

## SUMMARY

The main purpose of this study was to carry out the impact assessment of implementing the Directive 92/46/EEC, which defines the rules for manufacturing and marketing of raw milk, heat-treated milk, and milk-based products, and to determine the costs on main business groups and consumers of dairy products.

The following tasks were completed during the study:

- The analysis of dairy farms' structure, number of dairy cows and farm productivity.
- The evaluation of milk production, procurement and determination of the factors causing variations of these indicators.
- Qualitative analysis of produced milk and evaluation of the level of compliance with the Directive and proposals of necessary measures to improve the quality of milk and increase in productivity.
- Evaluation of the existing situation of raw milk production (holdings for cows, milking, premises for milk handling, equipment and means used for milk manufacture), collection centers (premises, equipment and means used for milk processing, hygiene conditions for staff, laboratory equipment) and milk processing establishments (premises and technological equipment, hygiene conditions, packaging, storage, transportation) and compliance with the requirements of the Directive.
- Evaluation of milk demand and supply and predictions for the years 2000-2007.
- Evaluation of potential forecasts of increase in procurement prices of milk in relation with the implementation of the Directive and the effect on holdings and competitiveness in milk market.
- Analysis of currently applied and potential measures of regulation in milk market.
- Determination of measures and expenditures necessary for dairy farming renovation and modernization, market expansion and quality improvement

Calculation of costs for dairy farms, milk collecting and processing establishments and evaluation of this effect on business partners and dairy products consumers was based on the following assumptions:

- The compliance with hygiene requirements for produced and sold raw milk, heat-treated milk, milk intended for milk-based products and milk-based products for consumption with the requirements of the Directive 92/46/EEC was based on the following positions:
  - will meet the EC requirements before 01 January 2004 (date of the planned Lithuanian Republic entry EC);
  - will meet the EC requirements before 01 January 2007 (the provision of the Negotiating position of LR "Agriculture" (Negotiations chapter 7);
- Calculation of the investment needs in modernization of dairy farming was based on the existing situation in dairy industry and milk demand of 2250 thousand tons a year.
- Assumptions based on the evaluation of the average age of dairy farmers was made that 50 percent of farms will invest into the modernization, the others will leave dairy market.
- Referring on the opinion of experts, it can be concluded that about 50 percent of farms require the construction of the suitable floor and pits for dung collection. The construction of floor and pit for dung will cost 1 thousand lt. per farm (20 m<sup>2</sup>)
- The construction of premises for milk storage and refrigeration requires 2 000 lt. (on the assumption that the premise for farming already exists).
- For a holding with average milk production of 80-100kg a day (in peak) a refrigerator with 100 l of volume is necessary, the cost of which is 5000 lt. (JSC "Astra"). On the assumption that second- hand refrigerators may be used, the average price of refrigerator is 3000 lt.
- Capital investment for new premises is 12000 lt. and for the reconstruction of old premises - 7000 lt. (the data of the Institute of Agriculture Engineering - for building - 11,700 -24,700 lt., for reconstruction - 6,600 -8,100 lt. depending on the type of a farm).
- Compensation for layoff of employees was calculated as a salary per 6 months.
- Forecasts of the changes in the employment of inhabitants in dairy farming, was calculated for fully occupied farm, the employee of which works 2003 hours.

## MAIN CONCLUSIONS AND RECOMMENDATIONS

- The implementation of the Directive 92/46/EEC will have a positive impact: stability of dairy farming will increase, productivity of milk production will grow up, quality of production will improve, consolidation among establishments in dairy industry will strengthen, it will ensure higher level of public health and create more favorable conditions for trade in dairy products on international market.

Dairy farming – one of the most important branches of agriculture, has not only economic but also social importance. Milk made about 17 percent of total production of agriculture in 2000, and export of dairy products - more than 30 percent of the export of agriculture and food products. Dairy farming will continue to remain the branch of primary importance in the future. Oriented to internal and foreign market, competitive dairy farming will ensure employment and incomes for producers, and products of high quality for consumers.

- The implementation of the requirements of the Directive is mainly related to the inadequacy of different level in farm premises, equipment, personal and hygiene requirements, collection of raw milk, management of dairy farming and depends on the size of a farm. It will require not only considerable investments, but also certain period of adaptation for society and for producers, which is unavoidable to adjust to the standards of Europe.

- The starting situation for milk production in Lithuania is quite good. There are 18 establishments, which comply with the requirements of the European Community and process more than 90 percent of raw milk. There also exists united system for milk composition and quality evaluation, authorized National veterinary laboratory for evaluation of export and import. It is necessary to emphasize that situation in raw milk production is rather negative – 99 percent of dairy farms do not meet the requirements of the Directive. Only 5 percent (372 commercial farms) with 5 and more cows, i. e. dairy farms with 24113 cows (64,8 cows in average) fully meet the requirements of the EC. Milk is delivered to mobile collection centers, which are not provided by the Directive. Only 29 percent of stationary collection centers from existing 1286 meet the requirements of the Directive: equipment for refrigeration and hygiene conditions prevent from contamination.

- Such a situation is caused by:

- irrational structure of dairy farms: prevalence of small farms, poor level of specialization, weak cooperation among milk producers;

- relatively low productivity of cows. The average milk yield in 2001 per cow was 3673kg.

- evident seasonality in milk production (coefficient 2,4);

- relatively low consumption of dairy products in internal market caused by poor purchasing power;

- relatively high expenditure for dairy production;

- insufficient quality of milk. Only 51,8 percent of milk delivered for manufacture meet the requirements of the EC for milk quality;

- milk producers are rather old. More than 54 percent of all producers are older than 60, 25 percent – 50-59, only 21 percent – under the age of 50.

- rather unstable measures of state regulation;

- quite limited state policy in the development of dairy farming.

- Laws with strict norms have been prepared: LST 1137:1997- Raw milk, quality requirements, determination and evaluation; Rules for milk procurement (Official Gazette, No.40-1406, 2001); Veterinary and hygiene requirements for dairy farms, trade in milk and transportation (Official Gazette, No.99-35-93, 2001); Veterinary requirements for sanitation in milk handling and processing establishments and requirements for milk and milk-based products produced in milk manufacture

establishments (Order of the SVS No. 4-169 on 27 10 1997 amended by Order No. 4-100(1.2) on 05 05 1998); Maximum allowed amount of harmful residues in milk (Order of the SVS No. 4-90 on 27 04 1998), "Strategy for the expansion of agriculture and a country in Lithuania" approved by Seimas Decision No.VIII-1728 of the Lithuanian Republic which declares dairy farming as the branch of primary importance.

- On the other hand, some problems of national importance have not been solved since the time when the practical implementation of the Directive 92/46/EEC started. This is directly related to the implementation of the Directive or implementation of some preparatory measures of EC regulations in milk and dairy products market:

- the order of the requirements for veterinary sanitation in dairy farms, which do not meet the requirements of the Directive 92/46/EEC, has not been prepared,
- more tight standards for raw milk according to the requirements of the Directive 92/46/EEC Chapter IV Annex A have not been introduced;
- the national system of agricultural market regulation by quotas has not been prepared, the structure for the introduction of quota system and database of quota owners, who undoubtedly will effect the implementation of the provisions of the Directive 92/46/EEC, has not been elaborated, although it is not the field of regulation by this Directive.

All these circumstances complicate the possibilities for precise calculations of the costs needed for the modernization of dairy farming, modernization of delivery stations, acquisition of raw milk for milk processing establishments and increased prices of products for consumers, which force to base the impact assessment on forecasts and assumptions, increase the degree of uncertainty.

Collected statistic and preliminary information, data of questionnaires, analysis of legal acts in force, opinion of the leaders of dairy farming and farmers and arguments and evaluations of the experts lead to the following conclusions:

- The period of preparation for membership in EC is of primary importance (2002-2003). Milk production should be considerably developed during this period in order to ensure the 2250 000 t milk production quotas (1158,500 t in 2001) indicated in the negotiating position. This level of milk production will protect the interests of Lithuanian consumers (the demand to consume dairy products of local establishments) and satisfy the demands of export.
- Taking into account milk quota eligible by Lithuania (2250 000 lt.) and seeking to implement that milk would be produced not only by farms meeting EC requirements, forecasted needs for investment in modernization will make up 1372,9 mln. Lt. The main source of investment in milk production, quality improvement, implementation of the requirements of EC for veterinary sanitation, environmental protection, animals welfare would be SAPARD funds (175,5 mln.Euro or 631,8 mln. lt.) and it would make about half of necessary investments. Analysis of questionnaires demonstrates that only 63 percent of commercial farms (54 thousand cows) will satisfy the requirements of the Directive 92/46/EEC on 1 January 2004.
- During the analysis of dairy farms meeting the requirements of the Directive 92/46/EEC it became evident that it is rather reasonable to divide all dairy farms into two groups according to the size: farms with 1-4 cows and farms with more than 5 cows. This is based on the results of questionnaires (1800 farmers having 1-4 cows and 7800 farmers having more than 5 cows were questioned) and elucidation of different problems and offered different ways for the implementation of the requirements of the Directive 92/46/EEC.
- Farms with 1-4 cows make up 95,5 percent of all dairy farms and contain 74,7 percent of cows. This group of milk producers is rather numerous and the most problematic with rather considerable input to the milk production. It seems necessary to stress that farmers above the age of retirement make up 45 percent of farmers and have one third of cows (LAEI data). The main problems arising in these farms in order to comply with the requirements of the Directive 92/46/EEC are the following:

conditions of keeping cows do not meet the requirements: premises are not separated from the places of manure collection, manure is not removed regularly, swine and poultry are kept in the same premises, there is no floor, liquid is collected in the same cowshed (98,2%), premises for milk collection, handling and refrigeration are not suitably constructed (97%); absence of suitable refrigerators (99%), ware is not properly disinfected after milking (68%).

- To solve the problems of inadequacy to the requirements of the Directive 92/46/EEC in small farms the following ways are being suggested:

- to modernize milk farms renovating buildings and supplying them with suitable equipment of refrigeration;

- to reorder the system of milk procurement: to establish stationary collection centers working twice every day.

- After the evaluation of two possible alternatives in small farms (1-4 cows) implementing the requirements of the Directive 92/46/EEC, it can be concluded that the reconstruction of milk collection system is economically more profitable than the renovation of all farms and partial supply with equipment. It is also necessary to stress that the reconstruction of milk collection system is a more simple way to solve the problem.

- The implementation of the requirements of the Directive 92/46/EEC, for renovation of small farms (1-4 cows) and supplying them with equipment for refrigeration will require 578 mln. Lt. Besides, such a way solving the problem may cause negative reaction among farmers, because investments will not give economic effect, the investments into equipment are not profitable in such farms because of small production.

- The reorganization of milk collection system (2 variant) will cost 57 351 thousand Lt.: 53 000 thousands Lt. will cost to invest into dairy farms and 4351 thousand Lt. annual expenses for subsidiary salary of milk collectors and social insurance, what makes up 1028 thousand Lt. annually. This scenario is related to subsidiary expenses of milk processing establishments, as milk collectors should collect milk twice every day (now they work only in the mornings). The farms will not require special premises for milk storage and refrigeration, equipment for refrigeration. The demand for investments will decrease by 525 mln. Lt. and will make up only 53 mln. Lt. (investment for renovation of premises).

- Analysis of meeting the requirements of the Directive 92/46/EEC in farms with 5 and more cows has demonstrated that the main shortcomings are related to premises for milk storage and cowsheds (94,5), milking places (59%), negligence of the farmers and lack of control on the farms.

- Implementation of the requirements of the Directive 92/46/EEC requires the investments of 794,9 thousand Lt. for modernization of farms with 5 and more cows. SAPARD and special program for country support for 2002-2006 is expected to create the environment favorable for the investments and to ensure required support for the farms, developing milk production in order to ensure competitiveness of dairy farming in Lithuania.

- Milk in Lithuania is collected in stationary or mobile collection centers.

According to the data of SFVS in 2001, there are 2383 milk collection centers, stationary make up 55 percents, mobile – 45 percents. Mobile milk collection centers do not satisfy the requirements of the Directive 92/46/EEC and they shall be closed before the 1 of January, 2004.

- With regard to the opinion of participants of milk market, it is suggested to divide the reorganization of mobile milk collection centers into two stages:

1. To limit the activities of mobile milk collection centers in the territories where stationary milk collection centers exist.

2. To decrease the number of mobile milk collection centers:

- to stop registration of new centers;

- to terminate activities of mobile milk collection center some time after establishment of stationary center;

- completely terminate activities of mobile milk collection centers in the second half-year of 2003.

Prohibition of mobile milk collection centers will decrease competitiveness among milk producers, as a consequence the price of milk may go down. Development of cooperation among producers in this case becomes very important. Cooperation would also ensure better distribution of finances.

- Termination of the activities of mobile milk collection centers will cause an increase in social expenditure, because some employees will lose their jobs (milk collectors and drivers). Compensations for this group of people will require 9800 thousand Lt.
- Having analyzed the geographical distribution of mobile and stationary milk collection centers, after termination of the activities of mobile centers the following ways for improvement of milk collection centers are recommended:
  - milk producers deliver milk to the stationary milk collection center themselves;
  - milk is delivered to another milk producer, samples are taken by milk collector;
  - construction of stationary milk collection centers.

- Analysis of the extent that stationary milk collection centers meet the requirements of the Directive 92/46/EEC has demonstrated that 372 (29%) milk collection centers completely meet the requirements of EC, 914 require investments: 333 - for refrigeration equipment, 643 - for current renovation, 194 – for capital renovation. It is necessary, that all stationary milk collection centers will have to meet the requirements of the Directive 92/46/EEC by 1 January, 2004. It will require 12194 thousand Lt. The biggest part (8325 thousand Lt.) will be spent on refrigeration equipment.

- It seems necessary to stress the positive side of rationalization of milk collection centers – transportation expenditures will decrease. It can be predicted that after termination of the activities of mobile milk collection centers expenditure for collected milk will be about 50 Lt. per 1t., i.e. 23 mln. Lt. a year will be saved (calculation was based on period of 2001 when 1158,5 thousand tons of milk were collected).

- Collected milk of the highest quality in Lithuania meets the requirements of the Directive 92/46/EEC for milk quality. In 2001, 51,8 percents of collected milk completely satisfied the requirements of the Directive for raw milk. Implementation of investment programs on dairy farms, reorganization of the system of milk collection (milk collection centers shall work twice daily) and permanent training of milk producers will help to solve this problem. Milk of lower quality will be used for cheeses of long maturation (2 months) starting from the 1January, 2004.

- 90 percents of collected milk nowadays is being manufactured in the establishments complying to the requirements of EC. On 1 January, 2004 97 percents of milk will undergo manufacture in the establishments complying with the EC requirements.

Closing down of some establishments, which will not meet EC requirements before 2004 may cause some socio-economic problems. The most important issues in milk manufacture establishments are – unsuitable premises, their location, hygiene conditions and technically obsolete equipment. Such establishments make up 7 percent, but their input in market is rather inconsiderable as they manufacture only 2,8 percents of milk. Detailed evaluation of the consequences for this group was not made because of following reasons:

- Inconsiderable effect in manufacture of milk-based products;
- Possibility of reorganization into milk collection centers;
- The problem was not stressed by the establishments during questionnaires.
- Lack of education and training is rather evident. It is necessary to create training programs, to organize seminars, to widen consultations in order to deepen knowledge of milk producers. PE “Milking training center”, SI “Milk investigation”, Consultation service for Lithuanian agriculture” should participate in this educational activity. It is also necessary to ensure financing of these training programs.

- The number of cows under control shall be increased (broaden the activity of SI “Control of cattle productivity”). Such control would provide farms with data about cows’ health state and milk quality and would help to improve and control milk quality.
- Other measures indirectly related to the provisions of the Directive 92/46/EEC and indirectly affecting the implementation of it are related to:
  - introduction of the objective milk prices. The price for milk of highest quality was 583 lt./t. in 2000, the expected price of EC in 2004 is 1115 lt./t.
  - introduction of general quotas for milk. Today we have 115 percents of objective milk price. Collected fee shall be exceptionally used for financing of EC milk market (investments in milk collection, export subsidies, support for consumption in internal market and others). The incomes of producers would increase if EC agreed to pay the same allowance as provided for producers in member states, i.e. per ton of quota milk and extra allowances. It is purposeful to use national reserve of quota for encouragement of young producers, of producers, who made investments into production, and for facilitating of renovation.
  - in favorable economical situation – to reduce VAT for primary food products. Milk and milk-based products consumption in this case would grow up to 320 kg per person.
  - facilitation of consumption: promotion of butter, cream, concentrated butter consumption, baked products; promotion of skimmed milk and skimmed milk flour consumption in production of concentrates; production of casein and caseinates from skimmed milk; promotion of butter consumption in the form of concentrated butter.
  - When high milk quality and expected quota have been reached, total incomes of milk producers will increase by 769 mln. lt. and make up 2081 mln. lt. After application of EC measures of regulating average income per month for an employee in dairy farming industry will grow up to 830 –940 lt. Labor productivity will increase in 25 percents. Average profitability of milk production will be about 6-8 percents in 2004, in case of increased productivity of cows to 6000 kg a year it will grow in 15 percents.
  - After EC membership milk prices in Lithuania will increase by 65 percents and income from milk sale will increase by 59 percents.
  - On the other hand, expenses for storages will grow, deduction for amortization and equipment will increase, the number of employed in dairy industry persons will decrease by 25 percents. Industrial progress will remain the main measure for decreasing of labor expenditures. As a result of implementation of the EC norms regulating milk manufacture administrative expenditure will considerably increase (quotas administration).
  - Under present conditions of milk manufacture and profit equity conditions in internal market, retail prices for milk will increase in 40 percents. This increase will greatly affect social groups of people with low income: country inhabitants, unemployed people, pensioners, who spend the largest share of their income on food. Increased prices for dairy products will increase expenditures for production and activity in certain establishments and will negatively affect the results.
  - If a transition period is not applied for hygiene requirements for raw milk, heat-treated milk and manufacture of milk-based products up to 1 January, 2007, and these requirements will come in force on 1 January, 2004, Lithuanian dairy industry will experience a shock – milk would be collected only from 6278 farmers (complying to the requirements of the Directive 92/46/EEC), or from 98609 cows, i.e. 432 thousand tons of milk or by 4,05% less than in 2001. It would cause increase of prices for milk and milk-based products; bankruptcy of milk manufacture establishments, loss of jobs and incomes for many farmers. It is evident, that no transition period for implementation of the provisions of the Directive is an unfavorable option for Lithuania, so transition period is necessary.
  - Analysis of relative effect of experienced expenditures on business groups in milk industry has demonstrated that the greatest negative effect would be experienced by:
    - producers of raw milk with 1-5 cows, 99% of them do not meet the requirements of the Directive 92/46/EEC.
    - mobile milk collection centers. They are not allowed by the Directive 92/46/EEC in case of manufacture of milk-based products for EC market. Mobile milk collection centers shall be gradually closed before 1 January, 2004.

- milk manufacturing establishments would experience less negative effect. More than 90 percents of milk is manufactured in the establishments which meet the requirements of the Directive 92/46/EEC and have EC certificates. Despite stable market of milk-based products in the West and grave economic situation in the Eastern market, costs are caused by storage of milk-based products. In case of unfavorable situation in internal market, investments shall be made in foreign market.

- On the other hand, the results of inquiries in 2001 demonstrate, that the number of those, who sensibly react to retail price for drinking milk (2,5% of fat) which is three times higher than for collected milk, is increasing. In Germany, as in other countries of EC, the retail price for drinking milk is only twice as high as for collected milk.

- In isolation, after entry of Lithuania the EC market, the price for drinking milk will grow by 20-30 percents (the relation between retail price and price for collected milk will be 2), the prices for fresh milk-based products will remain almost the same, the retail price for butter will grow inconsiderably, the price of cheese will increase by 20-35 percents. The competitiveness will grow, when Lithuania becomes the member of united EC market, and this will encourage the establishments to increase productivity, to decrease equity of fresh milk products. The consumers should benefit because of bigger assortment as a result of free movement of goods.

Deep analysis of all these circumstances, opinions of different business groups, have demonstrated, that the implementation of the Directive 92/46/EEC with a 5 year period for implementation (including a 3 year transition period after EU membership), will not have negative effect for raw milk producers, milk collectors, business entities of milk manufacture and consumers of milk and milk-based products. The burden would be heavier without the transition period. In this case milk producers and milk manufacturing would experience a great shock and considerable changes in prices, which would have quite serious socio-economic impact, increase socio-psychological tension and a number of Eurosceptics.