volume per employee also improved, rising by 10.6 and 13.7% (2005/2004) and 62 and 87% (2005/2000), respectively

The new opportunities for selling products were quickly made use of by domestic dairies. The growth in production and export and higher prices caused that sales incomes of the dairy branch increased by more than 40% in relation to 2003 and amounted to EUR 4.1 m in 2005.

The growth in production was recorded in every group of products, except for skimmed milk powder. The most dynamic development is observed in processing of ripening cheeses (+18%), cream (+13) and milk drinks (+11%).

The improvement in the financial situation of dairies, with limited availability of milk and significant improvement in its quality, led to farmgate prices increasing rapidly (by approx. 30% from 2003 to 2005). In general following the reforms of the EU milk CMO prices have shown a downward trend though with seasonal variations and in August 2006 the farmgate price was approx. €0.23 per litre compared to €0.25 in January.

In the time of economic transformation, there was a downward trend in consumption of milk and dairy products in Poland. It was affected by many factors. In the years 2004-2005, i.e. after the integration with the EU, the main reason was the rise in prices resulting from the fact that the Polish dairy industry was covered by the Union's market regulation system and from significant growth in export to the EU countries. The decrease in consumption is also affected by the structural changes in agriculture. The number of dairy farms is declining and thus the importance of self-subsistence in agricultural families decreases. The change in nutrition model also matters greatly. Dynamic development of production of hydrogenated vegetable fats caused that the consumers can substitute butter with other products, e.g. margarine. The effect of these trends is considerably lower consumption of dairy products as compared to the EU-15 countries. The consequence of decreasing consumption of milk under its stable supply (production) conditions was the increase in export surplus.

The Polish dairy industry has been the net exporter for many years. Considerable growth in export took place upon the integration with the EU, as a result of free access to the Union's market characterised by high prices and decreasing domestic demand. In 2005, export reached the record level of 2.2 m tons in raw material equivalent (EUR 900 m).

Export is of great importance for the sector because it constitutes 27% of off-farm milk sales and 22% of incomes from the sales of the sector's products. In value terms, the main export products were: milk and whey powder 35%, cheeses 30%, liquid milk and cream 12%, butter 9% and yoghurts 8%.

In spite of free trade with the EU countries, import of dairy products is low (approx. €150 mn) and only supplements the market supply. This is affected by low level of people's income, which moulds consumer preferences. As a result, expensive branded cheeses from Western Europe find few consumers on the domestic market. Similar situation concerns butter and yoghurt as well as dairy drinks.

1.4. Milk quota system its influence on the processing sector

During the accession negotiations Poland obtained the national milk quota of 8,964,017 tons, including wholesale quota (supplied for the industry) of 8,000,000 tons and direct sales quota of 464,017 tons. In addition, the EU granted the restructuring reserve of 416,000 tons, which can be used since 2006. As a result, the total national quota is now 9,380,143 tons. The level of obtained quotas is regarded as low, as they were already exceeded in the season 2004/2005 and some farmers will have to pay the penalty charges. The situation is additionally worsened

by the low reference fat content of 3.90%, while the real one is 3.98%. Considering the correction for fat content, the surplus was approx. 280 thousand tons. In the season 2005/2006, the situation is more profitable for the farmers because the restructuring reserve can be used and probably the quota will not be exceeded. In addition, the quota is lower than the balance consumption of milk, which exceeded 10 m tons in the years 2000-2001.

The level of milk quotas is a significant barrier to development of structural transformations in the farms, as obtaining the quotas involves costs for farmers who want to expand. The output of the Polish dairy industry is approx. 12.0 m tons. The milk quotas allow purchasing 9.2-9.4 m tons of milk, which means that utilisation of the output is approx. 75%. Under these conditions, the possibility of development of the dairy industry, including particularly export, is also limited.

1.5. Level and range of support for dairy industry in Poland

The Polish dairy industry uses a number of instruments aiming at market regulation and which allow taking up the necessary restructuring and modernisation actions as a part of the accession to the European Union's structures.

In 2005, the expenditure on dairy market regime under the Common Agricultural Policy exceeded EUR 40 m and 84% were assigned to the export refunds. Another 8% of the expenses were incurred for interventions on the butter market (purchase, storage and transport). The interest of educational institutions in subsidies to consumption of milk and dairy products by pupils increased. In 2005, approx. 5% of the funds were spent on this purpose.

Under SAPARD programme, the pre-accession programme that was to serve the structural transformation processes in the countryside of the candidate states, approx. €120 mn came to the Polish dairy industry. 83% of the funds were assigned for supporting the restructuring of processing and improvement in marketing of dairy products, while the rest was assigned to investments in the farms that produce milk.

In the years 2004-2006, Poland has also used the instruments of the European Union's structural policy. It is realised under the Sector Operation Programme "Restructuring and Modernisation of the Food Sector and Development of Rural Areas". To date, approx. €200 mn has been reserved for the dairy sector 23% of which has already been paid out. The most popular is aid related to processing and marketing of dairy products (52.5%), investments in the farms (37%) and the aid facilitating young farmers who want to take up the production and rearing of the milk cattle to start their business (10.5%).

The last of the programmes supporting the dairy industry is the Plan for Development of Rural Areas. As a part of one of its actions it was possible to partially fund the farms specialising in production of milk and dairy products to the European Union's standards. Approx. EUR 35 m was assigned to this purpose.

2. Organisation of milk production in Poland

Dynamic structural changes have taken place in the Polish dairy industry for several years. With necessity of adjusting milk production to the changing social and economical situation, especially to the real demand, quick limitation of production took place followed by its concentration. The number of dairy farms (41% of all the farms) has declined by 44% and the cow population was reduced by 50% within the last 8 years. Mainly the smallest farms have ceased production and the proportion of milk output sold off farms increased from 71% in 2000 to 78% in 2005. The importance of self-subsistence in milk production has decreased from approx. 22% to 15%, while the use of milk for animal feed has remained unchanged (approx. 6.5%). The latter values are higher than in UE-15 countries where the share of agricultural output marketed exceeds 90%.

In 2004, 50% of cows were still in herds of less than 10 (in 2002 it was 64%). However, the share of the medium- and large-size farms was increasing rapidly. The number of farms that keep 10-30 cows increased by 22% and those with 30-99 cows increased by 123% in the years 2002-2004.

In essence, the population of cows in these farms increased by 45%. The number of farms that keep more than 100 cows remained unchanged. In 2004, there were 627 such farms in relation to 632 in 2002. (See Table 8) The average number of cows kept in a farm increased from 3.28 to 3.93 over this period. In the farms where the herd size was up to 9, the average was merely 2.18. On the largest dairy farms (100+ cows), the average number of cows in herd was 270.

Changes in the size and structure of cow herds resulted in increase in concentration of milk supplies to dairies. In 2005, the number of milk suppliers was 344000, some 12% less than in 2004 and 38% less than in 1996. The average volume of milk purchase per supplier increased from 20 tonnes in 2004 to 25 tonnes in 2005, though this is only one-tenth of the volume per farm in the old Member States and shows that milk production in Poland is still much fragmented.

3. Possibilities of development of consumption of milk and dairy products

Consumption of milk and dairy products in Poland is much lower than in the EU-15 countries. In 2005, consumption of milk per person was approx. 250 kg in comparison to 320 kg in Germany, which is the best country for comparisons due to immediate neighbourhood, large potential and similar consumer preferences. Low milk consumption indicates the existence of large potential for increase in domestic demand. The factors that stimulate the increase in consumption per person are:

- increase in people's incomes as a result of economic development of the country and improvement of the situation on employment market,
- decrease in prices of dairy products as a consequence of the milk market regulation system reform and further liberalisation of the world trade as a result of the WTO negotiations,

- European Union programmes for supporting the increase in consumption – partial financing the milk consumption in educational institutions.

The prerequisite for increase in consumption will be the improvement of income situation. This is confirmed by high indicators of income elasticity of demand for processed products (cheeses, yoghurts, butter) observed in the poorest families. Investigations of the Institute of Agricultural and Food Economics-National Research Institute (IAFE-NRI) indicate that every 1% increase in incomes causes consumption to rise by 1.2 to 2%, which is a relatively high income-elasticity coefficient.

An improvement in the income situation is conditional on return of the Polish economy to the path of economic growth at the rate of approx. 5% GNP per year. The additional factor that influences on the income growth is the transfer of financial means from the persons working abroad. The large number of people (approx. 1 million) who left Poland to work in other EU countries has significantly contributed to decrease in the number of the unemployed and the income growth.

The agricultural policy reform on the dairy market assumes the improvement in competitiveness of the EU sector by, among other things, price reduction, which is confirmed by reduction in intervention prices of butter and skimmed milk powder (SMP) in the years 2004/2005 - 2007/2008 by 25% and 15%, respectively. As a result the purchase prices and prices of other dairy articles will be reduced. Lower prices and income growth create favourable conditions for increase in demand.

There are two contradictory factors affecting further price developments firstly limited supply of raw milk due to the quota and secondly for the time being limited demand. In the medium term demand for dairy products is expected to increase and in the meantime shortages of raw milk will increase, consequently both the short and medium term outlooks for the farmers are rather bright.

The aim of the programme for partial funding of milk consumption at schools is not only the direct growth in consumption but also moulding the consumer preferences of children and youth and ensuring positive influence on their health. In the first two years after the integration, the range of the programme was small because it only covered 4500 schools, 0.7 m pupils and 10 thousand tons of milk and dairy drinks in the school year 2004/2005. In the season 2005/2006, the number of participating schools increased to 661200 and the number of pupils – to 1.8 m. In the years to come, much higher interest should be expected.

The growth in milk consumption per person will contribute to the increase in global consumption in Poland. However, there are certain factors that will limit this growth:

- unfavourable demographic situation;
- structural transformation in agriculture;
- situation on the market for meat and hydrogenated fats, which are substitutes for dairy products.

Poland is characterised by unfavourable demographic situation as the number of population is decreasing. According to the forecasts of the Polish Central Statistical Office (GUS), the

population may be reduced by approx. 1 million persons within the next 20 years. This situation is additionally worsened by large economic emigration of young people to other EU countries. As a result, the scale of decrease in the number of population may be even higher.

The Polish dairy industry is characterised by high percentage of self-subsistence. According to the balance-sheet estimates of IAFE-NRI, the agricultural families consume approx. 2 m tons of milk from their own production. According to the estimates of the Polish Central Statistical Office, 82% of milk, 70% of cream and 55% of cottage cheeses consumed in farm households in 2005 came from their own production. As a result of the structural transformations in agriculture, the smallest farms will be giving up milk cattle and thus the milk production for their own needs and for direct sales. The farm households that have given up milk production will become the purchasers of industrial dairy products or simple dairy products sold directly by other farms. Considering the fact that small farms have low incomes, these purchases will certainly be lower than their current consumption based on their own production.

When taking all the above-mentioned factors into consideration one can expect that domestic consumption of milk will show the growing tendency over the longer term. Within the next 10 years consumption per inhabitant is expected to increase to approx. 290 kg. If the number of population amounts to approx. 37.5 m within 5 years, then the domestic consumption would increase to some 10.4 mn tonnes and would be 11% higher than in 2005. The consequence of growth in consumption will be reduction in the exportable surplus. The maintenance of a high level of exports will in turn require increased imports. As a consequence, the positive balance will be reduced and intensity of the intra-branch trade will increase.

As regards the structure of consumption of dairy products, the current trends will be maintained. Consumption of ripening and processed cheeses as well as yoghurts and dairy drinks will be increasing. A significant growth in consumption of cream is also possible. In case of butter the situation is not clear. Indeed, as it results from the income-related flexibility of demand, the growing people's incomes should stimulate the increase in consumption, however one does not know how the consumers react to price relations of hydrogenated vegetable fats and to health considerations – see the discussion about the harmfulness of cholesterol. Within the last years margarine has been a substitute and competitive product to butter. The decreasing trend of consumption of drinking milk, the substitutes of which are yoghurts and dairy drinks, will be maintained.

4. Assessment of possibilities for development of milk production

Dairy farmers are among the main beneficiaries of the European integration. The achieved successes are the result of intensive adjustment processes related to modernisation and restructuring of production. The biggest is the improvement in profitability of milk production and access to the European Union funds. In 2004, the average annual farmgate price of milk increased by 22% to PLN 87.36/100 kg (€22.4) and in 2005 – by 6.4% to PLN 92.92/100 kg. (€23.8) The rise in prices was accompanied by improvement in quality of the purchased milk. In 2005, the raw material meeting the EU standards was 93%, while in 2000 it was merely 46%.

The main factor affecting the improvement in production profitability is the fact the Polish dairy industry has been covered by CAP regulations: intervention prices of butter and SMP, market support and foreign trade regulations.

The dairy industry is the only branch of food in Poland where the cooperative form has survived. As a result, a strong integration between manufacturers and processing is still present. In 2005, milk was processed by 171 cooperative diaries in which farmers had their shares.

Milk production in Poland is still characterised by a very fragmented structure, which significantly affects the costs. As compared to the EU-15 countries, the production is extensive due to small cow stock per farm. Under the conditions of CAP reform and expected decrease in milk prices, further concentration and modernisation of production is required. In addition, as from January 1st, 2007 the decree of the Minister of Agriculture allows milk to be sold only from the farms that meet the detailed veterinary conditions. The continuation of these transformations is the prerequisite for maintaining profitability and competitiveness of production.

However, the process of increasing the concentration will be hindered, as the farms that are going to start or increase the volume of production will have to obtain the milk quota. The necessity of purchasing or leasing the quota will increase the investment costs considerably. The additional impediment is the fact that trading in quotas may only take place within the area under the responsibility of the specific Local Office of the Agricultural Market Agency. The access to the capital to finance the required investments may also be a problem because not all farmers will be able to make use of the European Union relief funds. The essential role in this field may be played by the dairy industry, which, like before the integration, may to a certain extent support the modernisation of production: e.g. by purchasing heifers or cowshed equipment. In addition, small farms are giving up rearing cattle.

Poland has a large potential for rearing milk cattle and production of milk. In 1989, the population of cows amounted to 5 m specimens and the output was 17.4 m tons. During the economic transformation the number of cows decreased significantly and some of the farms liquidated the cowsheds and their equipment. Nevertheless, the large productive potential is still present due to favourable climatic conditions and large area of the permanent grasslands. In the future, the population of cows will show a decreasing tendency, which will be accompanied by growth in milking capacity. Assuming that the number of cows will fall down to 2500 m specimens and the milking capacity will increase to approx. 5500 kg, the yield of 13.7 m tons is possible. However, it is a theoretical estimate, as the sales level, and thus the production level, is determined by the production quotas. The production quotas will have been maintained by 2014/2015. Thus there are no premises indicating the possibility of considerable growth in the output in this time. It is rather possible that it will decrease because small farms are giving up production for their own needs. The output will soon be approx. 11.5-11.7 m tons and the milk purchase will be run within the limits determined by the production quotas.

5. Assessment of possibilities for structural changes in milk production

Milk production in the farms is still very fragmented in Poland and requires the continuation of the restructuring processes. The structural transformations aiming at the growth in concentration are prerequisite for improvement in efficiency and profitability of production. This process will be advantageous to the farms but also the processing industry show high interest in concentration growth. Dairies strive to reduce the number of suppliers with simultaneous increase in the volume of purchase from a single farm. The effect is the logistic advantages and significant reduction in the costs of milk collection. Another advantage of milk supplies from large farms is higher quality of the raw material, as they are equipped with modern milking and cooling equipment.

The accession to the EU creates both chances and barriers to acceleration of the structural transformations. The market regulation system creates relatively stable economical conditions for milk production. In particular, it regards the farms, which are going to develop their production. The facilitation for these processes is the accessibility of the EU funds, structural pensions and direct subsidies, which to a certain extent compensate the investment costs. The structural transformations in the farms showing developmental capacity involve high investment outlays to expand the area, purchase cattle, modernise the cowshed and its equipment and obtain the milk quota.

The milk quotas are the essential barrier to these transformations, as their purchase and lease involves the additional costs. In addition, trading in the quotas may only take place within the area of a province (the operation area of the Local Branch of the Agricultural Market Agency), which to a large extent reduces the possibility of purchasing the quota. This problem first of all concerns the provinces specialising in milk production.

Another barrier to the structural transformations is the low equity resources of the farm. At the same time, the budgetary and EU funds are limited. The problems with capital result from poor financial situation of a large number of farms the source of which is the low profitability of milk production in the pre-accession period.

Taking the above-mentioned factors into consideration it is assessed that the growing concentration of production will be enforced by the changing economic conditions of its surrounding and requirements of the dairy industry. The stimulus for these processes will be also the social transformations in the countryside. The number of persons involved in agriculture, and thus the number of farms geared towards the marketable production of milk, will be decreasing. The great role in acceleration of these processes will be played by the form and shape of the CAP, which, equipped with relevant instruments, may be a stimulus for them.

As a consequence, the marketable production of milk will be abandoned first of all by the farms keeping 1-4 cows. A part of the farms that have the milk quota will sell it mainly to the entities that keep 10-30 cows. In the group of the largest farms, the structural changes will take place rather slowly, as the large part of these entities has achieved the optimum scale of

production and they do not show much interest in extending this scale. Large farms are interested in obtaining bigger production quotas but they are going to do so by increasing the milking capacity of their cow population.

6. Assessment of possibilities for changes in milk processing

The dairy industry took advantage of the European integration. The EU market regulation system creates the stable economic conditions for milk processing and trading in dairy products. Like the farms, dairies could also benefit due to the intensive processes of adjustment to the EU standards. According to the data of the General Veterinary Inspection, almost all plants meet the EU standards and their products are admitted for sale.

The accession to the EU provides the industry with access to the large ready market characterised by high prices and high purchasing power. This is confirmed by significant growth in export in the years 2004-2005, particularly to the EU countries. The rise in selling prices on domestic market and growth in export volume were the main factors that determined the improvement in the economic and financial situation of the branch in spite of increased prices of raw material. Good financial situation of the branch is the basis for carrying out further transformations.

The dairy industry cannot regard the adjustment processes as completed. The results of investigations of IAFE-NRI indicate that the current competitive advantages were built on the basis of cheaper raw material and lower labour costs as compared to the EU-15 countries. The Polish dairy industry achieves only roughly a quarter of the level of technical and economical productivity as compared to the German industry. The reform on the EU market regulation system resulted in significant reduction in differences of the raw material prices. Similar trends will occur in the field of the people's incomes, i.e. the costs of remunerations. It means that the concentration processes must be continued, in particular in the cooperative sector. The number of plants and employment level must be decreased, then fixed costs will be reduced and productivity will grow.

The Polish dairy industry requires further investments in modernisation of production and promotion of its products. This is confirmed by the commodity structure of export in which products used in food reprocessing represent high percentage. A large part of the consumption products is offered on the EU market under brands of the commercial chains. Therefore, only large entities will be able to promote their brands on the external markets. The dairies must actively use the EU relief funds available under the Sector Operation Programme. It is anticipated that the market segments with high development dynamics will be ripening and processed cheeses as well as yoghurts and dairy drinks. Production of butter and SMP will show the decreasing tendency, which will be stimulated by decrease in intervention prices and limited possibilities for supporting export.

The major barrier to development of the domestic sector is the milk quota system, which makes it impossible to increase the milk purchase volume. The Polish dairy industry is characterised by low utilisation of the processing lines, which is another argument for

increasing the concentration. The milk purchase of approx. 9.3 m tons restricts the opportunity for new entities, including the foreign ones, to enter the market. The only possibility is to take over the existing plants but it may be difficult for dairy cooperatives, as consent of the farmers is required.

It is expected that no essential changes in the EU policy will take place in the nearest time. Maintaining the milk quotas and the foreign trade regulation will cause that the Polish dairy industry will continue the current restructuring processes. The plants will be slowly concentrated. Some larger changes may be expected as regards modernisation of plants, which will affect the change in the production structure.

Over the long-time horizon, the nature, direction and pace of changes will mainly depend on decisions concerning the milk quotas and the result of trade liberalisation. If the WTO's negotiations result in liquidation of export support and significant reduction in the customs, then the milk quota system, which is the reason for high prices in the EU, may be redundant. In this situation one can imagine a very optimistic market liberalisation scenario in which production and processing will be developing in areas with the lowest costs and favourable natural conditions. One of such regions in Europe is Poland, which can additionally boast a long dairy tradition. If such conditions occur, one can expect that large modern plants manufacturing large amounts of durable dairy products will appear. In a more pessimistic scenario, the control of supply will be maintained in some administration form. Then the restructuring processes will consist in obtaining the maximum efficiency of processing and trade by significant reduction in costs.

7. Conclusions

The dairy industry in Poland is an important branch of the food industry and at the same time a large beneficiary of the European integration. The successes of the Polish dairy sector are:

- stabilisation of the economic conditions for production and processing – improved profitability of milk production and good financial situation of the dairy industry;
- access to the EU funds;
- significant progress as regards the adjustments to the EU standards, particularly in veterinary;
- significant increase in export, mainly to the EU market;
- growth in production and processing concentration.

The introduction of the EU market regulation system also caused some negative effects:

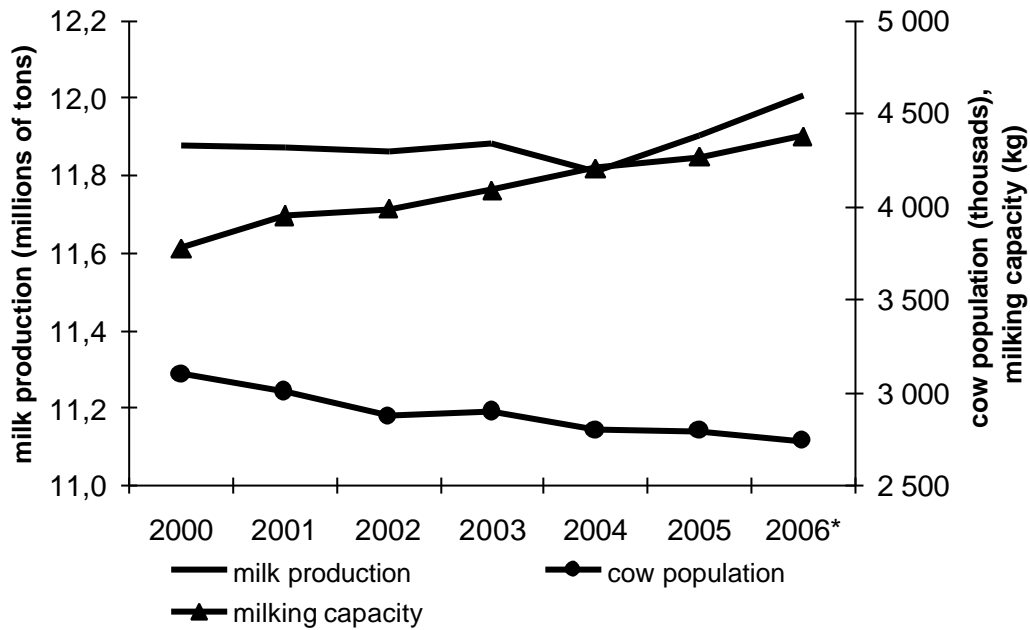
- low level of the national milk quota to a large extent hinders the structural transformations and development of the sector on both the production and processing level;
- significant rise in prices of dairy products resulted in consumption decrease in the years 2004-2005.

In the nearest future, the farms and dairy industry will continue the modernisation and restructuring processes that will result in cost reduction, increase in productivity and, as a result, improvement in production and trade efficiency. It is indicated by the lasting reform of the CAP and the expected liberalisation of the world trade as a result of the WTO negotiations. On the agricultural level, the number of plants that keep cows and the population of cows will be reduced. At the same time, the scale of the farm's output and milking capacity will increase. In the dairy industry, further mergers of enterprises, mainly the cooperative ones, into bigger entities will be continued.

The decrease in prices of milk and dairy products in the EU and increase in people's incomes in Poland will be the stimuli for increasing the domestic demand. The maintenance of milk quotas will result in necessity of export reduction or import increase.

Annex

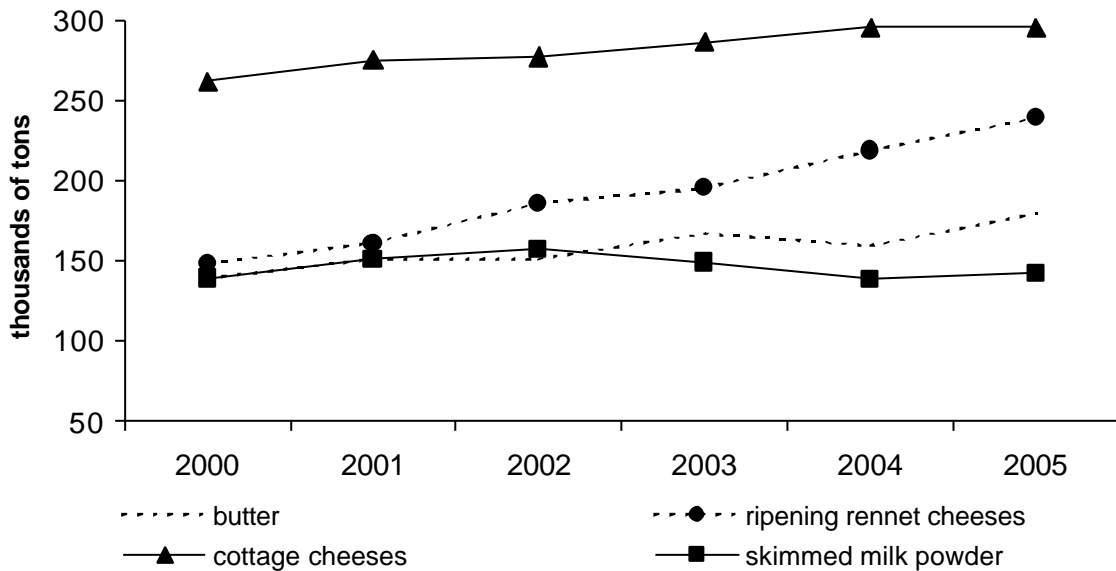
Chart 1. Livestock population, milking capacity and milk production



* estimation

Source: Data of the Polish Central Statistics Office.

Chart 2. Production of the primary dairy articles



Source: Data of the Polish Central Statistics Office.

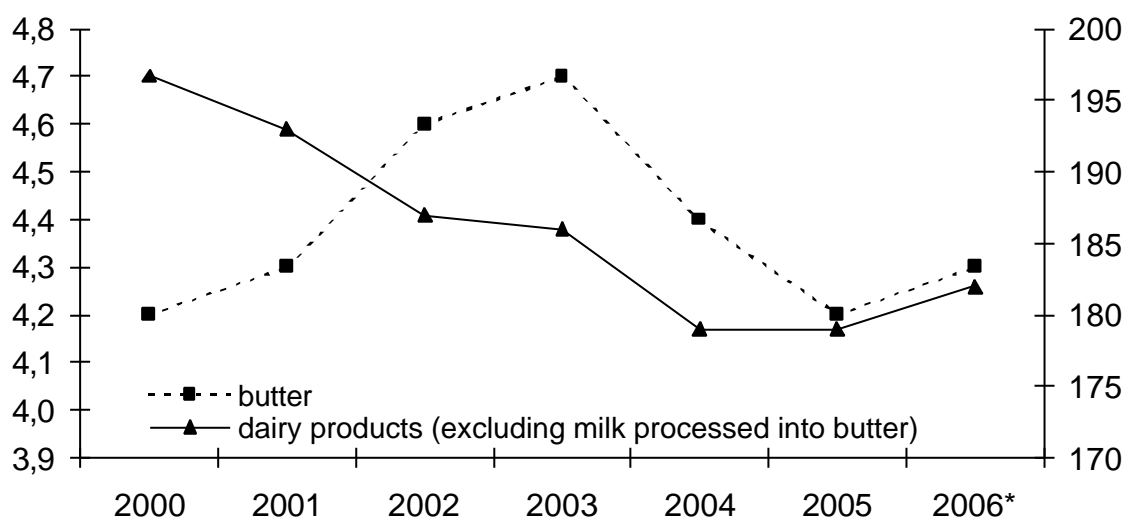
Table 1. Production of the dairy industry*

Specification	2000	2001	2002	2003	2004	2005
Processed liquid milk (m litres)	-	1768.3	1849.3	1992.3	2086.8	2290.9
Milk powder (k tons)	158.7	187.5	177.8	175.5	176.4	193.4
Cheeses and cottage cheeses (k tons)	457.9	483.6	517.6	543.6	577.2	605.5
Cream (m litres)	198.2	204.9	214.2	214.8	225.3	237.2
Butter (k tons)	139.1	154.0	157.9	167.0	177.2	179.5
Ice-cream (m litres)	113.0	151.3	174.2	181.1	197.2	211.6
Yoghurt and dairy drinks (m litres)	344.7	337.8	424.8	440.5	475.0	510.6
Casein (k tons)	4.2	6.6	5.3	3.4	3.3	0.1

* - data from companies employing 50 and more people

Source: Data of the Polish Central Statistics Office.

Chart 3. Consumption of milk and dairy products (in kg per person annually)



* estimation

Source. Own calculations based on data from GUS.

Table 2. Consumption of dairy articles according to family budget surveys

Specification	2000	2001	2002	2003	2004	2005	2006*
Drinking milk	64.68	61.32	58.68	57.60	55.08	53.16	53.00
Dairy drinks	2.76	2.88	3.00	2.88	3.12	3.00	3.10
Yoghurt	3.96	3.84	3.96	4.20	4.20	3.72	4.00
Ripening and processed cheeses	3.48	3.72	3.84	3.96	4.08	4.20	4.35
Cottage cheeses	6.48	6.36	6.24	6.36	6.36	6.24	6.20
Cream	5.52	5.40	5.28	5.04	5.28	5.16	5.20
Butter**	4.20	4.30	4.60	4.70	4.40	4.20	4.20

**estimation of Institute of Agricultural and Food Economics - National Research Institute, ** balance-sheet data;*

Source: Data of the Main Office of Statistics, "Milk market. Status and perspectives" – Institute of Agricultural and Food Economics - National Research Institute, Agricultural Market Agency, Ministry of Agriculture and Rural Development.

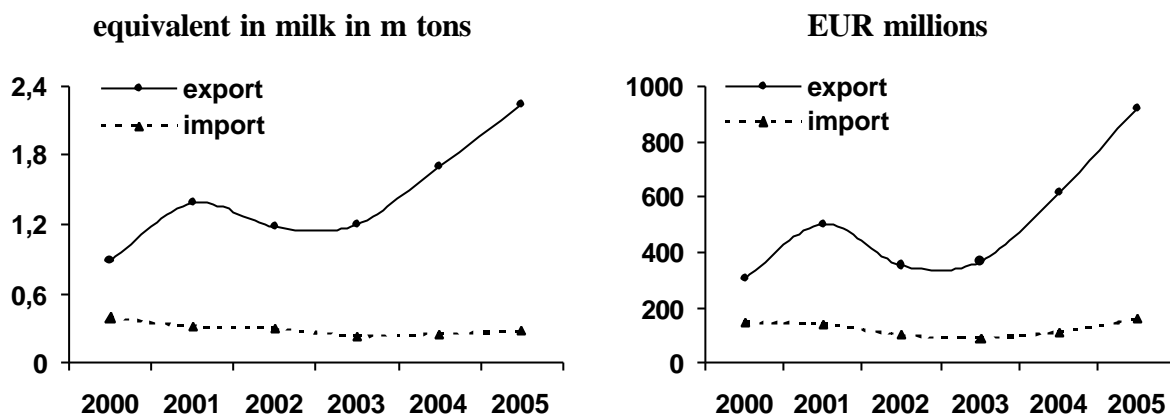
Table 3. Factors of income flexibility of demand for dairy articles.

Specification	Total	Income population groups				
		I	II	III	IV	V
2004						
Fresh milk	0.025	0.086	0.044	0.031	0.023	0.012
Yoghurt	0.678	2.290	1.170	0.837	0.608	0.325
Cottage cheeses	0.311	1.052	0.537	0.384	0.279	0.149
Ripening and processed cheeses	0.380	1.283	0.655	0.469	0.341	0.182
Cream	0.120	0.450	0.207	0.148	0.108	0.057
Butter	0.472	1.596	0.815	0.583	0.424	0.226

Note: Income groups: I – with the lowest incomes, V – population with the highest incomes.

Source: Gulbicka B.: "Food – level and diversity", in "Production and economic analysis of agriculture and food economy situation in 2004", Institute of Agricultural and Food Economics - National Research Institute, Warsaw 2005.

Chart 4. Results of Polish foreign trade



Source: Own calculations, data from CIHZ, CAAC, FAO

Table 4. Export of milk and dairy products (EUR millions)

Specification	2000	2001	2002	2003	2004	2005
Total export	304.8	502.6	352.2	366.1	617.9	920.9
Liquid milk and cream	0.6	0.6	0.4	0.3	28.9	108.4
Milk powder	179.4	280.4	169.1	162.6	228.1	317.5
Yoghurt and dairy drinks	9.5	12.6	14.0	17.6	35.9	71.4
Butter	6.7	28.2	18.9	19.0	66.2	85.5
Cheeses and cottage cheeses	59.8	98.1	94.7	117.5	191.1	272.2
Ice-cream	5.9	5.3	8.4	9.7	10.7	22.1
Casein	42.8	77.4	46.7	39.4	57.0	43.9

Source: Own work based on data from CIHZ and CAAC.

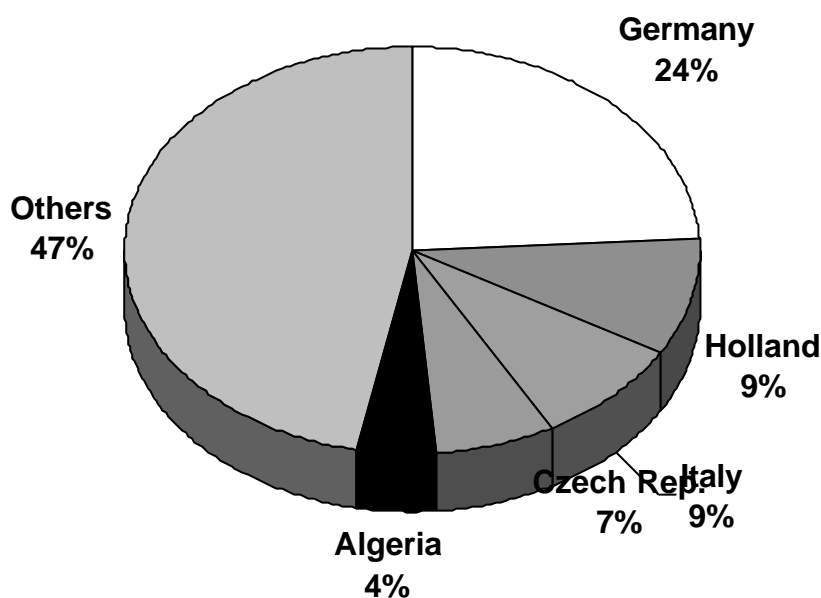
Table 5. Import of milk and dairy products (EUR millions)

Specification	2000	2001	2002	2003	2004	2005
Total import	146.0	140.4	100.3	89.9	111.7	159.0
Liquid milk and cream	5.5	6.9	6.1	5.0	5.3	6.1
Milk powder	30.6	27.5	18.4	15.1	15.7	25.9
Yoghurt and dairy drinks	23.6	4.0	1.2	1.0	1.5	10.5
Butter	19.0	6.0	7.0	9.1	9.1	10.3

Cheeses and cottage cheeses	20.6	17.3	17.4	18.4	27.7	44.4
Ice-cream	1.6	2.4	3.2	1.7	2.8	5.4
Casein	45.2	76.3	47.0	39.5	49.6	56.3

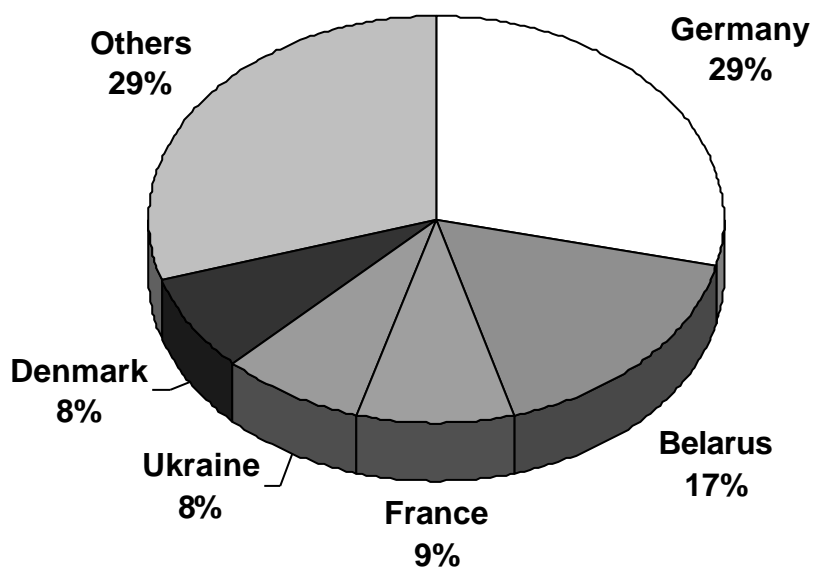
Source: Own work based on data from CIHZ and CAAC.

Chart 5. Value structure of milk and milk products export in 2005



Source: Own work based on data from CAAC.

Chart 6. Value structure of milk and milk products import in 2005



Source: Own work based on data from CAAC.

Table 6. Foreign trade structure by country grouping

Specification	Export			Import		
	2003	2004	2005	2003	2004	2005
EU-15	23.3	50.1	60.0	41.0	43.8	58.5
EU-10	14.0	13.0	15.0	15.1	12.1	11.4
EFTA and other economically developed countries	10.9	7.6	3.7	6.2	4.6	2.5
CIS and Central-Eastern Europe	8.1	7.3	4.2	36.8	38.8	27.0
Developing countries	43.7	22.0	17.1	0.9	0.7	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Calculation of Institute of Agricultural and Food Economics - National Research Institute, data from CIHZ, Ministry of Finance, Ministry of Agriculture and Rural Development.

Table 7. Instruments for supporting milk market in Poland

Type of instrument	Amount
CAP (2005)	161.7
Export refunds	135.9
Intervention on the butter market (purchase, storage, transport)	12.3
Subsidies for purchasing butter by non-profit organisations	0.2
Subsidies for storage of long-ripening cheeses	0.07
Subsidies for butter and cream processing	0.06
Subsidies for consumption of milk and dairy drinks in educational institutions	7.9
Export refunds – processed products from Non-Annex I group	5.1
SAPARD (2004-2006)	487.2
Support for restructuring of processing and improvement in marketing of dairy products	405.9

Investments in the farms – restructuring of milk production	81.3
SPO (2004-2006)*	772.3
Investments in the farms (main production – dairy cattle)	285.5
Facilitation for young farmers to start production (milk production)	81.8
Improvement in processing and marketing of dairy products	405.0
PROW (2004-2006)	140.2
Adjustment of production farm specialising in production of milk and dairy products	140.2

**status as on March 31st, 2006*

Source: Institute of Agricultural and Food Economics - National Research Institute's own work based on data from Agency for Restructuring and Modernisation of Agriculture and Agricultural Market Agency.

Table 8. Number of farms and cow population by farm-size classes

Herd size (pcs)	Number of cows (thousand pcs)			Number of farms (thousands)		
	1996	2002	2004	1996	2002	2004
1-9	2893	1834	1437	1287	820	658
10-29	254	750	991	20.4	52.5	64.3
30-99	59	128	285	1.0	3.0	6.9
>100	185	161	170	0.66	0.63	0.63
total	3391	2873	2884	1309	875	730

Source: Data of the Polish Central Statistics Office.

Table 9. Milk balance in Poland (thousand tons)

Specification	2000	2001	2002	2003	2004	2005
Production	11878.0	11873.0	11861.0	11881.0	11810.0	11905.0
Import	395.0	320.0	300.0	235.0	250.0	275.0
Export	890.0	1390.0	1175.0	1200.0	1700.0	2245.0
Grazing	669.5	655.1	648.9	669.5	587.1	566.5
Consumption	10713.5	10147.9	10337.1	10246.5	9772.9	9368.5
Population	38.3	38.2	38.2	38.2	38.2	38.1
Consumption per capita (kg)	280.1	265.4	270.5	268.3	255.8	245.8

Source: Data of the Polish Central Statistics Office.