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## **LITHUANIA**

### **LITHUANIA DAIRY INDUSTRY RESTRUCTURING AND FREE MARKET**

**USAID CA# DHR-A-00-95-00036-00**

## **FINAL REPORT**

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**Land O'Lakes, Inc  
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**November 17, 1998**

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### **Attachments:**

Attachment A	April 23, 1998, Dairy Policy Conference Papers “Devising Policies to Assure Lithuanian Dairy Sector Competitiveness”
Attachment B	“Analysis of Margins in Lithuanian Milk Product Marketing Chain” Report by MAS Consult, Ltd , Lithuania (July 1998)
Attachment C	“U S Assistance to the Lithuanian Dairy Sector,” <i>Business &amp; Expositions</i> (July-August 1998)

**LITHUANIA DAIRY INDUSTRY RESTRUCTURING  
AND FREE MARKET COOPERATIVE PROGRAM**

**USAID COOPERATIVE AGREEMENT DHR-A-00-95-00036-00**

**LAND O'LAKES, INC.**

**FINAL REPORT**

**Project at a Glance**

Dates of project	January 1, 1995 -- August 31, 1998
Total estimated federal funding	\$3,535,230 00
Total spent	\$3,532,627 45
Contact	Rob Nooter Land O'Lakes/McLean, VA phone 1-703-893-1492 e-mail rnoot@landolakes.com

The original goal of the project was to facilitate the Lithuanian government-mandated privatization and commercialization of dairy farms and agribusinesses. The project assisted agricultural enterprises to become profit-seeking, self-managing and self-regulating. Originally, it was to improve the quantity and quality of the milk in the Birzai region. Later, the project was expanded across all of Lithuania. The first phase of the project was successfully completed December 31, 1997. During the last year of the project, a dairy policy reform component was added. The project was granted a no-cost extension, through August 31, 1998, in order to more effectively complete its policy work.

This document includes a report on the last two months of the project, followed by a final report that summarizes the accomplishments of the entire project. The final report is composed of two parts: 1) the milk quality and farm income improvement, and 2) dairy policy development.

## ***Summary of Activities in the Last Quarter (July – August 1998)***

The activities in the last quarter of the project fall into the following categories

- 1 Final activities of the Dairy Policy Working Group,
- 2 Econometric modeling training of economists,
- 3 Public outreach concerning the dairy policy work, and
- 4 Project closeout

### ***I Dairy Policy Working Group***

The working group held its final meeting. Most members of the working group and several special guests including Vice Minister of Agriculture Natalija Kazlauskienė attended this session. During the meeting, the working group

- Received a report analyzing the margins in the Lithuanian dairy marketing chain which was prepared by MAS Consult, a Vilnius-based economic consulting group. Reference Attachment B
- Received an updated report from Dr. Willi Meyers (Iowa State, CARD) which updated the dairy policy modeling work presented at the April dairy policy conference. The revised version evaluated the impacts of changes to dairy policy that were considered and adopted subsequent to the April conference. Reference Attachment A
- The final meeting afforded an opportunity for the working group members to reflect on the accomplishments achieved by the group in helping to shape dairy policy in Lithuania during the year in which the group was created and coordinated by Land O'Lakes. The group discussed the methods of maintaining communication among the various interests following the conclusion of the Land O'Lakes project.

The final dairy policy workshop was a very fitting activity for this select group and a few guests, like the Vice Minister. The case studies and report by MAS consult was an important addition to the analysis done earlier. Though the marketing chain analysis does not represent the whole industry, it is a very good start on understanding the marketing chain. Other studies can build upon this foundation in the future and help to complete the picture as the industry also evolves. The significant outcome of commissioning a report such as this is that key leaders are now more cognizant of the analytical skill that should be tapped and further developed so that policy decisions are grounded in sound analysis.

The price and income support scenarios analyzed for the final seminar (see Dr. Meyers' paper added to the conference proceedings, Attachment A) were selected to cover a narrow range of options. These alternatives reflected the convergence to a final dairy pricing and subsidy program decision that took effect June 1. The differences among alternatives were not as great as with the original set of scenarios done for the workshop. There were, however, significant differences between the lowest-cost and highest-cost options. It was clear that the government could have made transfer payments to the poorest farmers, removed the price subsidies, and

still saved a lot of money. Here is where the focus needs to be and likely will be in the future. There is already a proposal to move the support for household farms to the social budget and remove it from agriculture programs. Therefore, the modeling that was introduced by this project is being used in the analysis of alternative programs. This clearly shows that the impact of the working group has been a positive influence in the determination of dairy policy in Lithuania over the past year.

It will be hard to predict how much or how well the modeling will be used in the future. But the approach has been widely exposed and appreciated. Several people are being trained, and it is expected that analysts in the Ministry of Agriculture and in the research institutes are likely to make further use of this analytical tool. Land O'Lakes has been satisfied with the results of these efforts even though the actual policies now in place are not as radical a departure from previous policies as we would have liked. Nonetheless, steps forward seem to be overtaking steps back, so progress is gradual but continuing.

## *II Econometric modeling training*

In mid-July, the project conducted a three-day training session for economists and analysts on the use of the dairy policy model developed over the past year. The ten participants each received a copy of the model to install on the computers and detailed instructions concerning how to change variables, modify assumptions and conditions, update data and interpret results that can be obtained from the model.

## *III Outreach*

Subsequent to the meeting, final copies of the updated dairy policy conference proceedings held in April 1998 (with the additions to Dr. Meyers' paper) were distributed (Attachment A). The marketing chain report was also widely disseminated among leaders of the Lithuanian agricultural policy arena (Attachment B). Recipients included members of the Parliament Agriculture Committee, the Ministry of Agriculture and other key Ministries including the Ministry of Finance.

During project leader Robert Nooter's final trip to Lithuania, he met with several key members of the Seimas and the government to summarize the accomplishments of the project. These meetings focused on the three main areas in which results were achieved, including the price and subsidy policy work, the milk quality standardization achievements attained by the milk Quality Working Group, as well as the enterprise and institutional support provided by the project in its first phase of operation. There was broad affirmation that the project had successfully and significantly achieved positive results in influencing the outcome of policy issues and enterprise development.

In another outreach effort, Land O'Lakes arranged for the publication of an article that appeared in the July-August edition of the magazine *Business & Expositions*. The article, entitled "U S Assistance to the Lithuanian Dairy Sector," gave an overview of the Land O'Lakes project and how it fit achieved results consistent with USAID's country strategy for Lithuania. See Attachment C.

#### *IV Project Closeout*

Finally, in the area of project closeout, the project staff successfully concluded the logistics of project closeout. This included terminating all leases, contracts and obligations, and distributing remaining non-expendable property to project partners with direct involvement in the dairy sector and to several agricultural credit unions. Recipients of these items included the Dairy Producers Association, the Dairy Processors Association, the Institute for Agrarian Economics and the Ministry of Agriculture's Economic Analysis Department. These entities will use the computers, equipment, office furniture and reference material in providing meaningful assistance to the dairy sector in Lithuania. Finally, all significant files, records and paperwork were shipped to Land O'Lakes in the U S for use and maintenance of a record of the project finances, activities and results.

#### *Final Observations*

Land O'Lakes and USAID should be pleased with the reception that has been given to the policy reform activity within Lithuania. There has been extensive attention devoted to this activity by the Lithuanian government, the Seimas, and industry organizations. The timing was ideal, as the government was struggling with policy choices as the workshop and analyses were being conducted. The Land O'Lakes policy reform initiative was largely responsible for the development within the Ministry of Agriculture of a proposal to sharply cut subsidies. The modeling was employed as the analysis upon which this proposal gained credibility, and the Processors Association was a prime proponent of the concept as a lobbyist for this approach.

This was viewed by some as a revolutionary change in policy, and therefore this proposal was not accepted by the government this year. However, the evolutionary wheels are in motion and, if circumstances remain stable over time, this objective will become more palatable and acceptable. The Land O'Lakes policy program can claim as its significant result that progress was made toward rationalization of policy for the dairy sector in Lithuania, and that this progress is likely to continue as Lithuania desires to become more integrated into the world trading system.

# LITHUANIA DAIRY INDUSTRY RESTRUCTURING AND FREE MARKET COOPERATIVE PROGRAM

USAID COOPERATIVE AGREEMENT DHR-A-00-95-00036-00

LAND O'LAKES, INC

## FINAL REPORT

### *Introduction*

The Land O'Lakes Lithuanian dairy industry restructuring project funded by USAID began in April 1994. The goal of the project was to provide technical assistance to the dairy industry from the point of production to the point of purchase in order to hasten the transition from a command economy to a market economy. Land O'Lakes' strategy has been to take an integrated approach on all aspects of the dairy industry but placing heavy emphasis upon the weakest points in the dairy marketing chain.

Project activity was initially focused on supporting the development of dairy enterprises and farmers. However, the project activities evolved to address the critical issue of the dairy sector. Therefore, additional phases of activity increased the emphasis on institutional development in the standards, enforcement and testing of milk, as well as on providing policy development assistance to the industry and government of Lithuania. The policy component of the project was the predominant focus during the final year of project activity.

Land O'Lakes was very fortunate and grateful to have worked in an environment in Lithuania where the human resources are motivated, well educated, and responsive to technical assistance. The success of the project was dependent not only on the expertise of Land O'Lakes but also on the ability and courage of the Lithuanian partners to face change.

For the purposes of this report, the activities have been broadly categorized in two distinct functional areas of engagement throughout the project's three-and-one-half-year duration: dairy policy reform and enterprise development support. This report is not an extensive summary of activities but can serve as a highlight of some of the successes which contributed to the overall success of the USAID mission in Lithuania.

In the enterprise support functions, Land O'Lakes identified four project components through which to target technical assistance. These were private farmer income enhancement, dairy processor development, association development, and farm *bendrove* restructuring. From the perspective of executing the project, Land O'Lakes focused on two of the most northern districts in Lithuania: Panevezys and Telsiai. Within these two districts approximately 65% of the milk in Lithuania is processed. In addition to achieving sustainability by working directly with the recipients of technical assistance, Land O'Lakes also established strong

relationships with the Lithuanian Agricultural Advisory Service, the Veterinary Services Department, and the Lithuanian Agricultural Chamber and its membership

The policy component of the project was added in late 1996. The approach utilized was one of bringing various private and public sector interests together to increase their understanding of these issues and to work on resolving them. The primary issues addressed were the price and income support mechanisms used to support the dairy sector and the inspection and enforcement of quality requirements. These two questions strike at the heart of sustainability in an economic context as well as profitability and competitiveness in world markets.

## *I Enterprise Support -- Milk Quality and Farm Income Improvement*

### A Mastitis Control/Farm Income Improvement

Raw milk quality has been identified as the weakest link in the dairy food marketing chain. The quality of raw milk dictates the quality of the end product, the shelf life, consumer acceptance, and safety of the product. Land O'Lakes, partnering with the Lithuanian District Veterinary Stations, developed a systems approach to improving milk raw quality. Since milk sold in Lithuania receives a quality classification based largely on somatic cell counts and raw bacteria counts, monitoring the progress of the milk supply and evaluation were readily accessible through milk company records and the records of individual farms. Furthermore, the quality classification is tied to a price premium paid to the farm. Consequently, an increase in quality reflects a higher net earning on the farm.

The effort was labeled the Lithuanian Milk Quality Improvement Program and modeled after the U.S.-developed National Mastitis Council "5 point plan." Four Lithuanian veterinarians were hired and trained by Land O'Lakes veterinarian consultants. In cooperation with the Veterinary Service Department, targeted dairy herds were identified ranging from 6 to 600 cows with a total 3,000 cows on the program. In addition to conducting the field work, the Lithuanian veterinarians were also responsible for training their colleagues in the systems approach to milk quality through their District Veterinary Stations and the Lithuanian Veterinary Association. The outline of the program is designed on the basis of a decision tree.

All herds are tested once per month for a somatic cell count, which is indicative of the presence of mastitis infection, and a bulk tank bacterial analysis which identifies the bacteria species causing mastitis within the herd. As a means of staying within an economic threshold, no action would be taken in the dairy herd if the analysis showed no contagious species of bacteria nor clinical cases of mastitis. If contagious species are found, all cows are sampled and an analysis is conducted to identify infected cows and the bacteria species. Control measures as recommended by U.S. consultants are taken on infected cows harboring contagious species. No subclinical cases are treated. In addition, all cows are routinely

disinfected after milking and at drying off all cows are dry treated with a recommended antibiotic therapy

After 13 months the program was evaluated and the results are dramatic. However, the results are consistent with results one would find in the U.S. The most challenging species to management were effectively eliminated from the herds. *Streptococcus agalactia* was eliminated within five months of the start of the program, and *Staphylococcus aureus* was reduced to manageable levels within eight months.

Land O'Lakes maintained records of six large herds, averaging 380 cows which entered the program. Four remained with the program for the full period: Jotainiu, Upytes, Zirbartoniui, and Draugystes. Two herds, Cedasi and Kalviai, chose to no longer participate but they continued to be monitored. Of the four herds which participated fully, each herd achieved a minimum of 90% of milk sold in the top quality classification. The controls, Eedasi and Kalviai not participating, sold no milk in the top quality classification but achieved some progress from early technical assistance.

The records reveal the impact that the program had on the average participant. On the average, the increase to cash flow to the participating farms was 574.15 litai per cow. This is the equivalent of a net income increase of \$144.26, a figure that would not be unexpected in a Western dairy herd situation.

To amplify the impacts of the program, the four Lithuanian veterinarians have presented the program results to farmers and milk processors. As of December 31, 1997, three milk companies in Rokiskis, Kupiskis, and Pasvalys have contracted with the veterinarians to further expand the program to involve more of the producers. The contract provides that the milk company will purchase the necessary supplies and cover laboratory fees and the farmer will assume financial responsibility for veterinarian services. In addition, the four Land O'Lakes Lithuanian veterinarians are training their colleagues to conduct the milk quality program throughout Lithuania.

#### B. Lithuanian Veterinary Station Laboratories

Quality control in the dairy industry relies heavily upon a well-functioning laboratory system and a high skill level with the laboratory microbiologists. Land O'Lakes provided technical assistance to both commercial laboratories located at milk plants and government laboratories operated by the District Veterinary Stations. The skill levels of the microbiologists are quite high, however, the laboratories are beginning to show the wear of a lack of resources to replace much depreciated equipment. Land O'Lakes developed a program which combined the donation of laboratory equipment and further developing laboratory skills most effective in a market economy.

In the dairy industry many of the quality control tests performed do not require high capital investment and maintenance costs. A laboratory needs to handle a large number of milk samples and provide the necessary tests accurately, timely, and affordable to the market, which in many cases is the farmer. In 1994 the cost to test one milk sample at the National Veterinary Laboratory was the equivalent to \$10 and the time required to perform the sample was 5 days. Land O'Lakes consultants introduced in Lithuania the method of "presumptive testing." Presumptive testing is strictly a bacterial identification and analysis by visual examination, it is within 99% accuracy, but it also provides the protocols for the use of confirmatory tests if the technician is unable to conduct the visual examination or wishes to provide confidence in the reading of the sample.

In 1997 after the Land O'Lakes technical assistance at the National Veterinary Laboratory, the cost to perform a bacterial analysis on a raw milk sample is \$2.65 and the time to perform the test is 48 hours. During the course of 1996, the staff at the National Veterinary Laboratory trained their colleagues at the ten District Veterinary Stations. The presumptive tests are now standard procedure for raw milk samples. As an indication of the present impact and future impact, in Telsiai and Panevezys District Veterinary Laboratories 24,000 raw milk samples were processed in 1996 and 1997. The cost advantage over the previous tests is \$176,400, at a reduction of countless person days. Of course part of the problem in quality control was that farmers and veterinarians could not afford the earlier tests so little or no milk was tested. Currently the District Veterinary Station Laboratories are playing a key long-term role as the farmers and milk companies see the cost effectiveness of the milk quality program. In addition Land O'Lakes has developed within the Veterinary Laboratory system a quality assurance program to assure that all food samples, not only milk, are handled under the same international accepted protocols.

### C Pasture Management

Land O'Lakes identified pasture management as an area of dairy farm management which could be leveraged to improve the returns to the dairy farmer with the subsequent training program for farmers integrated into the Lithuanian Agricultural Advisory Service's (LAAS) extension program. The problem to be addressed was that farmers were not taking full advantage of the opportunity to manage pasture intensively during the six-month grazing season which coincides with the peak in milk yield per cow. The traditional system in Lithuania has been to tether cows, moving them only after daily milking. Land O'Lakes consultants observed an opportunity to increase milk income, reduce labor costs, and reduce feed costs if the concepts of intensive pasture management could be absorbed. To accomplish the integration of the training into the LAAS extension program, 20 sites for farm demonstrations were established jointly with LAAS.

The demonstration farms were selected based upon LAAS recommendations relative to identifying the farmer as a key leader. All farmers were private farmers, as opposed to *bendrove*, and herd size ranged from 6 to 80 cows. Under the guidance of the Land O'Lakes

consultants, each farmer was provided with an electric fencing system that was specifically designed for rotational grazing. The investment per system was equivalent to \$500. Land O'Lakes consultants provided regional training as well as individual consultations during the months of May, July, and September 1996.

The results during the pasture season of 1996 were dramatic. Each farmer witnessed a full return on the investment of \$500 for the fencing system. One farmer saw a return on investment within three weeks, and the average was six weeks. The reason for such a sharp increase in returns was the response in milk production per cow. Yields on milk increased by an average of 15% with a high of 50%. The success of the demonstrations was that the cows without the constraint of tethering had unlimited access to feed and water. The task of tethering and untethering cows twice per day was eliminated, greatly reducing labor. Furthermore, the increase in yields from pasture as a result of improved management, resulted in more grass available for the winter feed supply as stored feed.

In 1997 the demonstration farms and training responsibilities were assumed by LAAS. Field days were conducted at each location during the months of June and August. In 1996 there was only one vendor of fencing system supplies in Lithuania. By the beginning of the pasture season there were two additional vendors, one of which provided a high-quality New Zealand system available at an investment of \$200.

#### D Milk Processor Improvement - Birzai Milk Company

Throughout the duration of the project Land O'Lakes and Birzai Milk Company enjoyed a strong relationship. Birzai was actually a major provider of match contributions to the USAID funded project by providing office space, equipment, and computer technical support. As the leader in the domestic market, the logo of Birzai Milk Company, which was developed with the assistance of Land O'Lakes, has become associated with quality. Consumers have seen value in Birzai products which are often 10-15% more in retail price than competitors. To meet the demand for Birzai milk products, the company processes 500 tons of milk per day. Land O'Lakes technical assistance in improving the quality of raw milk and the handling of raw milk has played a major role in maintaining the quality products consumers expect. At the end of 1995, the first year of Land O'Lakes intervention, raw milk quality improved by 50%, as indicated by the amount of milk which moved from the lowest quality classification of milk purchased from farmers. This figure gave Birzai the highest percentage of milk in the top and first categories of 44% of the total milk processed Lithuania. At the end of 1996, Birzai witnessed another significant increase in raw milk quality to obtain 65% of the total milk processed achieving top or first quality classification. The Land O'Lakes approach to the technical assistance which delivered these results was an intensive producer education program administered through veterinarians and milk company field personnel. It was this grassroots presence which fostered sustainability and institutionalized within the milk company itself.

Land O'Lakes also conducted significant technical assistance to the Birzai Milk Company in the areas of financial management systems and promotion and advertising. By maintaining a focus on the domestic market, Birzai has been able to introduce new products aided by marketing campaigns developed with the assistance of Land O'Lakes. Perhaps the most successful has been the introduction of a new fluid milk line. Like other companies, Birzai had been struggling to find ways to differentiate fluid milk to give their products greater appeal to the consumer for essentially a commodity, fluid milk. With Land O'Lakes, Birzai introduced a new U.S.-manufactured packaging system using blown plastic jugs. The fluid milk is available in four different milk fat contents ranging from 1% to 3.5%. At the time of introduction in September of 1997 fluid milk sales were 3 tons per day. Within four months, sales rose to 51 tons per day. Consumer response to a high-quality fluid milk, packaged attractively, has been so dramatic that the Birzai Milk Company is installing a second plastic jug filling line to bring their daily sales capability above 100 tons per day. In economic terms the Milk Company improved cash flow by more than 100,000 litai per day.

#### E Milk Producers Association

Land O'Lakes provided considerable support to the Milk Producers Association which has been organized for less than two years. During the time that Land O'Lakes worked with the association, the association has

- Increased membership by three-fold,
- Learned and implemented basic organizational structural planning and budgeting,
- Emerged as an effective voice for the interests of dairy producers

Land O'Lakes provided the Association with management advice regarding the structure and strategic planning for the association. It also helped the association select and carry out programs that served the needs of their members including seminars and organizational meetings attended by more than 1,500 participants. The Association staff attended a Land O'Lakes-organized association training program held in Romania in October 1997. Using techniques presented at this seminar and in consultation with Land O'Lakes' long-term in-country staff and short-term consultants, the association has written an annual workplan, prioritized its areas of activity for the next year, and has set targets for membership expansion. These were all unknown to the staff and leadership of the organization at the beginning of this collaboration.

The president of the Association participated in the Lithuania Dairy Policy Working Group including the U.S. economic training on dairy policy. These activities have enabled her to elevate her profile as a leader of producer interests on dairy issues. The Association has taken the lead in organizing a multi-interest dairy committee consisting of producers, processors, academics and representatives of various government institutions. This group plans to continue to meet monthly.

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## F Dairy Processors Association

The Dairy Processors benefited from the technical assistance provided by the project through the duration of the project by receiving a variety of interventions. The Association participated in several U.S. and third-country training programs concerning milk quality enforcement and regulation, association development and dairy pricing policy. The support provided to the Association has empowered its leadership to emerge as a powerful and effective advocate for the dairy processors.

The Association served as co-coordinator of the Milk Quality Working Group and played a leading role in the Dairy Policy Working Group. The Association continues to be an effective advocate for the interests of dairy processors and has benefited from Land O'Lakes support in the form of office tools to conduct their business. They now are better able to compile and report statistics for the industry as well as communicate with their members effectively and conduct regular operations.

## G Agrivita

Danute Davidoniene is the director of Agrivita, a broker and wholesaler of agricultural products. The principal products handled by Agrivita are the dairy products of Birzai Milk Company for which Agrivita covers the largest population centers of Vilnius and Kaunas. The company began in 1994 as a brokerage firm with a staff of six sales personnel. Essentially the sales personnel were responsible for taking orders only, their roles as sales representatives for Birzai Milk Company had not been developed.

Land O'Lakes consultants began what was to become a three-year relationship of technical assistance and training to Agrivita in 1995, as well as other brokers of dairy products. The initial technical assistance was to develop the role of the sales representatives through improving sales technique, product order placement systems, and customer support. Prior to this initial intervention the sales personnel, or brokers, were reactive in that they took orders from retailers. The Land O'Lakes technical assistance provided Agrivita with the opportunity to increase contact with retailers and increase product placement and a subsequent increase in sales. By the end of 1995 Agrivita's sales of Birzai dairy products in the Vilnius market increased by 15%.

Since Agrivita operated on a commission basis, there was tremendous interest to continue to pursue training in developing sales and customer support. The result was a Land O'Lakes program for point-of-purchase promotion, consumer surveys at point of purchase, and a general localized promotion and advertising campaign for which Agrivita received budgetary support from Birzai Milk Company. To further expand the role of Agrivita as a service provider not only to the retailer but also to the Milk Company, Land O'Lakes assisted in developing a strategy for managing past due retail accounts that would be coordinated through the Birzai Milk Company. Under Land O'Lakes guidance, Birzai Milk Company created a

full-time position of an account manager whose role was to monitor accounts, assess a 3% per month past-due interest penalty on account balances beyond 60 days, and take action on persistently delinquent accounts. Agrivita personnel assumed the role of account managers within their market territory and received a percentage-based collection fee. The result was that by the end of 1996 not only did Agrivita see another 10% increase in the sales of Birzai Milk Company, but they also expanded their staff to 15 personnel, and Birzai Milk Company increased dramatically their collections on past-due accounts.

Land O'Lakes introduced Agrivita to the Baltic American Enterprise Fund for the purpose of working with Agrivita to develop a wholesale and distribution system that can extend beyond Birzai Milk Company dairy products into other food products. The logistical challenge facing Agrivita is to acquire and manage a food grade warehouse and delivery fleet. The independent intermediary agent in the food marketing chain has been slow to develop in Lithuania, as in the past the processor has assumed this responsibility. However, with Agrivita serving as a model, intermediary agents are developing and expanding, thus creating increased employment.

#### H. Jurate Siugzdaite/National Veterinary Academy

The Lithuanian dairy industry requires an institution, whether private or public, to be accessible for highly specialized technical support, particularly in determining unusual or out-of-the-ordinary pathogenic contamination in milk. Normally this task is associated with a research function. Land O'Lakes provided technical support to the Lithuanian Veterinary Academy to increase the level of industry support coming from the public sector in the form of developing a milk quality research laboratory for teaching and industry technical support. The faculty member designated to manage the laboratory was Dr. Jurate Siugzdaite, a promising dairy researcher with a specialty in mycoplasma.

Mycoplasma is of particular interest to the dairy industry throughout the world because of the extensive damage the bacteria can impact. It is a bacterium that infects the udder tissue of the cow, it is highly contagious and there is no known cure. Furthermore, it requires special laboratory techniques for isolation and identification. Work conducted in Lithuania in 1988 indicated that the incidence of mycoplasma infections was 21.7% of the cow population. Land O'Lakes responded with an intensive level of technical assistance to bring the milk quality laboratory at the Lithuanian Veterinary Academy to a level capable of addressing industry wide issues such as mycoplasma.

Land O'Lakes' consultants conducted a needs assessment for the milk quality laboratory to function as support to the dairy industry and as a teaching facility. In addition to the acquisition of equipment, Dr. Siugzdaite was trained in least-cost, highly reliable methods for isolating and identifying mycoplasma bacteria in the milk supply. Prior to the training which was conducted with a cost match arrangement at the University of Vermont and Iowa State University, Dr. Siugzdaite used a method which required sampling individual cows and a

laboratory procedure which required a chemical analysis at a cost of the equivalent of \$12 per sample. After the training Dr. Siugzdaite adopted the recommended method which allowed her to focus the laboratory method as an industry support approach by using bulk milk representing a cow population rather than individuals. Furthermore the laboratory procedural cost was reduced to less than \$3 on a cow population of 1,200 cows. The acquisition of new laboratory and management skills permitted Dr. Siugzdaite to survey the dairy industry for mycoplasma in 1997 with early results indicating less than a 1% incidence of mycoplasma infection.

The technical assistance delivered to the Lithuanian Veterinary Academy milk quality laboratory has provided Dr. Siugzdaite with the opportunity to receive international recognition for her work with mycoplasma. Her laboratory staff has been expanded to three full-time technicians and two graduate students working to provide technical support to the Lithuanian dairy industry.

#### I Lithuanian Farm Women's Association

The Lithuanian Farm Women's Association is a non-government supported organization functioning to provide association support to rural women throughout Lithuania. The Association was first founded in 1937, suspended during World War II, outlawed during the Soviet period, and re-chartered after independence in 1991. Although the bylaws provide the Association with the power to conduct a wide variety of functions such as marketing cooperatively and establishing a credit union, the focus of the organization during these years of re-charter has been adult education for rural women. As a reflection of the need for which the Association served, the number of chapters rose from 20 in 1994 to more than 100 in 1997, and membership rose to more than 2,000 women. Expansion continues throughout the country.

Initial Land O'Lakes technical assistance was targeted toward improving the structure of the Association, thereby allowing it to be an organization of a national stature as opposed to a loosely knit federation of local chapters with their own agenda. The method used by Land O'Lakes to initiate the intervention was to identify a common element which chapters and members could support and work through a process of development, leadership/organization, and execution. In essence, the problems Land O'Lakes identified through a series of meetings, supplemented by a national leadership conference, were that the social conditions in rural Lithuania are extreme, brought about by significant and fast-moving change in Lithuanian society. Compounding this is the serious financial hardships faced by the bulk of Lithuanian farm families.

Land O'Lakes targeting developing socially-oriented programs and/or activities that need to be considered on a macro- or country wide scale. This was to be accomplished by training the Association to identify social problems and their ramifications to the rural community. The assistance moved through draft policy statements and a process for the Association to address

the Lithuanian government with their goal to forward the initiatives and work with the government to deal with these rural problems

Impacts have been registered at several levels. Structural changes occurred at the national level whereby the national leadership developed a plan of work process by involving the regional and local chapters to supply input for curriculum development. At the regional and local levels, the division of labor was strengthened by creating more distinct roles between coordinators of activities and the officers of the Association who are administrative. Also an intensive campaign was conducted to train chapter officers in organizational management and leadership skills.

The Association has also developed a program available to all its chapters called "Woman to Woman." It is modeled after a U.S. rural social program to provide support to women who experience the isolation of rural communities and allow them a channel through which to access assistance in dealing with rural social problems, ranging from depression to alcohol abuse in the family. The Lithuanian Farm Women's Association is currently implementing this program.

The Lithuanian Farm Women's Association has developed and presented to the women's caucus in Parliament a policy paper on the condition of women in rural Lithuania. Specifically, the Association is calling for initial support to be provided for expanded educational activities in schools on substance abuse. Secondly, the policy paper calls for increased government assistance to combat substance abuse in rural areas by the establishment of counseling services which are accessible by the rural population.

## *II Policy Developments and Accomplishments*

### A Price and Subsidy Policy

The indicators identified in the policy workplan submitted in August 1997 were the following:

- Promoting optimization of milk pricing,
- Building consensus,
- Improving the information available to policymakers and the public concerning the projected outcomes under alternative policy options,
- Building economic analytical capacity, and,
- Providing specific assistance to the advancement of policy change in the dairy sector compatible with the objectives of programs of the World Bank, IMF and other donor agencies that will remain engaged in development support after the termination of USAID involvement in Lithuania.

Each of these indicators has been met, indicating the success of the project in assisting the Lithuanians in devising policies that are more conducive to market principles and sustainable economic growth. The specific activities undertaken are described below.

#### Working Group on Economic Modeling of Policy Programs.

In late 1997, the primary emphasis of project activity was placed on the price and income support analysis, training and modeling. The activities included assembling a policy working group which identified goals and objectives for the dairy sector and proposed alternative policy programs for analysis in the economic model that was subsequently developed by economists at Iowa State University. The working group was comprised of members from both the public and private sectors, with disparate and often competing interests. One significant accomplishment was the establishment of a cohesive relationship among members. This yielded demonstrable benefits as producers and processors are engaging each other in a more open and productive fashion as result of the collaboration initiated by the Land O'Lakes project.

Part of this exercise was carried out through a very successful U.S. training session in November 1997. The ten members of the working group participated in intensive discussions about the mechanisms used in U.S. dairy policy and also examined the modeling techniques used to evaluate international, U.S. and Lithuanian dairy programs. During the program, the group met with policymakers, economists, regulators, farmers, industry representatives and program administrators.

Most importantly, the group devoted considerable time to reviewing and fine-tuning the Lithuania Dairy Policy Model. They reviewed the data input, projected results of the baseline and recommended modifications so that the model improved the accuracy of results. In addition, the group considered alternative policy programs for evaluating in the model. These alternatives were further analyzed and presented to a wider audience in Lithuania in the dairy policy conference held in April. The scenarios developed clearly demonstrated the expected results achieved by applying alternative policy mechanisms. This will be valuable in basing future policy decisions on sound economic analysis.

The main results achieved in coordinating the activities of the working group include

- Improved definition of the desirable policy goals and objectives that should be pursued as alternative policy tools are constructed,
- Increased awareness of U.S. and international dairy policy mechanisms by key Lithuanian policy makers,
- Training of Lithuanian analysts in the development and use of economic models,
- Establishing a more cooperative working relationship between leaders of the dairy producers association and the dairy processors.

The Dairy Policy Conference held in April, and also a more a targeted presentation to interested members of Parliament, was held in advance of the public conference. These activities constituted the primary public promotion of the work of the policy program and dissemination of the economic basis for revamping Lithuanian dairy policy. The seminar was well attended, it generated significant press and served to enlighten a broad cross-section of the relevant public concerning the analysis that supports the need for policy reform. At this time, the Lithuanian government was in the process of revising its dairy program for the summer month season when most of the milk is produced.

The working group's proposal of eliminating subsidies for low quality milk was included in the proposal advanced by the Ministry of Agriculture. This approach was rejected by the cabinet, as it was viewed as imposing too great a loss of income on small farmers with one to three cows, who typically produce lower-quality milk. Subsequent to the decision that took effect on May 1, further analysis and persuasion by key policy stakeholders caused the government to revise its program as of June 1. Throughout the process, the modeling that was introduced in Lithuania by this project was used as a basis for shaping the policy determinations.

The impact of this policy effort will endure in Lithuania for the foreseeable future. This results from the fact that the program was established and conducted by educating and empowering Lithuanians to engage each other at a more sophisticated level of interaction. The bringing together of key leaders with competing perspectives was effective because the participants received practical and useful information about how policies throughout the world are formulated predicated in part on sound economic analysis. While differences of opinion and judgment exist, the increased awareness of economic impacts has forced the participants to become more pragmatic in formulating policy alternatives. Clearly the main players at the Ministry of Agriculture, in the Dairy Processor Association, the Dairy Producers Association and in the Parliament have internalized the value of sound economic principles in the formulation of dairy policy. This will remain in force for years to come and will continue to influence policy in a positive fashion for the next several years.

## **B Regulatory Issues**

In effort to bring about a more rational and effective system of evaluating and enforcing higher standards for milk and dairy products, the project worked with a number of institutions to increase the standards and move Lithuania closer to the international accepted norms for dairy production. During the course of this activity, the following events occurred in part due to the efforts of the Land O'Lakes project:

- In April 1998, raw milk standards were increased requiring producers to lower bacteria counts in order to qualify for quality premiums. As advocated by Land O'Lakes, the standard adopted included a second incremental increase in the standards to take place in the year 2000.

- The Lithuanian Veterinary Service adopted an annual system of farm and dairy plant inspection protocols that mirror the types of procedures used in the U S and Western Europe to qualify as a licensed operator The inspection program was based on information on the U S system imparted to project clients in U S training, a milk quality training program in Poland, and through technical assistance provide by a number of U S consultants and project staff
- Nine Lithuanian dairy plants were granted provisional export licenses by the European Union The programs initiated through the Land O'Lakes project were of critical importance in convincing the inspectors that adequate quality assurance measures were in place

The mechanisms upon which these advancements were based included the following intervention techniques

- 1 Training and technical assistance provided to producers, processors and inspection service personnel
- 2 Education and advice provided to key government officials and agencies responsible for determining the regulatory structure and institutional functions for overseeing quality control in the dairy sector
- 3 Pricing of milk to encourage quality improvement
- 4 Training on HACCP (Hazard Analysis, Critical Control Point) plant inspection systems and a regulatory structure to support it
- 5 Promotion of graduated steps in adopting higher standards

The ad hoc Milk Quality Working Group was organized by the Land O'Lakes project staff and the Dairy Processors Association The group was comprised of representatives of the public sector milk regulatory agencies and private sector producer and processor interests Also included was the Lithuanian Food Institute, which is responsible for preparing regulatory proposals for consideration by the government

The working group engaged in regular meetings to develop consensus on major issues concerning necessary steps to achieve the desired level of quality standards The group proposed the means of achieving them through voluntary practices used in the industry and through changes in regulation

The material developed by the working group has been and will continue to be distributed to a wide variety of interested parties concerning milk and dairy product quality Special emphasis was placed on informing the appropriate entities in the Ministry of Agriculture and Forestry concerning the results of the working groups deliberations The output of the group was distributed to farmers, processors and the media for increasing awareness of this multi-party group devoted to improving milk quality in Lithuania

Members of the group participated in a six-day training and fact-finding trip to Poland in which they met with representatives of the Polish regulatory agencies, visited plants and milk collection stations, evaluated the laboratory support for milk quality, and evaluated the advancements attained by the private sector in encouraging milk quality

The group agreed to a document reporting on its activities and encouraging certain changes in the regulatory structure. This document was distributed to officials in government including President Brazauskas, Prime Minister Vagnorius, Parliament Leader Landsbergis, the Minister of Agriculture and other members of the government

#### Additional activities of the Quality Working Group included

- A subgroup of the Milk Quality Working Group developed a poster entitled Milk Correctly. The poster describes and illustrates the nine key steps to proper sanitation and milking practices that minimize milk quality problems on the farm. Ten thousand (10,000) copies were printed and are in distribution to milk collection stations, individual farmers, veterinarians and other sources of information for farmers. The posters were distributed by the Milk Processors' Association, the Milk Producers Association and the State Veterinary Service
- Another placard providing farmers with information on mastitis was produced and distributed in late 1997
- The Working Group sponsored a training seminar which was organized and held by Land O'Lakes on Hazard Analysis, Critical Control Points (HACCP). This four-day program for milk company managers and employees as well as personnel of the main inspection agencies (the State Veterinary Service, the Ministry of Health, and State Quality Inspection Service) proved very important to the adoption of state of the art inspection procedures in Lithuanian dairy plants. The Health Code will require plants exporting dairy products to apply a HACCP plan by 1999
- The Working Group engaged in a heated debate in consideration of changes to the raw milk standards which took effect April 1, 1998. While there was not consensus on certain provision for the standards, the group was a strong proponent of increasing standards and the members of the group helped to shape the form of the standard that was eventually adopted

The State Veterinary Service developed new inspection reports to be used when conducting annual licensing of farms eligible to deliver milk for sale. More importantly, they are now requiring state and private veterinarians to conduct such inspections for all farms. Previously, some inspections were conducted, but the only enforced requirement for the annual license was approval of the herd based on contagious diseases, not the adequacy of the facility or methods used for milking and storing milk. This is an enormous step along the path to an effective regulatory system. In fact, the EU inspectors granting the conditional export permits cited this as one of the positive factors in granting the permits. Maintaining the export certification will

be contingent on demonstrating effective control over the inspection system by the regulators, but the new inspection procedures were critical to receiving the conditional approval

The reports provide a detailed record of the inspection of buildings, premises, equipment, methods used and all aspects of the sanitation and good hygiene. The report also lists the deficiencies requiring corrective action. The farmer must sign the form which will be filed by the Veterinary Service

Land O'Lakes has been recommending such procedures for some time. During a technical assistance assignment in May, consultant Bill Coleman prepared and presented a model inspection report to officials of the Veterinary Service

### *Summary of Policy Activity Results*

Clearly Land O'Lakes contributed shaping improved policies for the dairy sector in Lithuania. The work on economic modeling has moved the country's price and income support program in a more sustainable and economically rational basis. More work needs to be done in this regard, but the project has not only advocated a set of changes to policy, but has also created the institutional and human capacity to continue to pursue this objective in the absence of a technical assistance project. This initiative provided necessary tools to Lithuanians who now must be diligent in applying those tools in pursuit of a more appropriate set of policy instruments for the dairy sector.

This project has also made significant strides in preparing Lithuania for employing quality assurance measures that will be required for the country to play a major role as an exporter of dairy products. This includes activities geared to farmers, processors and regulatory agencies. In these areas as well, the project has provided the training, technical assistance, advice and support necessary to prepare the main institutions to put systems in place that will allow Lithuania to realize its potential as a world class producer of dairy products.

These accomplishments in shaping Lithuania's present and future dairy policy are far-reaching. The obstacles to achieving them were significant, as there is pain involved in upgrading systems that are fundamental to the way the industry operates. Therefore, Land O'Lakes and USAID should be pleased with having achieved this level of impact within a limited timeframe and with limited resources. The benefits to Lithuania's dairy sector are deep and lasting. The results will significantly contribute to greater economic prosperity for the dairy industry sector, which is the leading segment of the Lithuanian agricultural system.

**ATTACHMENT A**

**April 23, 1998, Dairy Policy Conference Papers**

# **Devising Policies to Assure Lithuanian Dairy Sector Competitiveness**

A Dairy Policy Workshop  
Vilnius, Lithuania  
April 23, 1998

Seminar Organized and Financed by Land O'Lakes, Inc  
Through the activity under the Lithuania Dairy Industry Restructuring and Free Market Cooperative  
Program funded by the U S Agency for International Development

**Agenda for Seminar  
On Lithuania Dairy Policy  
Hosted by Land O'Lakes**

**Devising Policies to Assure Lithuanian Dairy Sector Competitiveness**

- Date April 23, 1998  
Location Naujasis Vilnius Hotel, Vilnius, Lithuania
- 9 30 Registration and Coffee  
10 00 I Opening Comments
- Robert Nooter, Land O'Lakes  
Vytautas Grusauskas, Vice Minister of Agriculture  
Aldas Kriauciunas, USAID
- 10 25 II Review of Programs and Policies Used in Other Countries
- Poland Benjamin Gawlik, Polish Ministry of Agriculture  
European Union Alvydas Ramanauskas, Dairy Processors' Association  
USA Robert Nooter, Land O'Lakes
- 11 25 Break
- 11 45 III Panel Discussion on Dairy Sector Development Alternatives
- Onute Baltrusaitiene, Dairy Producers Association  
Alvydas Ramanauskas, President of Dairy Processors Association  
Moderated by Hans Berglund, Team Leader, Private Agricultural  
Development Project
- 1 15 Lunch
- 2 15 IV Modeling of Lithuania's Dairy Sector and Policy Alternatives
- Introduction to the Modeling Project and World Market Situation, Robert  
Nooter, Land O'Lakes, Inc  
Economic Modeling in US Agricultural Policy Formulation, Dr Willi Meyers,  
Iowa State University  
Description of the Assumptions and Baseline Projections, Dr Meyers with  
comments from Working Group
- 3 30 Break
- 3 50 IV Continue Modeling Section Alternative Scenarios and Results,  
Dr Meyers

Comments from Members of the Policy Working Group, Vygantas  
Katkevicius, Antanas Trumpa, Alvydas Ramanauskas, Onute  
Baltrusaitiene, Neringa Naujokaite

5 05	V	Open Discussion
5 45	VI	Concluding Remarks
6 00		Adjourn
6 00 -8 30		Reception

**Robert Nooter**  
Land O'Lakes  
Opening Comments

I am pleased to see such a large turnout for our session today. My name is Robert Nooter and I am the country manager for Land O'Lakes project in Lithuania operating under funding from USAID. I want to welcome you here this morning and I think it will be a very interesting day and look forward to a lively discussion and more comments as well as both the formal and informal sessions concluding with our reception this evening which many times is where all the answers are actually arrived at.

I would like to start with a brief description of Land O'Lakes project because while we have worked with many of you here today some of you may not be familiar with the range of activities that we have perceived in Lithuania since 1995 when we began.

First I would say that Land O'Lakes is a farmers' cooperative in the US. We have approximately 450,000 members and as a cooperative we had gross revenues last year of almost 4 billion dollars, so it is a large company and approximately half of that business is in the dairy foods. Land O'Lakes started as a dairy cooperative and our primary business for many years was butter. Still 90% of the American public recognize the Land O'Lakes name with high quality butter which still commands a premium price in the US market.

The project that we have operated in Lithuania has been to provide technical assistance to the dairy industry from the point of production to the point of purchase in order to hasten the transition from a command economy to a market economy. We have utilized an integrated approach addressing all aspects of the dairy industry. To our initial work which was enterprise oriented in the first 2 years of the project working with farmers and milk companies we added a policy component which is the main focus of what we will be discussing here today. However in the enterprise level we have 4 components which were identified in areas we will target our technical assistance. They were for private farmer income enhancement, dairy processor development, association development and work on bendrove restructuring. I would say it would not have been possible to meet our goals and objectives set by Land O'Lakes and by USAID without strong and sustainable relationships with our Lithuanian partners on dairy farms, with milk companies, in the ministry of agriculture and in other agencies that regulate milk quality, and also with the Lithuanian Agricultural Chamber and the Milk Producers Association as well as the Processors Association. In this policy component of the project we have tried to bring the various private and public interest together to work on the issues attendant to restructuring of Lithuania's dairy sector. In executing this work we have sought to improve the understanding of the many aspects of policy and assist Lithuanians to devise solutions to the challenges that are facing Lithuania dairy sector today. Our main focus has been in 2 areas and that has been in the price and income support mechanisms and the quality improvement and quality standards for milk and dairy products. Land O'Lakes has been very fortunate and grateful to have worked in an environment in Lithuania where the human resources are motivated, well educated and responsive to the assistance that this project has been able to provide. My previous experience in working in the former Soviet Union includes several years in Russia and travel to other countries and I think one of the best assets that Lithuania

has is a mentality which is forward looking and people are prepared to enter into the world market and I think this is a great advantage over most of the other former Soviet Union countries

**Vytautas Grušauskas**  
Lithuanian Ministry of Agriculture  
Vice minister

It is pleasant to say hello to everyone of you and especially to our friends and partners from the US who are interested in our dairy sector, analyze it, try to solve our problems. This interest started three years ago. We are proud to have the attention of such well known company as Land O'Lakes, it gives us hope that the day will come when our products get back to Europe and will find their place there. Milk and dairy is the most actual issue today and the fact that Land O'Lakes concentrates on dairy quality and other important questions shows how well they know our situation and understand our problems.

As nowhere else in dairy sector the market and social interests are interrelated together, this is a huge problem for the majority of rural population. What could be done? Today's conference, with the experience shared by other countries, might help us to find ways to solve this issue. I wish you luck and I hope to continue working together. Many thanks to Land O'Lakes from the rural population of Lithuania. Good luck to all of you.

**Aldas Kriauciunas**  
USAID  
Program manager

Dear vice minister and other guests

It is very pleasant for me to be here today with you representing the US International Development Agency - USAID. USAID has been working in Lithuania since 1992 and is the part of the US government which provides technical and economical support to 70 countries, Lithuania included. USAID in Lithuania is currently operating more than 20 separate projects, one of which is Land O'Lakes agricultural support project. Though in the last decade contribution of agriculture into GDP of Lithuania has decreased, we need to do our best to make agricultural sector better and more efficient. The six months' work of the milk price working group and its collaboration with Land O'Lakes is one way to achieve that.

During last two years USAID constantly broadens its assistance in the field of policy. If at the beginning the major work has been with individual enterprises, now we see that assistance in policy level can help Lithuania to carry out the reforms, which are selected as priorities. We are actively working with Lithuanian colleagues in the spheres of energy, finance and fiscal policy. We feel that the activities of milk policy working group is the continuation of this strategy. Working in the field of milk price policy we are trying to strengthen whole dairy sector. The working group had a very difficult task. Through the usage of analytical methods the group prepared recommendations for milk pricing policy. It was a huge job because as we know dairy is both economical and social issue, which needs to be solved in the nearest future. The methods used by the working group enable us to objectively evaluate what is currently being done, to decide how Lithuania can effectively use its resources and to create possibilities to find solutions, which would unite free market principles with objectives of the government. I would like to stress two very important moments in the activity of the working group. First, the activity showed that government and private sector representatives can work together efficiently, and second, it showed that we can use international principles and methods preparing recommendations suitable for Lithuania conditions. I think that the process of this analysis you are going to discuss today at this conference will be useful not only in the field of milk prices, but also in other policy and economy decisions, which Lithuania will have to make in the future.

Thank you for attention

## **Beniamin Gawlik**

Foreign Agricultural Markets Monitoring Unit  
Foundation of Assistance Programmes for Agriculture  
Poland



### ***Polish Dairy Sector Developments in Last Years***

Although in 1996 there were about 1,4 million farms in Poland in 1996 with dairy cows, only 900 thousand of them delivered raw milk to dairies and other processors. As you can see from presented table (tab No 1, end of article) there were some dramatic changes on the production level since the beginning of transition from the central controlled to the market economy system. During the period 1989-1997 milk production decreased from almost 16 billion litres to approximately 11.7 billion litres. The relatively low procurement prices in the early 1990s resulted in the slump of milk cow number and milk yield reduction. These two things were the main factors influencing a level of milk production. A reduction in herd was observed mostly in the public sector as in many other countries in our region.

Besides there have been some changes in structures of dairy farms. Whilst a number of cows in smaller farms was generally maintained, the number of commercial farms with 3 or more cows has decreased significantly. The proportion of cows kept in the biggest herds has declined substantially since many state farms went out of business. In June 1996 when the common census was carried out there were about 70% of farms with up to 2 cows, about 25% of farms with 3 to 5 cows and only 1.2% with 10 and more cows. According to Polish experts only farms with more than 10 cows are able to achieve a proper level of mechanisation and profitability of milk production at the viable safe level.

Some changes in the structure of milk production were observed last year. They led to increasing concentration of cattle-breeding. A slight increase of national dairy cows herd and a simultaneous increase in milk yield in 1997 was accompanied by cattle-breeding in modern barns ensuring radical improvement in the quality of raw milk supplied by producers.

But still one of the characteristic features of Polish milk production is seasonality. It reflects in raw milk deliveries to dairies. A average relative seasonality of deliveries is rather large and can be described as relationship between 1 and 1.69, influencing level of processing. These factors lead to unstable farmers incomes as well as irregular utilisation of production capacities of dairy enterprises.

Milk procurement decreased by 46% in the period of 1989 and 1995. It has increased slightly since 1996. At the beginning of 1990s it was estimated that about 90% of milk was collected in cans from farmers by milk carters. Then milk was collected by a processor from collection points of which over 9 thousand existed in 1989. This system dated from the 1950s was both costly and hard to control and maintain milk quality. In 1995 about 35% of all delivered milk was procured directly. A number of collection points decreased by approximately 40%. Only 16% of dairy plants collected milk in a traditional way.

As it has been mentioned before relatively low procurement prices in the beginning of 1990s were one of the most important factors causing a decline in milk production. But in the end of 1995 the price went up and the production started to increase. On the other hand many processors started to pay premiums for quality which led to improvement of raw milk quality.

One of the results of introduction of free market economy in 1989 was a gradual elimination of subsidies to all foodstuffs. In the end of 1980s the subsidies to dairy products accounted for 42-47% of total subsidies to foodstuffs. The importance of subsidies paid to milk and dairy products could be illustrated by the fact that in 1988 they were equal to a sum of consumer expenditures for this type of food and eggs. So, in 1995 consumption of milk and other dairy products (except butter) reached 195 kg of milk expressed in milk equivalent per person. It was about 28% lower than in 1989. Butter consumption fell by 60% to 3.7 kg per capita a year. General reduction of consumption was accompanied by changing consumption pattern. It reflected in a switch from relatively cheap products as liquid milk, condensed milk or curds to more expensive and more added value products as hard and processed cheese, milk beverages or desserts.

The dairy sector has adjusted its production volume to the structure of domestic and export demand. Since 1992 the production of beverages, cheese and cream has been steadily increasing. A growth in hard and cottage cheese production was accompanied by higher export of these products.

A number of enterprises in dairy processing sector increased slightly in the first two years of economic transformation. Then a slow process concentration started. According to the Polish Central Statistical Office there were 92 firms less in dairy sector in 1995 than three years earlier. In the end of 1996 there were 340 enterprises in the sector including 284 dairy co-operatives and 56 private firms with Polish and foreign capital.

### ***Government Support to Restructuring of Sector***

It was in October 1994 when the Programme of Restructure and Modernisation of Dairy Sector started. This Programme was prepared and implemented by the Ministry of Agriculture and Food Economy and National Alliance of Dairy Co-operatives. It is the most important factor stimulating dairy technology and product development, raw milk production quality changes. It also enhances closer links between processors and milk producers.

Practically, the Programme has been realised by system of subsidised preferential credits for two groups of beneficiaries: individual farms and dairy co-operatives. In 1997 interest rate for this preferential credits was set at 6 to 8%. That year interest rate for regular investment loans were around at the level of 30%. The difference is covered by the state Agency for Restructuring and Modernisation of Agriculture. All loans are provided by commercial banks co-operating with Agency. Since the start in October 1994 to the end of 1997 almost 654 million PLN were granted for different projects under this Programme.

The Programme sets out comprehensive objectives in the terms of dairy farming and processing projects as well as projects to rationalise energy use and protect the environment. Since January 1, 1995 the programme has been implemented within voivodeship (administrative provinces) structures, on the basis of voivodeship-specific dairy sector restructuring and modernisation programmes. These regional programmes are designed with

taking in account regional characteristics, natural environment, local situation in terms of dairy production and technical standards of the existing dairy processing facilities

Investments carried out by dairy processors the under terms of programme involve modernisation of production lines and processing technologies, provisions of better and more attractive packaging, increasing the product range and improving overall quality Dairy processing enterprises are also restructuring their milk supply base This process is practically advanced in firms with good financial standing Such firms offer credit to support purchase of high-yield livestock, milking machines and milk coolers They also reorganise milk deliveries, by use of tank cars picking up milk directly from farms

Considering milk production the Programme gives financial assistance in the following areas

- concentration of milk production,
- large-scale purchase of dairy cows and dairy heifers,
- enlarging and modernisation of herd housing system,
- purchase of milking machines and coolers,
- purchase of equipment and facilities for harvesting and conservation feed for cattle

The farm has to comply with a few criteria to obtain preferential credit These criteria are connected with a size of dairy cow herd, minimum quantity of raw milk produced on farm and sold ell to the processor They are assign in the regional and vojvodeship programmes But the general condition is that there could not be less cows than five and a farm should deliver at least 18 thousand litres of raw milk a year after modernisation

### *Intervention System*

There are no measures directly influencing a size of milk production in Poland such as quota system or special support programmes to decrease the costs of production Polish government established a system of intervention purchases to assure stabilisation of raw milk prices and incomes for dairy farmers

All intervention activity is realised by the AMA (Agricultural Market Agency), which was established in 1990 In the same year Polish government implemented a system of intervention butter purchases An intervention price for butter was fixed by the Agency at the level of international prices plus 10% of surcharge (40% after August 1991) This surcharge reflected a level of import tariffs The Agency bought butter in the summer season and it sold it in the winter season at 15-20% higher prices In case of skimmed milk powder (SMP) the Agency had enhance dairies to a storage and to a exportation by granting special credits These credits had covered a half of production value expressed in the intervention price which was less than an average international price

In 1992 the intervention system was changed The government decided to implement a system of minimum prices for raw milk This system is still operating But there were two minimum price for the winter and summer season till 1994 Since then it has been only one price for the whole year beginning in May and ending in April The intervention prices for butter and skimmed milk powder are based on the minimum price of raw milk Both minimum and intervention prices are included in a yearly programme of intervention

accepted by the Council of Ministers. The Agency fixes intervention prices as a proportion of the minimum prices. It settles a validity period for the intervention prices and a quality and quantity requirements for the purchased products as well. The Agency buys butter and SMP only from these dairies which pay at least minimum price for milk delivered by farmers.

The intervention purchases start when average market prices fall below the 90% level of intervention price during two subsequent weeks. The Agency carries on the purchases in the following periods:

- from May 1 to October 30 for butter,
- and from June 1 to September 30 for skimmed milk powder

Firstly butter is bought to cover and renew state reserves. Then the intervention starts if there is a need of such purchases. Butter is being bought only in 25 kg blocks. It has to comply with the appropriate Polish standards and it has to be suitable for a long term cold storage.

Skimmed milk powder is being bought only from the processors who produced it in their own technological lines. SMP has to comply with the appropriate Polish standards as well as export requirements. The minimum quantity that can be delivered by single producer is fixed at the level of 50 tonnes of SMP.

All intervention activities are being realised by the Agency through commercial enterprises. These enterprises are chosen by a tender process and they should comply with specific technical, finance and organisation requirements. If there is a need for immediate intervention on the market the tender process could be omitted.

Intervention selling price is fixed by the Agency on the level which is appropriate to stabilise the market. It could not be higher than market price. An intervention sale starts, when average market price rise above the 10% level of the intervention price during two subsequent weeks. The sale is realised by tender process. In case of dairy products butter is sold on the domestic market in the period then supply is smaller. Intervention skimmed milk powder stocks are assigned to export. The sale of these stocks is carried out by the tender procedure as well.

There is no budget revenue as a result of intervention sales. All obtained funds are assigned for further intervention activities.

### ***Support of Genetic Improvements of Cattle Herds***

There is a fixed amount of funds each year for genetic improvement of cattle herds. These subsidies are assigned to support:

- technological extension,
- scientific research leading to the intensification of production process,
- covering costs of evaluation of the breeding and production potential,
- production of semen, import of genetic material (semen, embryos),
- artificial insemination services

This kind of subsidy could be obtained by anybody who owns pedigree stock and Central Animal Breeding Station for maintaining of evaluation of the breeding potential and production (milk yields) potential and artificial insemination services. There is condition also

to take part in national programme breeding programme of special cattle breed Owners of pedigree stock also have to take part in national breeding programme of special cattle breeds

Table 1

<b>Selected data on milk production in Poland, years 1989, 1996 and 1997</b>			
	<b>1989</b>	<b>1996</b>	<b>1997</b>
<b>Total milk production (mln liters)</b>	15 955	11 370	11 650
<b>Total milk procurement (mln litres)</b>	11 385	6 396	6 936
<b>Share of milk procurement in total production</b>	71%	56%	60%
<b>Total cow number (th cows)</b>	4 933	3 442	3 496
<b>Average milk yield (litres per year)</b>	3 260	3 264	3 325

		<b>Years</b>
<b>The lowest milk production (mln litres)</b>	<b>11 303</b>	<b>1995</b>
<b>The lowest milk procurement (mln litres)</b>	<b>6 139</b>	<b>1995</b>
<b>The lowest share of milk procurement in total production</b>	<b>54%</b>	<b>1992- 1995</b>
<b>The lowest total cow number (th cows)</b>	<b>3 470</b>	<b>1996</b>
<b>The lowest average yield (litres per year)</b>	<b>3 015</b>	<b>1992</b>

# **Fundamentals of US Dairy Policy Mechanisms**

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paper presented at the Seminar on Lithuania Dairy Policy  
Vilnius, Lithuania  
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**US Dairy Policy Fundamentals**  
**Presented at Dairy Policy Seminar**  
**April 23, 1998**  
**Robert I Nooter, Country Director and Policy Advisor**  
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**Introduction**

- US dairy policy is very complex. In a brief presentation I can only highlight the basic fundamentals, but not the details of the policy mechanisms. However, it is also better to avoid becoming entangled in the details as it would not serve the purpose of demonstrating what may be applicable to Lithuania.
- The concepts underlying the US policy might be applicable to Lithuania, but the mechanisms are not models that I would recommend replicating in constructing Lithuanian policy. Why?
  - 1 US support programs have developed over time and in some cases represent the political inability to effect changes that are needed to conform to economic realities. These programs are in need of revision and this process is currently underway. The two main mechanisms used (intervention purchases and federal marketing orders which regulate prices) are in the process of major overhaul. It would be better for Lithuania to avoid the mistakes that we have made.
  - 2 The US is a protected market of more than 250 million consumers. The trade protection is a matter of history, not necessarily a matter of appropriateness. Gradual steps toward opening this market is occurring, and more will take place in the coming years. As a relatively small country with a comparative advantage in dairy production and the capability for large volumes of exports, Lithuania needs to look for ways to be competitive in world markets, not to build trade barriers. Otherwise, half of the current production capacity will have to be shut down. This would be damaging to farmers, processors and the economy as a whole.
  - 3 One of the primary challenges facing Lithuania today is achieving a higher level of quality at the farm and in the processing of dairy products. This is a process that the US has been fortunate to achieve gradually, not abruptly. Today 95 percent of the milk delivered in the US meets our Grade A standards and can be used for processing as fluid milk or for making any other dairy product. Only 5 percent is Grade B which can only be used for manufacturing of butter, powder or cheese. Lithuania must place significant emphasis on upgrading quality to meet standards comparable to those used in the US or Europe (US Grade A limits: No more than 100,000 bacteria count per ml, no more than 750,000 somatic cell count, temperature below 7 C within two hours of milking. However, individual companies in the US routinely require stricter standards on the payment for milk without a deduction.)
- In addition to outlining the basic mechanisms used to support dairy production in the US I will try to summarize the forces that have influenced our dairy policy and agricultural

policy in general over the past fifteen years. In these general trends, there is a similarity with the situation facing Lithuania today.

### **Intervention Purchases**

- The US uses a system of intervention purchases. The US Department of Agriculture (through CCC) buys all manufactured products offered for sale at an announced support price. This supports the price of milk by supporting prices of butter, powder and cheese.
- When prices have been set at levels above market values, considerable production was bought by government from processors. In early to mid 1980's, the government purchased as much as \$2.5 billion in one year. Prices offered for these products has come down dramatically through changes in policy, and in recent years, government has purchased almost no product.
- The philosophy underlying the US purchase program has changed. In the early 1980's the price support program tried to prop up prices at levels higher than the market would provide. This could be accomplished through above market domestic support prices because of the US' import protection regime, but it was costly to the government and to consumers. The prevailing philosophy has shifted to one in which intervention purchases act as a safety net under prices not as a price setting mechanism. Since 1990, with intervention prices set below prevailing market prices, the program protects against dramatic price declines due to unusual circumstances but actual government purchases are relatively small.
- The use of intervention purchases is being phased out of existence. Farm legislation requires continued decreases in support prices through the end of 1999. Starting in the year 2000, the program will change by eliminating the intervention purchase mechanism and instead allowing processors to take a loan from the government to assist them in managing inventories through temporary storage of dairy commodities.

### **Federal Milk Marketing Orders**

- Marketing orders use a formula to determine minimum prices for Grade A milk, (fluid quality) in the region where the order operates. There are currently 33 federal milk marketing orders in the US. The price setting formulas are complicated, and include differentials based on the end use of the milk purchased, regional pricing differentials and other factors. However, the underlying concept is that if a producer's milk meets grade A quality standards, the price will be supported by the marketing order whether the milk is used for fluid purposes or for manufacturing products. In part, this has contributed to the increased proportion of milk meeting our highest grade from 58 % in 1945 to 95 % in 1995.
- Regional pricing. One of the most controversial aspects of marketing orders is that they establish regional pricing structures, and protect producers in local markets from milk

moving from other parts of the country. This has caused tension between dairy producers in some regions who might be able to compete for greater market share in other regions.

- **Pricing differentials** The marketing orders establish pricing differentials for fluid milk over manufacturing milk.
- **Pooling of payments** Processors pay into a producer settlement fund based on the purposes for which they used the milk (i.e., if they produce mostly fluid milk products, they pay a higher price into the fund. If they use Grade A milk for manufacturing purposes, they pay a lower price into the pool). The settlement fund then redistributes payments so that farmers are paid a "blend price" for their milk.
- **Blend prices** Farmers delivering Grade A milk receive payment based on the end use of all the milk produced in the order, not the purpose for which the plant he delivered milk to used the milk. (Example: a farmer delivers milk to a plant that manufactures butter and powder. Because of equalization from the settlement pool, the farmer's base payment will be computed using the weighted average of milk used in the entire order for fluid purposes, compared to milk used for manufacturing. The processor will add over the base price premiums for desirable quality characteristics such as low bacteria, high protein or high butterfat.) Therefore, a producer will not be penalized for selling milk to a plant that manufactures hard products instead of fluid milk.
- This program has been very controversial as it has been criticized by farmers and consumers alike. Some farmers believe that the regional pricing mechanisms have favored producers in some regions to the detriment of producers elsewhere. Marketing orders require considerable government intervention and are criticized for preventing the market from operating efficiently. Consumers have complained that marketing orders have caused milk prices to be higher than they would be without marketing orders.
- A process of reforming marketing orders is underway, and legal challenges to the marketing order system could cause the courts to rule that the current practices are unlawful. The extent of the impact these changes exert on the support mechanism is unknown and could range anywhere from minimally disrupting to significant restructuring or elimination of the marketing order system.

### **Forces Driving Development of US Ag Policy in Last 15 Years**

There have been three major forces that have combined to shape the structure of US agricultural programs over the past 15 years. The dairy programs have at times been subjected to these forces to a greater or lesser degree than other commodity programs, but nonetheless, these forces have significantly changed the way the US government implements its agricultural policy. They are:

- **Budget reduction in agricultural spending** In the early 1980's agricultural programs began to incur unprecedented levels of cost. Paradoxically, while costs were higher than ever before, the effectiveness of the programs was generally poor. Farm profitability was low, many farmers were unable to repay debts, and government purchased record

volumes of surplus stocks of dairy products, grain and other commodities. The combination of high program costs and ineffectiveness created a strong political desire to fundamentally reform US agricultural policy (To keep this in perspective, however, in 1986, when US government agricultural support programs were at their highest levels, they totaled approximately 1.5% of the total government budget. That percentage is now down to around one half of one percent.)

- **Increased market orientation, reduced government intervention** The dominant forces engaged in the farm program debates since 1985, share the belief that higher levels of government intervention were not only costly, but the programs were ineffective and damaging to US competitiveness in world markets (specifically for export commodities such as wheat, feed grains, oilseeds, cotton, rice, etc.) The interests that joined together in shaping the US farm program legislation in 1985, 1990 and 1995/6 included philosophical opponents to big government, budget cutters, consumers and some, but not all, farmer organizations.
- **Recognition of obligations to promote more open trade and competitiveness (not as true for dairy as other commodities)** The US played a leading role in promoting more open trade and advancing this agenda in the Uruguay Round of the multilateral trade negotiations under the General Agreement on Tariffs and Trade (Now the World Trade Organization- WTO.) This applied to agriculture as well other sectors. In agriculture, the US advocated increased market access, reductions in trade distorting subsidy practices, and reductions in the use of export subsidies. The resulting agreement requires signatory countries to gradually effect changes in these areas in order to meet their commitments to WTO.

The sum total of these influences has been a very dramatic realignment of US agricultural policy from 1985 to today. This realignment is continuing. Not only are the dairy programs in the process of reform, but other commodity programs have been drastically altered and many are scheduled for elimination to take effect in the year 2002.

### **Conclusion**

In conclusion, what are the implications for Lithuania from the American experience? They are

1. The US dairy market is different from Lithuania in that it is 70 times as large, it is protected from major import penetration, and it has not typically been a major dairy exporter. However, it is in a transition and some of these conditions are changing.
2. The two main government policy mechanisms, (i.e. intervention purchases and price regulation in the federal milk marketing orders) have experienced and will continue to experience fundamental restructuring over the next two to five years.
3. Over the past forty years, the US has achieved increases in milk quality that will be expected in Lithuania in the next five years. Lithuania will need a more aggressive set of quality improvement policies than those that have been applied in the US.

4 There are indications that similar forces are at work in shaping Lithuania's dairy policy as has influenced the determination of US agricultural policy They are

- pressure to reduce costs of agricultural programs,
- a desire to reduce government intervention in the marketplace, and,
- a need to amend dairy programs to conform with international trade agreement requirements

Certainly the degree to which these forces manifest themselves and the ultimate effect that they exert on dairy policy will be unique to Lithuania But there may be lessons in the American experience that could be applied as the transition in Lithuania occurs

## Panel discussion on Dairy Policy Alternatives

### Hans Berglund

Finn Consult

Hans is the team leader of the Baltic Agricultural Development project. He is from Finland. Hans is dairy technologist. He has worked in the Baltics for the last 10 years. Has been a resident in the Baltics for the last 5 years and has been involved not only in dairy processing, but also other food industry issues. So Hans will lead our discussion as we look at dairy sector development alternatives.

Ladies and Gentlemen,

Thank you and the hosts for giving me this opportunity to discuss these subjects with you in which I have been working for last 20 years in my life. Today the headline states that we should discuss the alternative so permit me to tell you a story from my previous experience. In 1993 I was working on a dairy project in India, in the most industrialized state Maharashtra, South East of Bombay. It is the richest and most developed state in India. While we were approaching the area where the factory was supposed to be located I picked up several times a word "milk holiday". I did not ask my host anything but again it came. I don't know what you mean by milk holiday, but I'll tell you what my Indian host said. The policy for milk production in this rich state which was headed by the former minister of defence, very strong politician and rich person, had introduced system of subsidies to the farmers paying much of the market price. And firstly it was farms and water but the European and American breeds were introduced and the price was so high that it had doubled, tripled their production, even quadrupled within 5-6 years apart from the famous Indian operational flood. Certainly the farmers who had these cows for 2 to 10 hectare but cows they said there were always also the political patron of the politicians in power in that most important state. And in India it is a very patriarchal state, all the voters working in the farms were voting also for the politician in power. So then after the second day I dared to ask what "milk holiday" is. My host said it is a day when they do not deliver milk to the factory. There was local collection centers taking milk to Bombay. I said but to my information cows are milked 7 days a week. Yes, yes, Indian said very politely. I said why don't you deliver then? His answer was the price is so high, almost the same price as consumers are prepared to pay in Bombay so the leaders of the cooperatives, the leaders of the cooperative movement and all the dairy farmers have introduced such a nice term like "milk holiday". It was a day when the farmers, because of surplus production, did not deliver milk to the factory but they sold it for very cheap price locally. So this is one extreme.

At the other end is New Zealand and Australia, countries where deregulation has been taken very far and that is the other extreme. They have the biggest production in the world. Market is very well organized, there are no price subsidies but a lot of efforts have been put in the supply chain, into developing its national marketing network with representatives all over the globe putting emphasis on the few very strong branches of the products. Dairy policies are made certainly over very long period of time, however I do believe that Lithuania and the Baltic states have to decide their direction very soon. Not to implement everything but to

decide upon the direction are you going to the direction of the Indian state of Maharashtra, where prices at farm gate exceeded those which were received in the market or are you going towards the deregulated way Most marketing in this world starting from WTO negotiations, from the EU there is a strong pressure down on direct price subsidies There is a trend towards increased marketing, branding, pleasing but the consumer really gets and listens more to the market I do not believe that the alternatives here are very strong, we can discuss it also when this is implemented but actually I do not believe that you have much of an option in the direction

Thank you very much

**Onute Baltrušaitienė**  
Lithuanian Dairy Producers Association

After the agricultural reform has started and following the collapse of collective farms and agricultural companies later, main milk producers became owners of 2-3 hectares' of land. Such producer usually has 2-3 cows. Real owners of land who had some economical strength started working with grain and other agricultural commodities, because they were much more profitable: grain, flax, sugar beets. Only those farmers were working in dairy business, who liked this traditional branch of cattlebreeding and did not calculate the profitability of such business. The second group of farmers who did not abandon dairy sector was those who believed in the future, when high quality milk becomes a value and payment for it is reasonable. As it can be seen the current direction is right and we are slowly approaching this. But the price is certainly not adequate to the increased cost of production. Why milk is being produced only on small farms? Because the owner of 2-3 hectares does not have any machinery is not able to grow more profitable commodities. It is easier for such farmers to keep a cow, which is small but often the only source of income. This is not business of course, only social support. The big concern is the integration into European markets with such small farming operations and bad quality of the products we are going to face many problems. It is certainly a very good sign that processing industry is operating profitably, they can find resources for modernization and the bigger part of processing companies do meet European requirements. But producer at the same time is lacking behind, he is not able to supply high quality milk to the processor, so the raw does not meet quality and veterinarian standards. Right now producers are in a very difficult position because of the new milk standard. We do admit it is necessary to have one but the transitional period could have been longer. Furthermore, not all aspects of the new standard application were fully discussed. Why Lithuanian milk producer is so small? Prices for milk fell behind the cost of production and this situation did not encourage to create new or bigger farms. Milk prices did not motivate to increase the quality either. Milk quality was not evaluated objectively, many times it was not segregated by quality, and even if it was, the price difference between grades was too small.

Since in order to produce high quality raw milk you need to have extra income, the cost of producing such milk is quite high. Why so? Everyone knows that productivity of a cow should be 6000-7000 kg of milk per year, not like it is in Lithuania now - 3500-4000. A farmer cannot change it overnight certainly, it requires many years of work in stock-breeding to reach such high level of productivity. This work needs to be done and it is being done already we see pedigree heifers being imported from foreign countries.

Another problematic issue is the cost of producing milk on farm - currently it is high. In many cases it is higher than the price paid by the processors. Question may arise how do we still survive? From our hard work, from ourselves. Today farmers are not able to invest to build new facilities, to build the future, but they still hope. So it is not strange when in spring and all year round a farmer asks processing enterprises for financial support. In most cases they do get this support. I want to convince you that producers do not require unrealistic prices for their product they sell, they only want to gradually modernize facilities, renew the herd in 2-3 years. But if there is no way for any investment on farm available there is no future for such farmers. We often question in this case where the government is. What is Village support fund for then? Sometimes it looks as if it is some distant ray of light which is very difficult to reach. But certainly the resources available from Village support fund are

not sufficient to liven up the sector of milk production nationally Where are banks then? Unfortunately farmers are not welcome there Banks associate farmers with high risk today It is quite time for the government to consider why agriculture is such a risky business and why dairy is so risky Is it because Lithuanian farmer is so narrow-minded or is it because the government does not create necessary conditions for good and profitable farming If prices for milk do not reach 0.80 Lt in summer season and 1 Lt in winter season we will not see new dairy farms creating in the future which means that the main supplier will again be small 2-3 cow owner

Thank you for attention

**Alvydas Ramanauskas**  
Dairy Processors' Association

I will try to approach this problem from the standpoint of market economy. Especially since our topic on the agenda is the alternatives for the dairy sector development. We can talk about opportunities and directions for our milk sector. Everyone agrees that the most important element in capitalism is consumer. In this respect I want to mention that whatever country we take, its main duty is to supply local population through creating conditions for businesses. For this reason all political measures are employed to supply food to the public. In this respect our country is an exception because today we export about 50% of the production, so this is no longer an issue of provision, which was faced by EU and other countries. The exporting country is different and the laws have to be different too. We have such examples in the world. It is Oceanic countries which dictate the world prices. In our case both the industry and the producers have problems but we also have to admit that our consumers have problems too. We cannot separate one of the elements and analyze it separately, it would be economically illogical. What happens? Political measures are directed towards fixing the milk price. This is not an income guarantee, but just fixed price. So no wonder we have doubts here. We are not the ones who form market prices for different products. We try to enter those markets where product prices are already settled which means that we have to obey market laws prevailing there. If we want to sell the price we will get is the price settled in the market. Milk production in this case appears to be at the very end of the whole chain.

Selling products in the local market we find ourselves in a certain situation: certain living standards, real income, quantity of products which can be sold, prices settled in the market, because we know that they have not been regulated recently. All this leads to the point of production of milk products. Here we have fixed price level for products so processors can only manipulate with cost of processing. Talking about the costs I want to relate them with milk production because it is inevitable. If we take the processing chain almost all elements are fixed: milk price, foreign consumer price, local market price can also be considered as fixed because of decreasing demand for products. In such situation we can operate only within our cost of processing. But as you know there is limit here too. Speaking of the costs people often say that our costs are too high but I would not agree with that. There are companies where cost of processing one ton of milk is even lower than of the similar companies in EU and the US. There certainly are enterprises with much higher costs but we have to admit that costs depend on the products produced in the enterprise too. So if we speak about costs we do not look too bad and in some cases even better. But of course this is not a very good comfort because our costs in the future will be growing for sure together with the energy, labor and other things. So here we again come back to producers and what happens? The situation is the following: if we take our current price for milk 0.6 Lt and export price which is known for you, and compare these figures to the EU intervention system price and products which intervention agency buys up, the ratio between milk price and the amount of milk needed to produce these products would be 1.19. In our case this ratio is exactly the same. We are constantly repeating to ourselves that we need to reach the European price level. This is not going to happen since the corner-stone of our policy is the belief that industry must ensure certain price level. I can say today that now the industry cannot ensure anything. What happens if the government again tells to pay the price? The chain will break here which means that we will not be able to purchase milk any more. This

is a normal economic logic nobody buys expensive steel and makes cheap machinery The same is with milk

Every country has its social policy because the government has to deal with social problems in the country And we always say that this is the way it should be Especially now, when we are in the transitional period and problems do exist But if we trade in the world market then we have to talk about the issues of market economy and here the government can only interfere forming certain policy These are absolutely different things

Speaking about perspectives for dairy sector development I envision two directions for Lithuania One if we want to keep solving social problems through business then state has to interfere here, as it is in Poland, Check Republic and other countries It means if we are exporting products the state has to contribute too Otherwise we would have to cut milk production like it happened in Europe when quota system was introduced because they could not handle such volumes of milk So one or the other element is necessary here and the government must decide which one is better The second direction could be the way chosen by Oceanic countries I know it and won't argue whether it is acceptable to Lithuania because of natural conditions but this direction is grounded by the principles of economic efficiency, forming certain herds and receiving income from effective business high quality, low price, big volumes I do not know if this is possible in Lithuania In such case we enter world markets as normal competitors and there is no price regulation by the state left except for the support measures which exist in every milk producing country of the world

This is my opinion, I will not go further since our main speakers today will talk more about different price policies

Thank you

# **Introduction to the Lithuania Dairy Policy Model**

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paper presented at the Seminar on Lithuania Dairy Policy  
Vilnius, Lithuania  
April 23, 1998

**Dairy Policy Analysis**  
**April 23, 1998**  
**Robert I Nooter, Country Director and Policy Advisor**  
**Land O'Lakes, Lithuania**

**Introduction**

In an effort to assist Lithuania to employ accepted economic analysis in devising its dairy policy, Land O'Lakes added a price and income policy component to its Dairy Industry Restructuring Project. This project is funded by the US Agency for International Development, and over the past three and a half years has provided support not only to policymakers but also to dairy farmers, milk companies, veterinarians, and the associations that represent the private sector interests engaged in the dairy economy.

We decided that one way to do this was to construct an economic model which can estimate the impacts expected if current policies continue, and to look at results predicted if changes to policy are applied. Land O'Lakes has been very fortunate to engage the services of Dr William Meyers of Iowa State University and other analysts at the Center for Rural and Agricultural Development in this project. Their work has created the model that we are disseminating. This collaboration with Iowa State and members of our working group has been very successful.

As an introduction to the Lithuania Dairy Policy Model, it is important to understand how modeling is used and what are the limitations of employing an economic model. Before Dr Meyers and others discuss the details of the model, the following information should serve as an introduction to this effort and the use of modeling in determining agricultural policy.

**I The Use of Modeling as a Tool in Developing Agricultural Policy**

Modeling is an economic analysis tool which can be helpful in predicting the outcomes expected from using alternative policy measures. This is accomplished by evaluating the historical relationships existent in the sector and injecting expected responses based on the judgment of the analysts developing the model. These relationships are expressed in a series of economic equations which reflect the interdependent effects in the economic performance of the sector. For example, the Lithuanian dairy sector model employs 40 behavioral and numerous other linkage equations which describe the sector. Many equations are dependent on the changes experienced in others, so the calculation of results must be done by a computer so that many reiterations of the calculations can be processed quickly, providing an estimate of the total impact of an action resulting from changing one or more variables in scenarios input into the model. The relevant new data is adjusted repeatedly until final results are generated. What the model simulates is the complex series of outcomes that changing variables exert on the sector.

Modeling has been used effectively to estimate the outcomes expected from changing policy, or altering expectations of conditions that will influence the economic performance of the sector represented in the model. It is important to understand the role of modeling. The use of modeling is not strictly a prediction of future events and conditions. It is a projection of the trends that are expected to prevail under a set of assumptions. No set of assumptions can perfectly describe prevailing conditions as unexpected occurrences always materialize that change the course of history.

What modeling can do, however, is demonstrate the relative changes that occur under one set of circumstances compared to another. Therefore, if one would like to compare the impact of a proposal to change dairy market intervention, or the cost of and effect of altering subsidies paid, the model can predict the results using a common set of assumptions. This is not to say that these results will occur, but if the assumptions were to hold true, the results generated from the model are likely to develop.

So the model gives an economically valid, but theoretical prediction of results. However, it is also important to consider what modeling cannot do.

First, modeling does not replace the role of human subjectivity in setting policy. Even when modeling is used, policymakers must apply their values to the decision making process. People must decide how important it is to pursue a particular path in setting policy. There are many interests that are the source of these judgments including agency managers, legislators, farmers, industry, consumers, and others. Since these distinct interests sometimes have widely divergent opinions about the importance of one course of action compared to another, there will be competing strategies proposed and sometimes pursued.

Second, modeling does not replace the analyst. There is nothing magic about models and modeling, so the role of the commodity specialist and analyst is still central to policy and market evaluation. The model is a tool which helps the analyst handle large amounts of data and complex relationships in a consistent and timely manner. The analyst still needs to make careful judgments on when and how to use the model and what assumptions should be used.

Third, modeling does not prescribe the best alternative approach. Modeling shows what can be expected to occur if different mechanisms are applied. The results can be evaluated using the judgments employed by the participants in the debate. It shows the kinds of tradeoffs that can occur. But the model cannot say that a particular course is better than another. For example, the model can show the degree to which raising prices might cause an increase in production. Or it can show how much a government must spend to provide a particular level of subsidy. But the model itself cannot say if those costs are unacceptably high. The decision makers who evaluate the model results must still use their judgment as to whether the results are good or bad.

The model must be considered to be a valuable economic tool in making economic and political decisions. However, the economic tool does not take the place of the political process. For example, in most cases it can be stated that economic policies are most effective when they are devised for a distinct and specific purpose. It is also best if there are a minimum of other policies that might diminish the impact of such policies. However, policies are devised in a political environment. Politics tends to be an additive process, as

support for a measure is often achieved by broadening the measure to include policy measures supported by a variety of interests in order to widen the base of support

This inconsistency if taken too far, can cause the set of policies applied to a particular sector to be so inconsistent as to negate the effect of one policy device by the impact of another American agricultural policy can be cited as an example of this In the early 1980's the basic provisions of price and income support measures applied in the US attempted to achieve fundamentally incompatible results The most popular analogy to describe the state of agricultural policy at this time was that it was similar to driving a vehicle while pushing on the accelerator and the brake at the same time

While modeling cannot keep a government from pursuing inconsistent goals, it can demonstrate the economic effects of strategies so that such situations can be avoided if there is political will to do so A model can't tell policymakers that it is better to pursue a strategy of export competitiveness than to create an insulated domestic market It can't determine the amount of budget resources that should be devoted to one sector or another It can't say that price intervention is better than more market orientation But it show how well a particular policy contributes to making the sector more competitive, how it can increase or reduce government costs, or how an industry will perform with varying degrees of market intervention

## **II Brief Description of Modeling Methodology**

The techniques and terminology of modeling are to develop the model which mathematically describes the sector Then it must be tested by plugging in different variables to see how reasonable the resulting output appears to be This process is time consuming and requires considerable time and analysis to see if the model is producing the kinds of results that one would expect by changing variables This is called sensitivity testing and imposing alternative assumptions to see the differences that emerge from the process The fine tuning this model has required four or more months of work

The next step is to develop a baseline that roughly describes the situation in place currently, and the results that can be expected to occur if such conditions and policies remain in effect over the course of the period of analysis This sets the stage against which alternatives can be compared

The alternative scenarios are developed to demonstrate how the situation in the baseline would be changed by applying alternative policies, or otherwise changing fundamental that will affect the performance of the sector The types of results generated look at changes in production of milk and dairy products, prices, exports, uses of milk, consumption, farm income, consumer expenditures, and government costs of the programs

The model that we have developed in this project uses a baseline that extends the prices and subsidy regime in place as of January 1 1998 as the baseline The baseline then shows what would occur if these conditions remained in force for the four years of the projection period Then this baseline is compared to four alternative scenarios which call for changing the pricing policies, or the subsidies paid

### **III The Lithuanian Dairy Policy Model**

Economic modeling is a valuable tool in policy making and it has been used effectively in the US in agricultural policy setting in the past ten to fifteen years. Last fall, Land O'Lakes and USAID agreed that working with Lithuanian dairy sector interests to develop a model and to demonstrate how it can be used to evaluate the impacts of applying alternative dairy policies would help to devise a sustainable and rational set of policies in the dairy sector.

Land O'Lakes teamed up with Dr. Willi Meyers of Iowa State University to engage in activities to develop a model of the Lithuanian dairy sector. Dr. Meyers has worked on agricultural analysis and policy in Lithuania and other transitional economies. Iowa State University's Center for Agricultural and Rural Development is one of the premier institutions performing economic modeling for the agricultural sector. Iowa State and the University of Missouri jointly operate an institute, Food and Agricultural Policy Research Institute (FAPRI) which prepares some of the most respected modeling analysis of US and world agriculture that is used by the US Congress, the US Department of Agriculture and various private sector entities for economic forecasting and policy making.

This project included creating a working group comprised of private and public sector members who are involved in the dairy sector. This group includes the Chairman of the Seimas Rural Affairs Committee, the State Counselor on Rural Affairs, staff of the Ministry of Agriculture and Forestry, and representatives of the producers and processors. This group has engaged in considerable work over the past seven months. We have

- Considered the policy objectives for the dairy sector,
- Traveled to the US to learn more about US policy, policy processes, the dairy industry and economic analysis of the dairy sector,
- Evaluated the preliminary results of the generated by the model and made recommendations for changes to the assumptions and basic provisions used in the model and,
- Planned this seminar to disseminate the results of this work to a broader audience of interested parties in Lithuania.

### **IV Assumptions in the model**

When developing and using a model, assumptions must be made about a range of variables that will influence the market situation in the period of forecast. These assumptions will shape the economic relationships that prevail in which the baseline is projected as well as any alternative scenarios. Conditions such as the prevailing macroeconomic conditions in the economy as well as international prices for dairy products will significantly influence the results that the model predicts. Therefore, it is important to exercise judgment in selecting the assumptions used, and justifying them on valid economic reasoning rather than intuition or entirely subjective judgments.

Therefore, let us describe the assumptions used in this model and the reasons why they were selected

(1) Macro economic assumptions

- Economic Growth Use World Bank projections with growth predicted at 4.5 % in 1998 and steadily increasing to 5.9% by 2002
- Exchange rate Predicted to remain at 4Litas/\$1 until 2000, with some depreciation against the dollar in the period 2001 to 2002 when it will be 4.53LT/ dollar
- Inflation rate Continued decline but at a slower rate of decline Starting at 10% in 1998 going down to 6.5% in 2002
- Population growth Flat

(2) World dairy markets

- Cheese Per capita cheese demand around the world is expected to increase by 23 percent over the next decade with most of the demand coming in the US and Europe
- Non fat dry milk While import demand is projected to increase by only one percent per year for the next decade, world prices are expected to increase by 40 percent because of the shift in milk use by increasing cheese production in Europe and the US Prices trend upward for the period after a predicted decline in 1998 from 1997 levels This is also true for whole milk powder
- Butter Russia's butter imports are projected to increase slowly through the year 2003, presenting an opportunity for increased exports of Lithuanian butter However, the trend in world butter prices is also steadily increasing through the period evaluated in the model

(3) Lithuania dairy situation

- Cow inventories We have assumed that the number of cows held in households will remain stable, and there will be an increasing shift of share of the herd held by large agricultural companies and toward a larger share held in family farms By 2002 we show that nearly 25% of the herd is held in family farms and only 16.4% held by agricultural companies
- Retail to farm price ratio will decline from 3.35 in 1997 to 2.68 in 2002
- A price ratio among classes of milk was assumed with an 8.5% premium for top quality and a 5% premium for first quality
- We continued to assume that approximately 25% of the milk produced was not sold to milk processors, but used on farm or sold in informal market arrangements

## V Concluding Comments

In summary, our purpose in developing this economic model has been to give Lithuanian dairy policy makers an analytical tool to help set a course for a more prosperous future for the sector The model was developed in a joint effort of Land O'Lakes, Iowa State, and our

working group over the course of the past seven months. It has been enjoyable and rewarding to work with the many talented individuals who have participated in this endeavor.

The lasting impact of this work will be if the tool that we have developed is applied by Lithuanian dairy sector analysts and advocates in shaping the future for the dairy sector. This sector is rich with opportunity. Lithuania can rely on a prosperous and vibrant dairy sector as a pillar of its agricultural base to promote economic growth, realize export earnings, and improve the diets of the Lithuanian population.

We hope that this tool, and the results that have been generated by our work thus far as well as the analysis that will occur in the future, will be utilized in helping Lithuania realize the vast potential of the dairy sector. This will truly affect Lithuania's economic and social conditions and can serve as an engine for growth and prosperity for the country.

Economic Modeling for Analysis of Lithuanian Dairy Policy Alternatives

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# Economic Modeling for Analysis of Lithuanian Dairy Policy Alternatives

William H Meyers

## I Introduction

There are many factors that influence policy decisions, including economic, social, and political factors. It is well understood that policy making does not occur in a vacuum but is influenced by information and analyses coming from a variety of sources. Moreover, it is expected that both government and private agencies can contribute to an improved decision environment by finding ways to improve the quantity and especially the quality of information available to policy makers. This paper develops and makes use of an economic analytical approach that has been useful in other countries to assess the gains and losses associated with policy changes. While other considerations may also be important, this paper will focus on those economic factors that can be quantified in a market supply and demand framework. For example, product quality and marketing infrastructure are key factors in export market development, but they do not fit into the type of analytical tool developed here.

First some general observations will be made on the advantages and pitfalls of using economic modeling for policy and market analysis. Second, the key components of the Lithuanian Dairy Model will be briefly described. Third, the policy alternatives selected for this evaluation will be defined, and the results and implications of the analysis will be presented and discussed.

## II Use of Modeling in Policy and Market Analysis

Agencies and organizations that conduct policy and market analyses normally combine quantitative models with the input of experienced analysts in these assessments. The relative importance of these two inputs varies, however. For example, the Food and Agricultural Research Institute (FAPRI) and Organization for Economic Cooperation and Development (OECD) have relative few analysts and rely more heavily on quantitative models, while the U.S. Department of Agriculture (USDA) and the Food and Agricultural Organization of the UN (FAO) assessments have a relatively larger reliance on analysts. These might be seen as more capital intensive (FAPRI and OECD) and more labor intensive (USDA and FAO) approaches.

The foundations of the quantitative models are estimated or synthetic equations that represent consumer demand, producer supply response, and price transmission behavior for the various agricultural and food products. Most models, in fact, include both econometric (estimated) and synthetic equations, since for some countries and/or products there is insufficient data to do statistical estimations. For example, in Lithuania and other transition economies, where rapid changes in farm structure and policies have been taking place, there is little basis for reliable time series estimates of parameters. In such cases, synthetic equations are developed based on economic theory and whatever information is available on consumer or producer behavior from cross-sectional estimates based on survey data.

The second major component needed in the assessment is the representation of government policies that impact supply, demand, and trade of these products. This is especially important if a major purpose of the analysts is to conduct policy impact assessments. To evaluate the impact of a policy change, it is necessary to have the policy instruments represented in the baseline so as to compare the results obtained when one or more of these policies change. Most baselines are generated so that they can be used for policy impact analysis and not merely to produce a market outlook under one set of assumptions. For this reason, FAPRI and most other organizations doing this work hold current policies constant for the projection period rather than trying also to project policy changes in the baseline.

A third major requirement for outlook analysis is to have the best possible and most recent actual data incorporated into the models and simulation systems. This is done by reviewing the most recent sources of data for each product and country included in the analysis and updating the basic data in the system.

With these components in place, assumptions need to be made for those factors that are external to the model, such as population and income growth, technology changes (yield growth), world prices, and policies that would influence production, demand, or trade.

Outlook simulations are then generated by imposing the changes in external factors over the projection period. The changes in supply, demand, trade, and prices over time are driven primarily by the changes in the external factors. For example, income and population growth cause demand to grow over time, and yield growth increases production. Price changes are determined by the interaction of supply and demand in each year so that new equilibrium prices are determined. The quantitative models make it possible to handle large amounts of data and economic relationships that insure the integrity of the analysis and the consistency of the results.

As already mentioned, the analysts conducting the work are also important. Even the most capital intensive of these outlook and policy analysis systems are not “push button” systems that can derive results without any human intervention. The intervention of analysts, when necessary, is important to provide a cross check of model results and to supplement the model on occasion. It is not possible to build every contingency into a model, so analysts must have the ultimate responsibility for the integrity of the analysis. Also, every analysis requires a careful setting of assumptions, and these are generally the responsibility of the analysts. Sensitivity testing with alternative assumptions may be needed at times to see how much the results depend on key assumptions.

### **III Brief Review of Lithuanian Dairy Model**

The model was developed for the purpose of evaluating policy options in the Lithuanian dairy sector. It includes the basic supply and demand relationships for milk and the major processed dairy products, while the other uses of milk are aggregated into an “other use” category (see Annex). Production is modeled by relating cow inventories and yield to milk prices, subsidies, and feed cost. Since recent support policies have been targeted to encourage more production of highest and 1<sup>st</sup> grade milk, it was important that the model

include these policy instruments and allow these shares of highest and first grade purchases to change in response to these incentives as well as other price incentives

The demand for milk is divided into fluid demand and factory demand, where the latter determines production of butter, cheese, NFD, WMP, and the remaining processed products in aggregate. Domestic demand for fluid milk and processed products is influenced by prices, income growth, and population growth. Exports are influenced by changes in the domestic prices relative to world market prices. For milk, butter, and cheese, domestic prices are determined by the interaction of supply and demand. Supply, demand, and prices adjust within each year until an equilibrium price is determined. If prices are not regulated and supply is growing over time faster than demand, prices will tend to decline. The opposite happens if demand grows faster than supply.

Since Lithuania has been using a minimum price program since 1995, it was important to design the model so that prices can be imposed when these minimum prices are higher than the equilibrium market prices. And since these minimum prices have often been different for different milk grades, the model was designed to accommodate this policy feature and to generate a weighted average price from these prices by grade. Subsidy levels can also be different for different grades of milk, so the model needs to track sales of milk by these three grades.

In addition to the supply, demand, trade, and prices of milk and dairy products, the model was designed to generate several performance measures that can be used in comparing gains and losses to different groups in society. These are farm revenues with and without subsidy payments, value of exports, consumer expenditures, and the cost of government price support. From these measures it is possible to construct an estimate of the net economic gain when one policy scenario is compared to another. The estimated net economic gain is calculated as shown by the example in Table 1. In this hypothetical example, the increase in farm income (gain = 20) is less than the combined increase in consumer expenditure (loss = 30) and increase in government cost (loss = 10), so the net change is equal to an economic loss of 20.

Table 1 Calculation of Estimated Net Economic Gain

Aggregate Measure (million Litas)	Baseline	Scenario	Change
Farm net revenue including subsidy	100	120	+20
Consumer expenditures	700	730	+30
Government (taxpayer) cost	50	60	+10
Farm revenue-consumer expense-government cost			-20

This is a very crude example of estimating total impacts on the economy of a policy change. Even if this estimate were done more accurately and completely, the policy with the highest net economic gain would not always be the one chosen by policy makers, since many other factors enter into consideration. However, it is important to be aware what gains and losses are to be anticipated with a policy change, since it is very rare that a change in policy will benefit all groups.

#### IV Description of Alternatives to be Evaluated

This analysis is conducted over the period 1998 to 2002. Most of the data for 1997 are actual, though a few variables are estimated by the model. The analysis consists of a baseline and four alternative scenarios representing differing levels and types of support by the government (Table 2). None of these policy alternatives corresponds exactly to a recommendation by any person or group. They are not chosen because they are considered good or bad or even feasible, but rather because they represent a range of possible choices.

Table 2 Policy Assumptions for Each Scenario

Scenario	Instrument	Highest	1 <sup>st</sup>	2nd	Highest/2nd	1 <sup>st</sup> /2nd
Baseline	Min Price	700	630	570	1 228	1 105
	Subsidy	100	70	50	1 290*	1 129*
Scenario 1	Min Price	750	675	520	1 442	1 298
	Subsidy	100	70	50	1 490*	1 272*
Scenario 2	Min Price	none	none	none	1 228	1 105
	Subsidy	100	70	50	1 296*	1 131*
Scenario 3	Min Price	none	none	none	1 228	1 105
	Subsidy	100	70	0	1 417*	1 237*
Scenario 4	Min Price	none	none	none	1 350	1 250
	Subsidy	none	none	none	1 350*	1 350*

\*ratio including farm price subsidy

- 1 Baseline The minimum price and subsidy policies in place as of January 1, 1998, are assumed to continue all year every year of the projection period. It has already been recognized that this policy is not sustainable, due to the limited funds available in the 1998 budget and the likelihood that the minimum prices could not be sustained during the summer months. However, this is a useful baseline, since alternatives can be compared to this with a view to solving these policy constraints.

- 2 Scenario 1 This option is similar to the baseline but has a significantly lower minimum price for 2<sup>nd</sup> grade milk and higher minimum prices for 1<sup>st</sup> and highest grades of milk. This combination results in a slightly higher average price but a large ratio of highest to 2<sup>nd</sup> and 1<sup>st</sup> to second grade prices. These provisions are similar to but not exactly the same as those proposed by the Milk Producers Association.
- 3 Scenario 2 This option would provide the same milk subsidies as in the baseline but without minimum prices. The intent of such a change in policy would be to allow prices to be determined by market forces.
- 4 Scenario 3 This option is the same as scenario 2 except that the subsidy for 2<sup>nd</sup> grade milk is eliminated in order to try and bring the program cost into line with the budget constraint. There are obviously numerous combinations of subsidy reduction that would achieve the same total cost reduction.
- 5 Scenario 4 In this option all subsidies as well as minimum prices are removed. It is assumed that without subsidies for higher grades of milk, processing plants would offer slightly higher quality premiums to milk producers. Therefore, the highest to 2<sup>nd</sup> grade price ratio is assumed to be 1.35, and 1<sup>st</sup> to 2<sup>nd</sup> is assumed to have a 1.25 price ratio. One way to view this scenario is that the funds allocated for milk subsidies could be used in alternative programs that would help producers improve technology and deliver higher milk quality for a higher market price.

Each of these scenarios are simulated with the model and the results are compared to the baseline to see how these different policies would change prices, production, consumption, trade, government cost, consumer expenditures, export value, and the net economic gain. These results are summarized and evaluated in the next section.

## V Assumptions on External Factors

A number of important variables remain the same across all the scenarios. These include projections of macro economic variables, world market prices, shares of cow inventories by type of farm, the farm to retail margin for milk, and the share of milk purchased by plants (Table 3).

The projection of macro economic variables derives from a World Bank analysis presented at the Seminar on Agricultural and Rural Policy and Integration Strategies in Vilnius one year ago. The exception is that the 1997 growth of 6.0 percent is a preliminary estimate by the Lithuanian Government in January 1998. Lithuanian population, which has declined slightly in recent years, is projected to remain stable with no growth over the next five years.

The world price projections are from the FAPRI 1998 world outlook analysis and indicate a 25-30 percent growth over the next five years in the world prices of butter, NFD, and WMP and about 20 percent for cheese. Since these are expressed in Litas, they would increase faster or slower depending on whether the Litas depreciates or appreciates over this period. The feed real price index derived from the FAPRI projections of barley and soy meal prices

and tends to decline gradually over time. It is assumed that Lithuanian grain prices will follow world market price developments as they have in recent years.

The dairy policy group discussed the assumptions on shares of cow inventories by farm type and on the retail to farm price ratio. We agreed that the trend of increasing shares on family farms would continue as the share in agricultural partnership farms declined. We also agreed that the retail to farm price ratio would likely decline, so the rate of decline was set at four percent per year. It is difficult to know whether this is realistic or not.

## **VI Results and Implications**

Once the assumptions are set in the model, it simulates the results based on the equations and the policies specified. It normally takes about 100 iterations until the system finds the combination of prices and quantities that bring everything into equilibrium. When policies or other assumptions are changed, a new set of prices and quantities are determined in a new equilibrium. The results of different scenarios can then be compared to see how the changes in assumptions have altered the results. The focus here is on policy changes, so all other assumptions remain the same across scenarios. The baseline results are first discussed briefly, then four scenarios are compared to the baseline.

It must be emphasized that all of these analytical results are preliminary, since the Dairy Policy Group has not yet had an opportunity to review the results of this analysis. There should be such a review of experts before these results are finalized. Nevertheless, this workshop forum is an opportunity to review this in a broader group, and comments of this group will be useful in revising these estimates.

### **Baseline**

As already indicated, the baseline is not the most realistic scenario, since it is already known that it would violate the budget constraint for 1998 and that policy changes will be needed to address this constraint. However, it is useful as a point of comparison, since it represents policies in the recent past including those existing temporarily in early 1998. The results of the baseline are seen in Annex Table A1 and in the charts that accompany this paper. In the baseline charts, a comparison is also provided to scenario 3, which is probably closer to a sustainable outcome. But scenario 3 will be discussed later.

Production is projected to grow by 13 percent and total demand by 10 percent over the next five years. When all milk and milk products are combined in milk equivalents, human consumption grows by about 20 percent in the baseline projection, but exports do not grow (Table A1). Since exports were about 40 percent of production in 1996 and 1997, lack of growth in this component of demand is a significant constraint to price growth over time. Butter and cheese have been about 80 percent of dairy product exports, and domestic wholesale prices for these products exceed world market prices by 20 to 30 percent. This is not too surprising, given the import tariff protection for these products, but it does limit export competitiveness. Obviously, it is possible to export these products, and much of it is

in the summer when Lithuanian prices are lower. But this situation means that the potential for export growth is further constrained when policies increase prices.

The minimum prices in the baseline policy turn out to be higher than equilibrium prices would be in the model, so it means that not all production is able to find a market. If this were to occur in reality, it is not clear what the government would or could do about it and we do not try to resolve that question. For simplicity, the model is set up so that if there is production that exceeds demand (when minimum prices are above market clearing prices), the cost of government programs would increase by the amount needed to buy the surplus milk (i.e. milk farm price times the surplus). In the supply and use table, this surplus is indicated by an increase in carryover stocks, which triples in size by 2002.

The Government cost of the milk price subsidies under the baseline would increase to an estimated Lt 89 million in 1998 and about Lt 100 million by 2002. The additional cost of surplus removal estimated as described in the previous paragraph, would reach a peak of Lt 46 million in the year 2000 and decrease to Lt 13 million by 2002. As already mentioned, government and private analysts in Lithuania have already determined that the current program cannot be sustained, in part because of these growing costs in the face of reduced financial resources. Other policy options are evaluated to see how measures to reduce cost would impact other variables of interest to producers, consumers, processors, and traders.

### Scenario Comparisons

The scenarios progress from small policy changes to larger changes, with the last one being the extreme case of no supports. For some variables, the impacts of different policies are small, while for other variables the impacts are large. Several of the key variables are compared in Table 4 below, and more comparisons are shown in the charts that accompany this paper.

Table 4 Comparison of key results of policy alternatives

Scenario	Milk Farm Price lit/ton	Average Subsidy lit/ton	Milk Production 1000 ton	Percent 2 <sup>nd</sup> Grade Sales percent	Cost of Subsidies mil Lit/ton	Total Cost mil lit/ton
1998						
Baseline	600	61.1	1967	68	89	117
Scenario 1	603	64.9	1969	56	95	124
Scenario 2	537	61.2	1950	68	89	89
Scenario 3	547	33.4	1946	60	48	48
Scenario 4	559	0	1940	62	0	0
2002						
Baseline	604	62.5	2146	64	99	112
Scenario 1	611	66.3	2155	52	106	127
Scenario 2	605	62.5	2124	64	98	98
Scenario 3	624	35.7	2117	58	56	56
Scenario 4	649	0	2109	58	0	0

Scenario 1 has slightly higher minimum prices on average and the same levels of subsidy for each grade of milk. However, the larger difference between 2<sup>nd</sup> grade and higher grades of milk lead to larger deliveries of 1<sup>st</sup> and highest grades, so the average subsidy rate and total subsidy cost are both higher. Surplus production also increases slightly, resulting in larger removal costs. Because of these price differentials, this scenario has the largest impact on reducing deliveries of 2<sup>nd</sup> grade milk. These patterns of change continue to the end of the projection period in 2002.

Scenario 2 (without the minimum prices) allows prices to reach the market clearing level, which is significantly lower than the baseline at the beginning of the period but is nearly the same by 2002. This increase in prices over time is possible because there is less incentive in the early years to increase cow numbers. The subsidy cost of this option is nearly the same as the baseline, since the subsidies for each grade of milk are the same, and the price of 2<sup>nd</sup> grade relative to higher grades is assumed to be the same as the baseline. The major impact of this policy change would be to reduce the surplus production and the cost of surplus removal. However, the estimated total cost per year is still above the 1997 subsidy costs and far above the available funding for 1998.

Scenario 3 simulates an attempt to address the subsidy cost by eliminating subsidies for 2<sup>nd</sup> grade milk. This also increases the effective difference between 2<sup>nd</sup> grade and higher grades of milk and leads to a further reduction in the share of 2<sup>nd</sup> grade sales. The average milk price without subsidy is also below the baseline milk price in 1998 but rises significantly above the baseline price by the end of the projection period. The estimated subsidy cost is about 45 percent below the baseline level throughout the projection period. A more detailed comparison with the baseline can be seen in the supply and use balance (Table A2), where the biggest difference is that carryover stocks remain relatively stable rather than continuously increasing as in the baseline. This shows the impact of the lower prices at the beginning of the projection period, which would lead to a slower growth in production and a higher growth in domestic demand. Lower prices of dairy product prices in the early years also make these products slightly more competitive on the export market, suggesting a possibility of increasing export sales and revenues. But there is a limited impact because cheese and butter prices remain above world market prices and regular channels for export sales are still not well developed.

Scenario 4 provides the opposite extreme from the baseline, where there are no subsidies. Production incentives are even lower than in scenario 3, so supplies are lower and market prices higher than in any other scenario. Where this scenario may be of interest in a policy discussion is the case in which the funds currently used for price subsidies could be used for targeted alternative programs to improve marketing infrastructure, production technology quality, or quality preservation which would be production neutral (that is, decoupled from production decisions). In the absence of price subsidies, it is assumed that the processing plants would pay a higher market price premium for higher quality milk.

Since the cattle industry takes some time to adjust to new price and policy conditions, the comparison of these alternatives is summarized by looking at the medium term impacts on key performance variables and the estimated net economic benefit (Table 5). The average annual impact for the last three years of the projection period (2000-2002) indicate that the net economic benefit tends to increase as subsidies are reduced. The main factor reducing net

returns to milk producers is the subsidy reduction, though this is partially offset in Scenarios 3 and 4 with increased market prices. Both the farm net returns and the consumer expenditures are very crude estimates of these aggregate measures, so they must be only viewed as indicative. While the increased consumer expense and government cost lead to a small net economic loss in Scenario 1, the cost and consumer savings in Scenario 2 and the cost savings in Scenarios 3 and 4 significantly exceed the estimated losses in farm net returns. This leads to estimated net economic gains of Lt 21 million for Scenario 2, Lt 32 million for Scenario 3, and Lt 42 million for Scenario 4.

The final year of the projection period is also interesting in that it shows the direction of these measures over time (Table 5). In all scenarios, the net economic benefits similar in the last year, but the most dramatic difference is that farm net returns in Scenarios 2, 3, and 4 do not change significantly in the last year. The main reason for this is that the low subsidy scenarios have higher prices in the later years, so the negative impacts on milk producers diminish over time.

Table 5 Comparison of changes in key performance measures of policy alternatives

Scenario	Milk Farm Price	Milk Price with Subsidy	Farm Net Returns	Consumer Expenditures	Government Cost	Net Economic Benefit*
	Litas/ton	Litas/ton	mil Litas	mil Litas	mil Litas	mil Litas
<b>Average 00-02</b>						
Scenario 1	+6.2	+10.1	19.8	+10.0	+13.7	-3.9
Scenario 2	-18.5	-18.2	-40.1	-30.0	-31.2	+21.1
Scenario 3	+1.5	-25.5	-40.5	+2.3	-73.1	+30.4
Scenario 4	+27.3	-34.8	-41.5	+43.6	-127.3	+42.2
<b>2002</b>						
Scenario 1	+7.2	+11.1	+21.9	+11.5	+14.1	3.7
Scenario 2	+1.1	+1.1	+1.8	+1.7	-14.0	+14.1
Scenario 3	+19.8	-6.9	-0.7	+31.5	-56.3	+24.1
Scenario 4	+44.7	-17.8	-4.2	+71.0	-112.4	+37.3

\*farm net return change minus consumer expenditure change minus govt cost change

### Conclusions and Caveats

While this exercise has demonstrated how a modeling system can be used to evaluate economic impacts of policy alternatives, it is important again to stress that this is a work in progress and requires further review and refinement. Analytical tools such as this are intended to help analysts organize and integrate complex relationships, but they cannot replace the analysts. These results are preliminary, but hopefully they have shown some of the key interactions that influence the Lithuanian dairy market and some of the impacts of different policies on the market.

In reviewing these methods and results, attention should be given to the accuracy and completeness of the basic data, the assumptions that were specified, the behavioral relationships in the model, the design of the policies evaluated, and additional measures that could be evaluated that would be of interest to policy makers as well as farm and industry representatives. The next steps in the process of making this system more useful begin now.

**Table 3 Dairy Model Assumptions, Baseline, Lithuania**

	Units	1994	1995	1996	1997	1998	1999	2000	2001	2002
<b>Macro economic assumptions</b>										
GDP growth at mark	percent			4 20	6 00	4 20	4 80	5 20	5 60	5 90
Annual avrg Exchang	LCU/US\$			4 00	4 00	4 00	4 00	4 18	4 36	4 53
Infalton rate period a	percent			25 00	12 30	10 00	8 50	7 50	7 00	6 50
Population growth	percent			0 0	0 0	0 0	0 0	0 0	0 0	0 0
<b>Cow inventories Shares by type</b>										
Ag Part & Enterp		<b>28 22</b>	<b>23 91</b>	19 40	18 90	18 40	17 90	17 40	16 90	16 40
Family farms		<b>17 69</b>	<b>19 49</b>	21 65	22 15	22 65	23 15	23 65	24 15	24 65
Households		<b>54 09</b>	<b>56 60</b>	58 95	58 95	58 95	58 95	58 95	58 95	58 95
<b>Retail to farm price ratio, milk</b>										
		<b>2 726</b>	<b>2 386</b>	2 900	3 352	3 217	3 083	2 949	2 815	2 681
<b>Feed price index</b>										
		<b>51 0</b>	<b>51 8</b>	73 8	50 4	42 4	37 0	35 4	35 1	34 7
Milk unit cost	Lt/ton	246	432	492 12	513 7325	534 2818	555 6531	578 8794	604 1185	631 4851
<b>World prices, FOB N E</b>										
	Litas / mt									
Butter		<b>5,155</b>	<b>8,621</b>	7 000	6 896	7 404	7 512	7 917	8 267	8 684
NFD		<b>6,120</b>	<b>8,429</b>	7 768	6 960	6 512	7 036	7 587	8 280	8 834
Cheese		<b>7,413</b>	<b>8,995</b>	9 485	9 700	9 892	9 916	10 513	10 948	11 370
WMP		<b>6,006</b>	<b>8,688</b>	7 832	7 316	7 464	7 892	8 490	8 999	9 427
<b>Farm Price subsidy</b>										
	Litas / mt									
subsidy for highest grade						100	100	100	100	100
subsidy for 1st grade						70	70	70	70	70
subsidy for 2nd grade						50	50	50	50	50
weighted average		<b>0 0</b>	<b>28 0</b>	52 9	53 5	61 1	61 4	61 8	62 1	62 5
<b>Price ratio by grade</b>										
	ratio									
highest / second			<b>1 159</b>	1 085	1 085	1 228	1 228	1 228	1 228	1 228
first / second			<b>1 074</b>	1 051	1 051	1 105	1 105	1 105	1 105	1 105
<b>Purchases/Production</b>										
	percent	<b>61 9%</b>	<b>65 3%</b>	72 4%	74 2%	74 2%	74 2%	74 2%	74 2%	74 2%

## ANNEX

### DAIRY MODEL STRUCTURE LITHUANIA

#### Milk supply

Cow inventones	=	f (last year's farm milk price with subsidy feed price)
Share of cows by type of farm		Set by analyst to change exogenously
Milk yield by farm typ	=	f (farm milk price with subsidy feed price trend)
Milk production by far	=	Yield * (Inventory * share)
Total milk production	=	Sum of milk production by Type
Share of highest grad	=	f (highest grade price with subsidy/2nd grade price with subsidy)
Share of 1st grade pu	=	f (first grade price with subsidy/2nd grade price with subsidy)

#### Milk use

Demand for fluid milk	=	[Per capita demand = f (milk retail price income trend) ] * population			91
Demand for factory use in			<b>milk used</b>	<b>BU/NFD</b>	<b>BU</b>
Butter/NF	=	f (NFD butter prices farm milk price)	731	307.2	424
Cheese	=	f (Cheese price farm milk price)	298		
WDM	=	f (WDM price farm milk price)	31		
Demand for other use	=	f (farm milk price income trend )	793		
Share of factory milk in					
BU/NFD	=	f ( relative revenue in NFD&Butter to Cheese	0.48		
WMP	=	f ( relative revenue in WMP to Cheese)	0.06		
Cheese	=	Residual	0.45		

Production of NFD Butter Cheese and WMP Based on above milk use times conversion  
Butter from non NFD manufacturing process Based on proportionate increase in Butter/NFD

Consumption demand = [ Per cap demand =  $f(\text{product price, income, trend})$  ] \* population

Export demand for butter and ch =  $f(\text{world price, domestic price})$

Export demand for NFD and WM =  $f(\text{world price, domestic price})$

### Equilibrium Price Determination

Internal supply and demand for all milk solves for real farm milk price

Internal supply and demand for butter solves for real butter price

Internal supply and demand for cheese solves for real cheese price

NFD and WMP prices follow world prices

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Table A1 Baseline Supply and Use Balance - Lithuanian Milk and Milk Products in Milk Equivalents

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2002/1997 percent
Cow Numbers (1000 head)	614 9	586 0	589 9	586 0	588 6	599 5	591 2	582 1	573 3	97 8
Yield per cow (kg per cow)	2933 3	3029 2	3115 1	3231 6	3349 0	3443 0	3532 9	3622 4	3714 2	114 9
Total Supply	1961 9	1854 4	1997 9	2065 4	2122 8	2245 0	2369 3	2466 3	2537 1	122 8
Beginning stocks	51 3	31 4	101 1	100 6	100 1	145 9	212 1	288 4	338 5	336 4
Production	1896 4	1818 9	1831 5	1900 0	1966 8	2045 3	2103 4	2125 1	2145 6	112 9
Import	14 2	4 1	65 3	64 8	55 9	53 7	53 9	52 8	53 0	81 7
Total Demand	1930 5	1753 3	1897 3	1965 3	1976 9	2032 9	2080 9	2127 8	2175 8	110 7
Non-food and export demand	847 0	869 2	987 0	1044 5	1039 6	1049 8	1061 1	1065 8	1068 9	102 3
Exports	589 3	636 6	751 0	799 7	786 2	786 3	790 1	792 1	792 5	99 1
Feed use	256 8	231 6	235 5	244 3	252 9	263 0	270 5	273 2	275 9	112 9
Waste	0 9	1 0	0 5	0 5	0 5	0 5	0 5	0 5	0 5	100 0
Human consumption	1083 5	884 1	910 2	920 9	937 3	983 2	1019 8	1062 0	1106 9	120 2
Ending stocks	31 4	101 1	100 6	100 1	145 9	212 1	288 4	338 5	361 3	361 0
Per capita consumption (kg)	291 5	237 9	244 9	247 8	252 2	264 5	274 4	285 8	297 8	120 2
Average farm price (Lt/ton)	273 0	479 5	546 8	531 1	600 1	601 0	602 0	602 9	603 9	113 7
Average retail price (Lt/kg)	0 74	1 14	1 59	1 78	1 80	1 82	1 84	1 74	1 74	97 7
Government cost (mil Litas)	0 00	33 28	70 16	75 46	116 51	132 72	141 65	127 78	112 43	

Table A2 Scenario 3 Supply and Use Balance Lithuanian Milk and Milk Products in Milk Equivalents

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2002/1997 percent
Cow Numbers (1000 head)	614 9	586 0	589 9	586 0	588 6	579 3	576 4	573 7	567 2	96 8
Yield per cow (kg per cow)	2933 3	3029 2	3115 1	3231 6	3313 0	3416 7	3518 0	3611 6	3711 9	114 9
Total Supply	1961 9	1854 4	1997 9	2065 4	2101 7	2148 5	2186 4	2230 5	2271 8	110 0
Beginnig stocks	51 3	31 4	101 1	100 6	100 1	99 7	99 7	100 8	101 4	100 8
Production	1896 4	1818 9	1831 5	1900 0	1945 6	1995 1	2032 9	2076 9	2117 4	111 4
Import	14 2	4 1	65 3	64 8	55 9	53 7	53 9	52 8	53 0	81 7
Total Demand	1930 5	1753 3	1897 3	1965 3	2002 0	2048 8	2085 6	2129 1	2168 8	110 4
Non food and export demand	847 0	869 2	987 0	1044 5	1051 3	1052 4	1054 7	1060 4	1061 3	101 6
Exports	589 3	636 6	751 0	799 7	800 6	795 4	792 8	792 9	788 5	98 6
Feed use	256 8	231 6	235 5	244 3	250 2	256 5	261 4	267 0	272 3	111 4
Waste	0 9	1 0	0 5	0 5	0 5	0 5	0 5	0 5	0 5	100 0
Human consumption	1083 5	884 1	910 2	920 9	950 7	996 4	1030 9	1068 7	1107 5	120 3
Ending stocks	31 4	101 1	100 6	100 1	99 7	99 7	100 8	101 4	103 0	102 9
Per capita consumption (kg)	291 5	237 9	244 9	247 8	255 8	268 1	277 4	287 6	298 0	120 3
Average farm price (Lt/ton)	273 0	479 5	546 8	531 1	546 7	564 4	590 2	599 4	623 6	117 4
Average retail price (Lt/kg)	0 74	1 14	1 59	1 78	1 80	1 82	1 84	1 74	1 74	97 7

# Analysis of Supplemental Lithuanian Dairy Policy Alternatives

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Paper presented at the Dairy Policy Group Meeting  
Rokiskis, Lithuania  
July 17, 1998

## I Introduction

Prior to and following the April 28 seminar organized by this project, the Lithuanian authorities and industry representatives discussed various options for changes in dairy support programs to take effect May 1, 1998, for the summer season. A decision on a set of minimum purchase prices and subsidies was taken on April 29 to be effective May 1. Subsequently, a revision to these price and subsidy levels was made in May effective June 1, 1998.

This analysis compares the two final decisions and two prior Ministry of Agriculture proposals to a baseline that simply removed minimum prices and the subsidy for 2<sup>nd</sup> grade milk. It should be noted that in the analysis of options presented at the seminar, a wide range of policy alternatives was considered to show a wide range of impacts that could be imagined even though some of them were probably unrealistic. In that group of alternatives, the option of simply removing minimum prices and the subsidy for 2<sup>nd</sup> grade milk (scenario 3) was used to illustrate a way to meet the 1998 budget constraints on subsidy expenditure. This former scenario was adopted as a baseline in the current analysis because it provides a link to the previous analysis and because it has some similarities to the two proposals of the Ministry of Agriculture evaluated here.

## II Description of Alternatives to be Evaluated

This analysis is conducted over the period 1998 to 2002. Most of the data for 1997 are actual, though a few variables are estimated by the model. The analysis consists of a baseline and four alternative scenarios representing differing levels and types of support by the government (Tables 1 and 2). These scenarios are defined for the summer season according to the specifications of MOA proposals or Government decisions, and the descriptions for the scenarios refer to the summer period. The assumptions for the winter season are not specified in these proposals or decisions so they are assumed by the author. It should be noted that 1998 is different from later years in that the actual policies in place from January to April remain constant over all scenarios, so the assumptions in the tables below are only completely representative for 1998 and beyond. Also it is assumed that these policies remain unchanged in the future, which is unrealistic but necessary in the absence of a long-term policy decision by the Government.

Table 1 Policy Assumptions for Each Scenario - Summer Season

Scenario	Instrument	Highest	1st	2 <sup>nd</sup>	Highest/2nd	1 <sup>st</sup> /2 <sup>nd</sup>
Baseline	Min Price	none	none	none	1 228	1 105
	Subsidy	100	70	0	1 417*	1 237*
Scenario 1	Min Price	670	600	470	1 426	1 277
	Subsidy	80	50	0	1 596*	1 383
Scenario 2	Min Price	670	600	470	1 426	1 277
	Subsidy	0	40	0	1 426*	1 372*
Scenario 3	Min Price	670	600	490	1 367	1 224
	Subsidy	0	40	50	1 241*	1 185*
Scenario 4	Min Price	670	600	470	1 426	1 277
	Subsidy	50	40	50	1 385*	1 231*

\*ratio including farm price subsidy

Table 2 Policy Assumptions for Each Scenario - Winter Season

Scenario	Instrument	Highest	1st	2 <sup>nd</sup>	Highest/2nd	1 <sup>st</sup> /2 <sup>nd</sup>
Baseline	Min Price	none	none	none	1 228	1 105
	Subsidy	100	70	0	1 417*	1 237*
Scenario 1	Min Price	700	630	570	1 228	1 105
	Subsidy	80	50	0	1 368*	1 193*
Scenario 2	Min Price	700	630	570	1 228	1 105
	Subsidy	50	50	0	1 316*	1 193*
Scenario 3	Min Price	700	630	570	1 228	1 105
	Subsidy	50	50	0	1 316*	1 193*
Scenario 4	Min Price	700	630	570	1 228	1 105
	Subsidy	50	50	0	1 316*	1 193*

\*ratio including farm price subsidy

- 1 Baseline The minimum price and subsidy policies in place through April 30, 1998, were considered to be not sustainable, due to the limited funds available in the 1998 budget and the fact that the minimum prices could not be sustained during the summer months. The baseline assumptions very simply would eliminate minimum prices and remove subsidies for 2<sup>nd</sup> grade milk to reduce cost while keeping the other quality enhancing subsidies the same as before.
- 2 Scenario 1 This option was proposed by the Ministry of Agriculture for discussion on April 20 but was not formally submitted to the Government. As in the baseline, this proposal also eliminates the 2<sup>nd</sup> grade subsidy but also reduces the highest grade subsidy, so it would achieve a slightly greater cost reduction than in the baseline. This proposal retains the minimum purchase prices but at a lower level than existed in April, especially for 2<sup>nd</sup> grade milk.
- 3 Scenario 2 This option was formally submitted by the Ministry of Agriculture to the Government on April 29. It has the same minimum prices as scenario 1, but completely eliminates subsidies for highest and 2<sup>nd</sup> grade milk while slightly reducing the subsidy for 1<sup>st</sup> grade milk. It has the lowest average subsidies and greatest cost savings among the scenarios.

- 4 Scenario 3 This option is what was adopted by the Government on April 29. When compared to the MOA proposal (scenario 2) it has a slightly higher minimum price for 2<sup>nd</sup> grade milk and, more importantly, restores the Lt 50 per ton subsidy for 2<sup>nd</sup> grade milk.
- 5 Scenario 4 This option is a revised Government decision made in May to take effect on June 1. This adjustment was in response to indications that with unusually large milk supplies, the minimum price for 2<sup>nd</sup> grade milk was not realistic or sustainable. The minimum prices and 1<sup>st</sup> grade subsidies are the same as in the April 29 MOA proposal but subsidies of Lt 50 per ton are added for highest and 2<sup>nd</sup> grade milk.

Each of these scenarios are simulated with the model and the results are compared to the baseline to see how these different policies would change prices, production, consumption, trade, government cost, consumer expenditures, export value, and the net economic gain. These results are summarized and evaluated in the next section.

### III Results and Implications

It must be emphasized again that all of these analytical results should be viewed as indicative of directions of change expected with these alternative support levels rather than as forecasts of impacts. The alternatives analyzed in this chapter have relatively small differences compared with the wide differences of options evaluated previously, so the relative sizes of impacts are smaller. This is typical of what normally happens in the policy process. The range of options narrows as decision time nears.

In scenarios where there are minimum prices and these minimum prices turn out to be higher than what equilibrium prices would be in the model, it means that not all production is able to find a market. If this were to occur in reality, it is not clear what the government would or could do about it and we do not try to resolve that question. For simplicity, the model is set up so that if there is production that exceeds demand (when minimum prices are above market clearing prices), the cost of government programs would increase by the amount needed to buy the surplus milk (i.e. milk farm price times the surplus).

#### Baseline

The baseline scenario simulates an attempt to address the subsidy cost by eliminating subsidies for 2<sup>nd</sup> grade milk. This also increases the effective difference between 2<sup>nd</sup> grade and higher grades of milk and leads to a further reduction in the share of 2<sup>nd</sup> grade sales. The estimated subsidy cost is Lt 39.2 per ton or about Lt 57 million in total (Table 3). The total cost is the same, since there is no minimum price and no surpluses are generated. This shows the impact of the lower prices at the beginning of the projection period, which would lead to a slower growth in production and a higher growth in domestic demand. Lower prices of dairy product prices in the early years also make these products slightly more competitive on the export market, suggesting a possibility of increasing export sales and revenues. But there is a limited impact because cheese and butter prices remain above world market prices and regular channels for export sales are still not well developed.

## Scenario Comparisons

The scenarios progress in time sequence with the last one being the most recent Government decision. For most variables, the impacts of different policies are small, because these options have relatively small differences in support levels. Several of the key variables are compared in Table 3 below, and more comparisons are shown in the charts that accompany this paper.

Table 3 Comparison of key results of policy alternatives

Scenario	Milk Farm Price litas/ton	Average Subsidy litas/ton	Milk Production 1000 ton	Percent 2 <sup>nd</sup> Grade Sales percent	Cost of Subsidies mil Litas	Total Cost mil litas
1998						
Baseline	549	39.2	1948	62	57	57
Scenario 1	565	36.3	1951	57	53	59
Scenario 2	560	23.2	1946	60	34	35
Scenario 3	560	42.7	1951	67	62	67
Scenario 4	556	47.9	1952	64	69	73
2002						
Baseline	628	35.7	2121	58	56	56
Scenario 1	634	30.4	2120	53	48	48
Scenario 2	641	14.2	2117	56	22	22
Scenario 3	630	32.0	2121	62	50	50
Scenario 4	626	38.0	2122	59	60	60

Scenario 1, like all other scenarios has minimum prices that have the effect of forcing prices higher in 1998 and 1999. However, subsidies for highest and 1<sup>st</sup> grade milk are lower, so the average subsidy and total cost of subsidies are lower than in the baseline. The total cost is higher in the first two years because of the surplus disposal cost assumed to occur when prices are forced higher. The percent of 2<sup>nd</sup> grade milk delivered is lowest in this scenario, since it has the largest difference between 2<sup>nd</sup> grade and higher grades of milk.

Scenario 2 has by far the lowest average and lowest cost, because highest and 1<sup>st</sup> grade subsidies are even lower than in Scenario 1. This scenario probably comes closest to staying within the budget constraints for 1998.

Scenario 3 raises the 2<sup>nd</sup> grade price and subsidy and thereby also the average subsidy, so cost is higher than the baseline. It is interesting that compared with the MOA proposal of April 29 (scenario 2), this option while increasing the minimum price of 2<sup>nd</sup> grade milk does not raise the average price. The reason is that the percent of 2<sup>nd</sup> grade in total production is higher.

Scenario 4 lowers the 2<sup>nd</sup> grade minimum price and reinstates the subsidy for highest grade. Thus the average subsidy and, subsidy cost, and total cost are higher than the baseline and all other scenarios.

Since the cattle industry takes some time to adjust to new price and policy conditions the comparison of these alternatives is summarized by looking at the impacts on key performance variables and the estimated net economic benefits both in the short term and in the medium term.

(Table 4) The average annual impact for the period 1998-1999 represents the short term and the average of the last three years of the projection period (2000-2002) represents the medium term

Table 4 Comparison of changes in key performance measures of policy alternatives

Scenario	Milk Farm Price	Milk Price with Subsidy	Farm Net Returns	Consumer Expenditures	Government Cost	Net Economic Benefit *
	Litas/ton	Litas/ton	mil Litas	mil Litas	mil Litas	mil Litas
Average 98-99						
April 20 MOA	+8.9	+4.9	+11.7	+13.9	-1.1	-1.0
April 29 MOA	+10.8	-7.5	-5.6	+16.9	-25.8	+3.3
April 29 Gov	+3.0	+3.8	+7.0	+4.6	+4.3	-1.9
May Gov	-0.7	+5.4	+7.5	-1.3	+11.6	-2.8
Average 00-02						
April 20 MOA	+3.8	-1.4	-0.1	+5.9	-8.0	+2.1
April 29 MOA	+15.8	-5.3	0.0	+24.9	-32.7	+7.9
April 29 Gov	+2.4	-0.6	+0.3	+3.8	-4.8	+1.3
May Gov	-1.9	+0.9	+0.5	-2.9	+4.2	-0.8

\*farm net return change minus consumer expenditure change minus govt cost change

In the short run there are significant changes in farm net returns from one scenario to another. However, this difference is small relative to the differences in cost. The average annual cost difference from the highest (+11.6) to the lowest (-25.8) cost scenarios is over Lt 36 million, but the higher cost option only generates an additional Lt 13 million in farm net returns. While these absolute cost and return figures are only rough estimates, these results are consistent with the usual result that there are dead weight losses associated with supports and subsidies that stimulate more production. The implication is that if the government could give pure income transfers that were decoupled from production, a Lt 13 million per year annual transfer combined with scenario 2 policies would leave the farmers as well off as in scenario 4 and save the Government about Lt 23 million per year.

In the medium term, the impacts on farm net returns are not significant, since the scenarios with lower subsidies have higher market prices in the later years. The results indicate that the net economic benefit tends to increase as subsidies are reduced (the lowest subsidies being in scenario 2). The net returns to milk producers don't vary too much across scenarios, so the main effects are from changes in government cost and consumer expenditures. In every case the change in government cost is greater in absolute terms than the change in consumer expenditures. The greatest net benefit is for the April 29 proposal of the MOA, which has the greatest cost savings on the order of Lt 30 million per year.

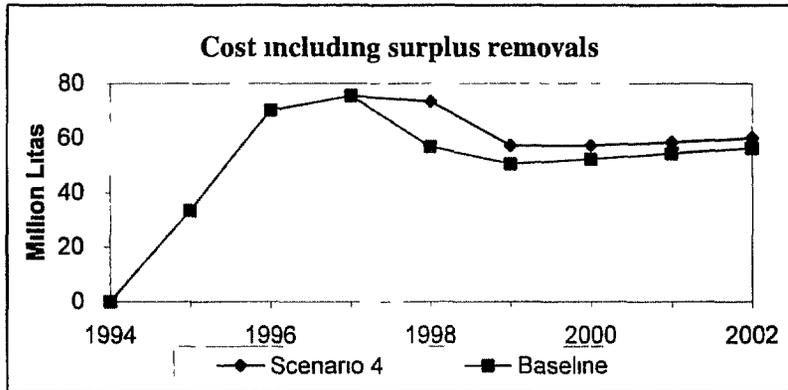
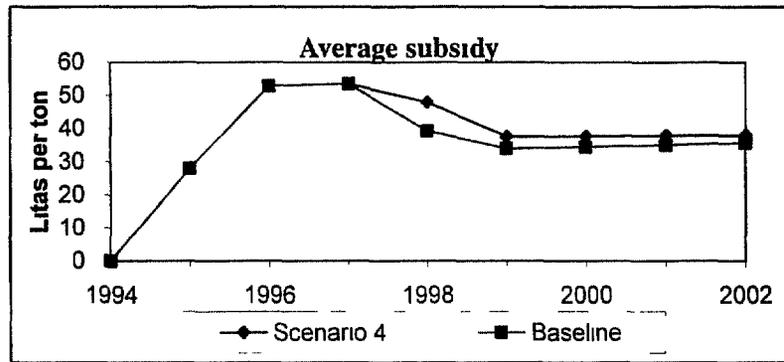
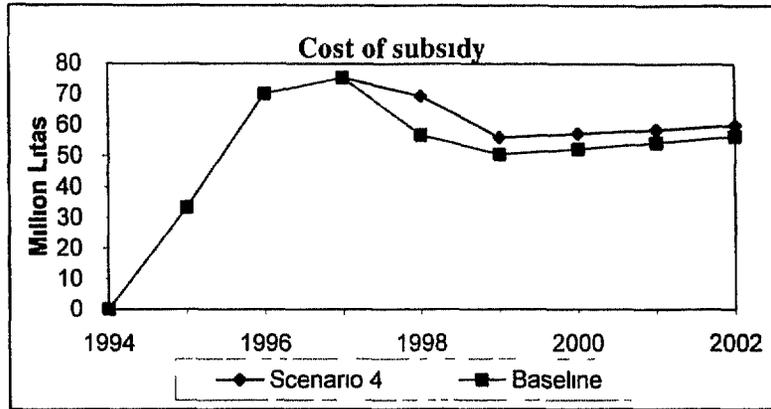
## **Conclusions and Caveats**

As in the previous analysis, these results should be viewed as indicative of directions of impact. These impacts are much smaller than in the previous set, because the policy options are in a narrow range. Perhaps the most important conclusion of these results is that the four options that keep the minimum price mechanism do not appear to make even the farmers much better off than in the baseline where there are no minimum prices. Also the MOA proposal of April 29, which drastically reduces subsidies to stay within budget constraints saves the Government about Lt 30 million annually but in the medium term does not significantly impact farm net returns.

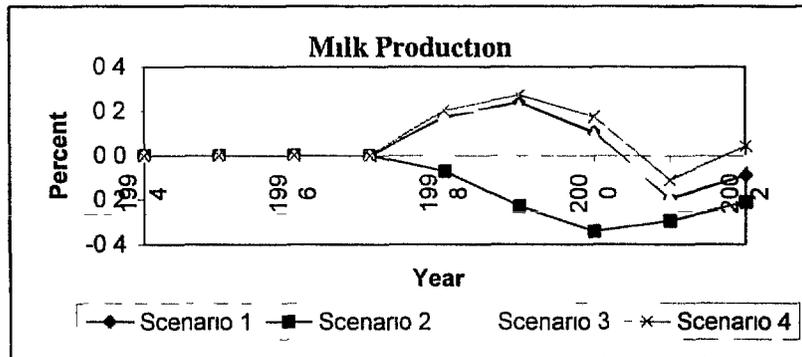
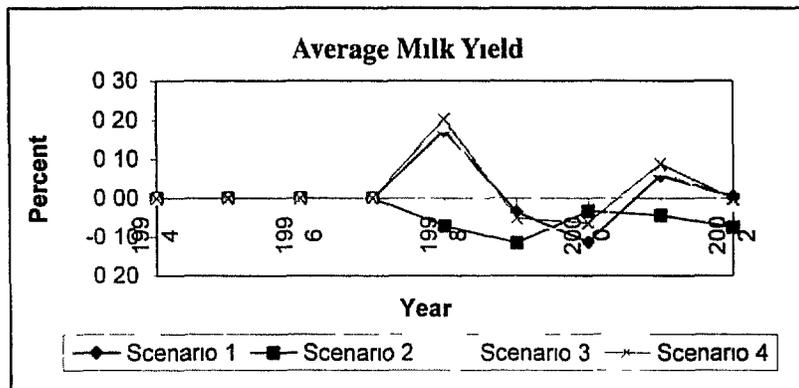
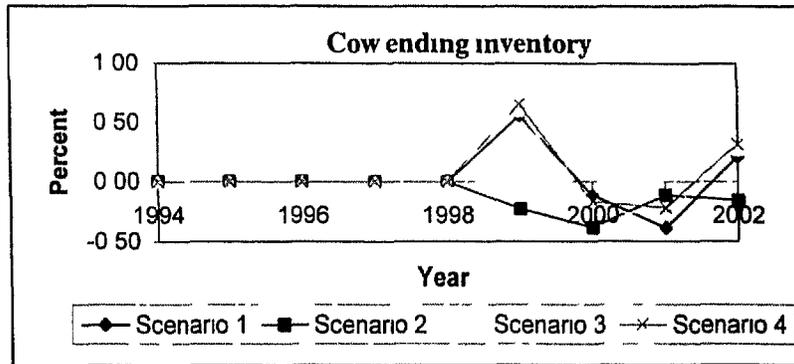
These results together suggest that in the medium term farmers are just as well off with lower subsidies, because that reduces production incentives and leads to higher market prices. The short term results suggest that if the short term income losses due to milk subsidy reductions were compensated by fully decoupled transition payments over two or three years, farmers would be as well off as before and Government expenditures would be significantly lower than under current programs.

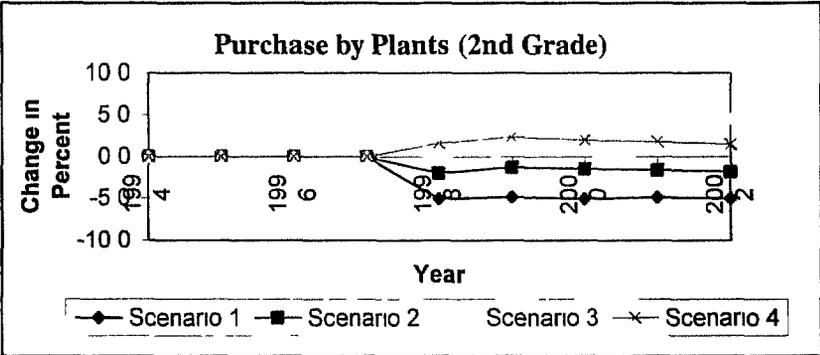
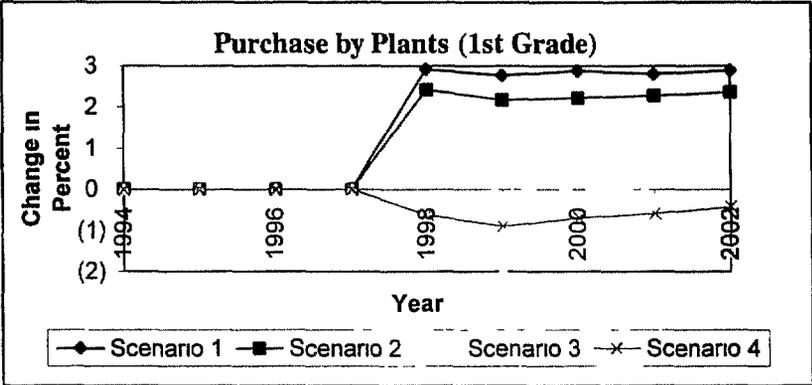
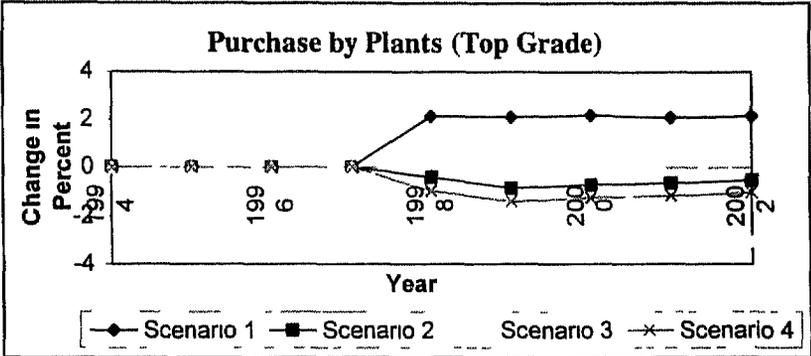
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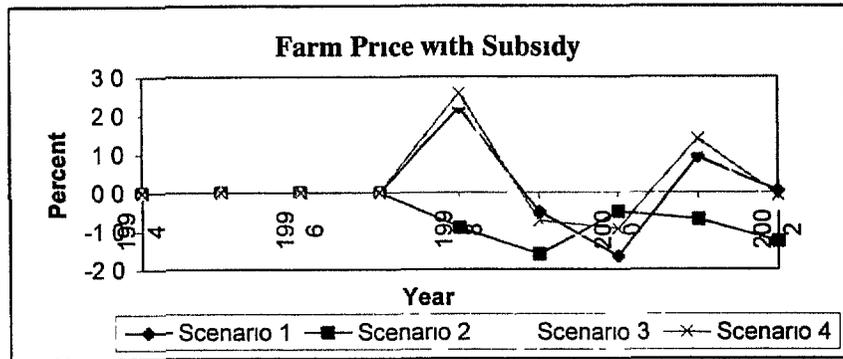
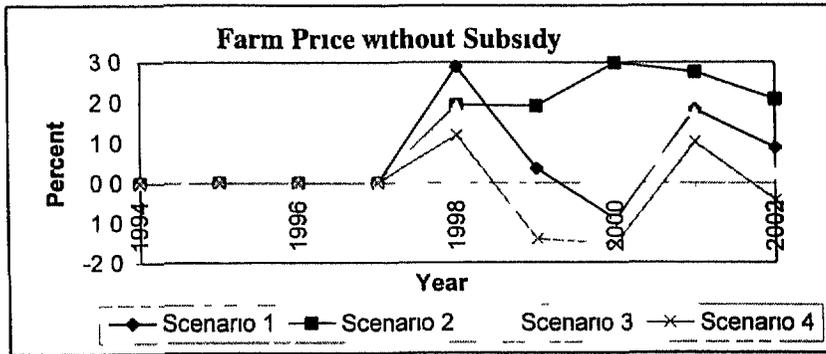
GRAPHS - BASELINE

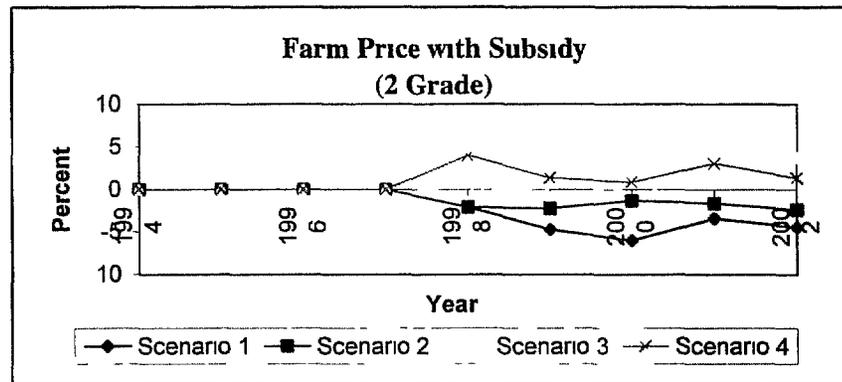
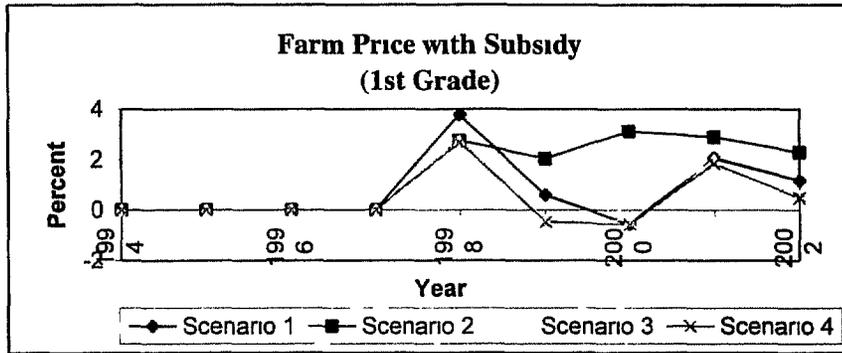
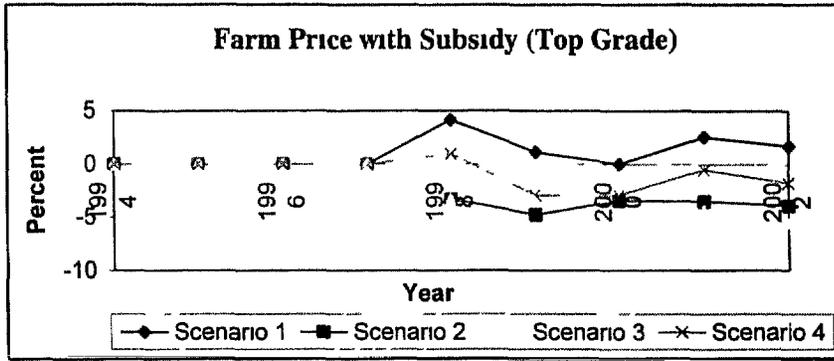


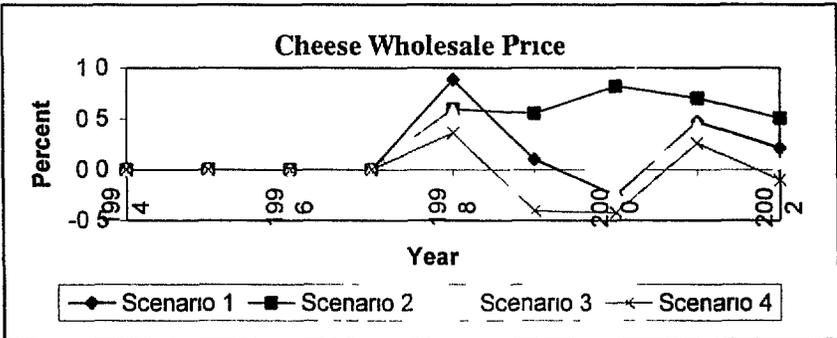
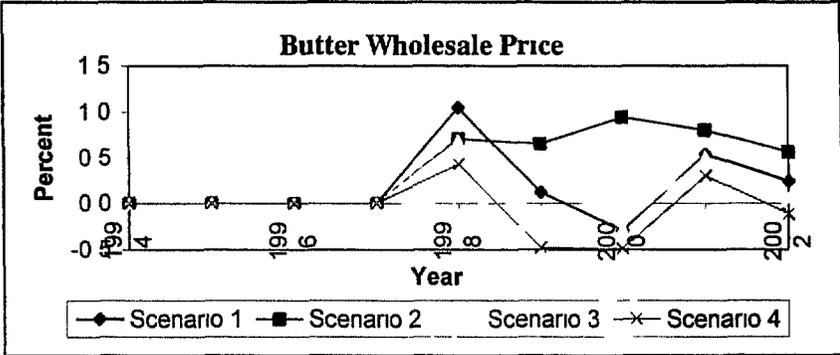
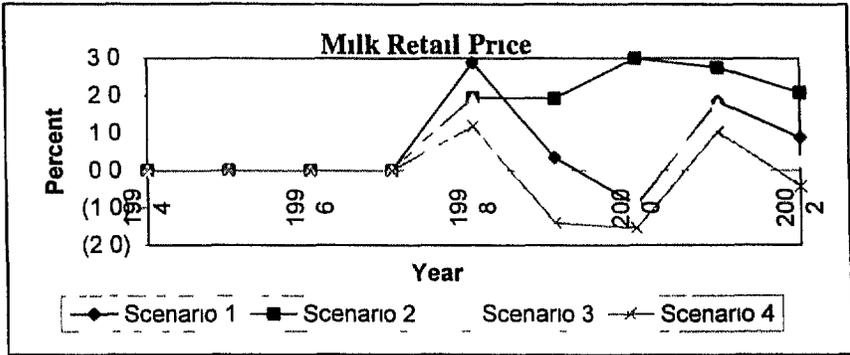
GRAPHS - SCENARIOS

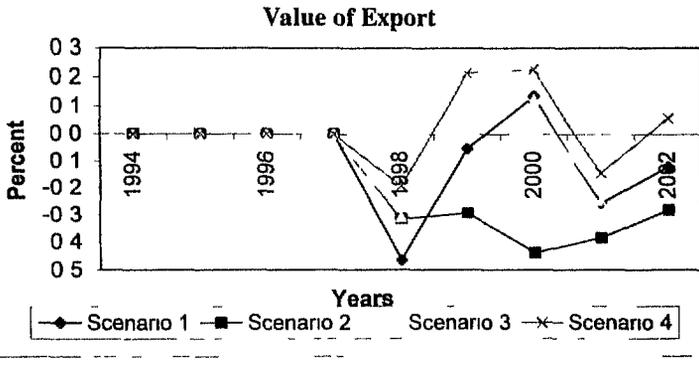
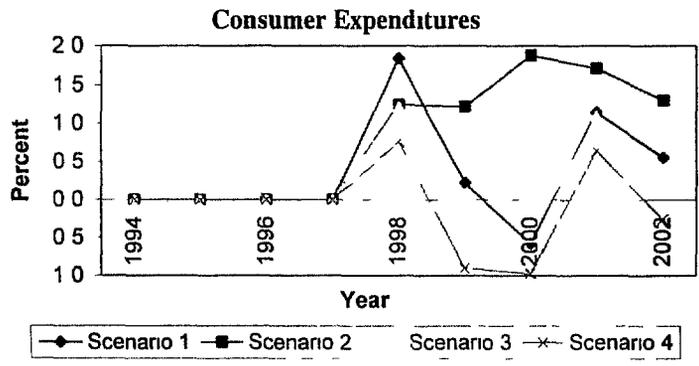
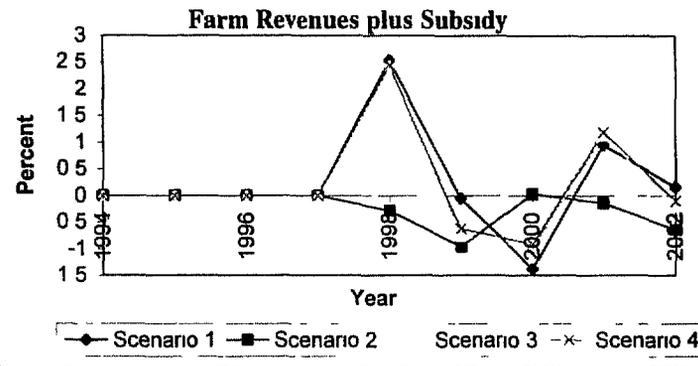
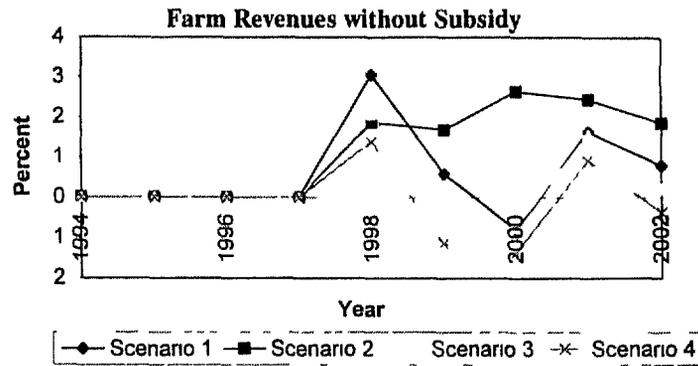


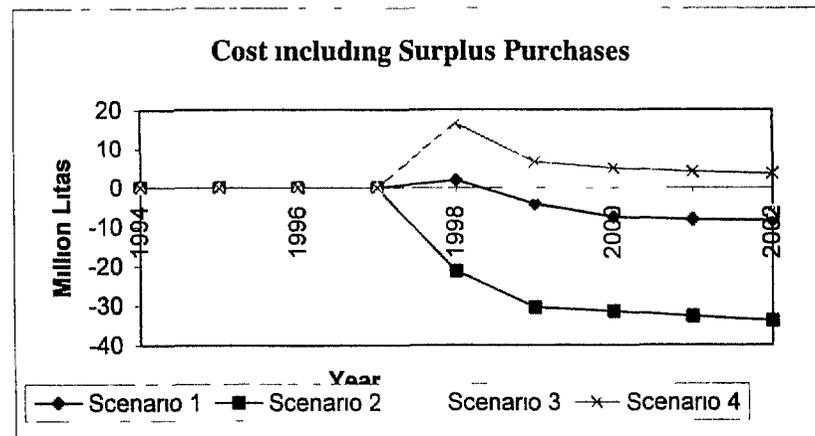
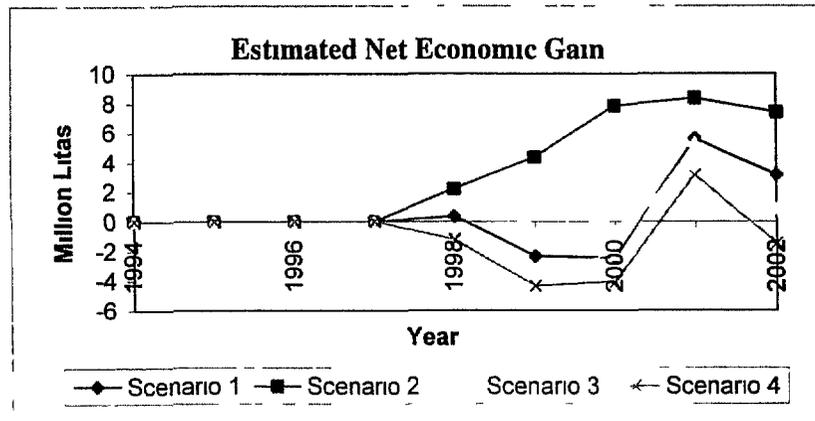
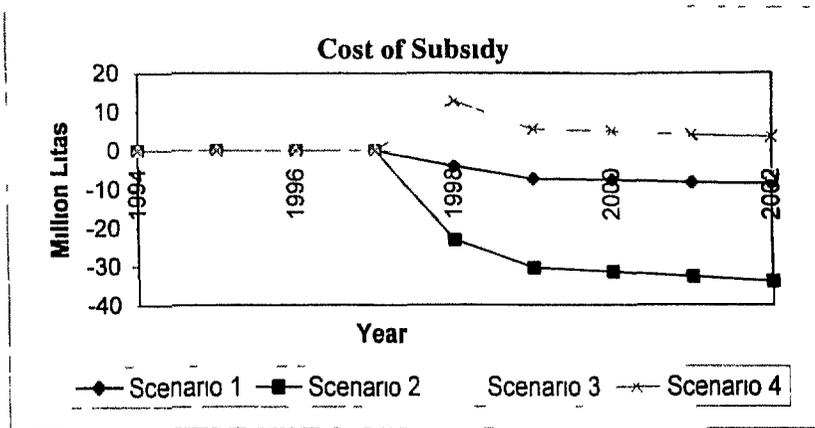












**ATTACHMENT B**

**Analysis of Margins in Lithuanian  
Milk Product Marketing Chain**

**Report by MAS Consult, Ltd., Lithuania**

**July 1998**

**Analysis of Margins in Lithuanian Milk Product  
Marketing Chain**

**REPORT**

**July 1998**

Prepared by MAS Consult, Ltd (Lithuania)  
Commissioned by Land O'Lakes, Inc (U S A )

## 1 Executive Summary

This main goal of the analysis of the milk product marketing chain pricing was to determine the formation of prices for milk products in a marketing chain from milk delivery to processors to its purchase by consumers. This report presents the analysis of Lithuanian milk product marketing chain pricing and its results.

The data for the research was provided by 6 dairy (processing) companies and several wholesale and retail intermediaries. Despite the low percentage of respondents (21 percent) of total dairy companies which were approached, in our belief the representativeness of respondents regarding their product mix and their share in total manufacturing output created sufficient background to conduct the study (chapter 3).

The dairy companies (processing) together with the milk producers form the essential part of dairy products' value adding chain. Lithuanian dairy companies add to approx 30 percent of total value of the dairy product wholesale price. The rest – approx 70 percent – is contributed by milk producers and suppliers. Due to a significant share of the raw milk costs in the wholesale price of dairy products, any changes in raw milk price have direct impact over the dairy companies' operation results. In case of fresh milk products the increase in raw milk prices is compensated by local consumers – by the respective increase in retail prices. That is why the profitability of the fresh milk products is relatively stable. In case of export the increase in raw milk prices has a direct negative impact over the company's operations – the profitability decreases either the losses increase (chapter 4).

The varying profitability of different product lines contributes to significant profitability differences of the whole companies' operations, having different product mix. The most profitable is the production of fresh milk products and cheese. The fresh products are sold in local market mainly. The profitability of products for export has significant variations – cheese is the most profitable, skim milk powder profitability balances close to zero, and the export of butter is highly loss making. Companies, having a strong position in local market, manage to balance the product mix and as a whole operate profitably. While companies concentrating on export sales (excluding cheese) operate at a loss (chapter 4).

The wholesale intermediaries do not have a distinct market position as a part of total output reaches the retail level directly from producers. The trading margins of the wholesale intermediaries vary from 1.5 to 10 percent, depending up on a marketing service level offered by wholesalers. Retailers (especially big supermarkets) do not consider the trading with dairy products as a profit seeking operations – the trading with dairy products first of all serves to attract people to the stores. Due to this reason retailers trade at minimum margins – 5 to 7 percent, rarer up to 12 percent. Smaller shops trade at higher margins – up to 25 – 30 percent (Chapters 5 and 6).

The dairy companies' contribution (conversion costs and gross margin) to the retail value of dairy products varies from 39 percent (milk) to 12 percent (butter). The contribution of the milk producers to the value of dairy products is higher – it varies from 63 percent (butter) to 37 percent (milk). This means that the operations and the efficiency of operations of milk producers has a higher influence over the final retail price of dairy products than that of dairy companies. The significant part in the retail price is contributed by VAT tax – 15.25 percent calculated from the retail price (or 18 percent markup) (Chapter 7).

One of the tasks of the study was to compare the ratios of dairy product to raw milk prices of different countries. This ratio can reveal the efficiency and competitive position of country's dairy sector. The ratio of dairy products and raw milk prices depends up on the level of the raw milk price. In case the raw milk price increases the ratio decreases, considering conversion costs being constant, and vice versa. Due to this reason the comparison of ratios of different countries in case of raw milk price differences does not make any sense. According the hypothetical adjustments and calculations in case of similar raw milk prices in many cases the efficiency and competitiveness ratio is not in favor of Lithuanian dairy sector. It has to be noted that presented ratio comparison can not be considered without certain considerations involved.

This research was done by the business consulting company "MAS Consult" by the request of the USA company "Land O'Lakes".

We would like to thank all of the milk processing companies that participated in this research and especially the Lithuanian Dairy Association, "Pieno centras", who provided a great deal of help.

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## 2 Approach

This analysis of the milk product marketing chain pricing includes research about the formation of prices for milk products in a chain from milk delivery to processors to its purchase by consumers. The research includes the cost structure of milk products and an analysis of profit margins for every one of the levels in the marketing chain.

The marketing chain of milk products consists of these main levels:

- Milk production
- Milk processing
- Wholesale
- Retail

All of the levels mentioned above, with the exception of milk production, were analyzed for this project.

The research of the milk product marketing chain was comprised of these main levels:

- The preparation of questionnaires
- Questions (collection of information)
- Data analysis

### 2.1 *The Preparation of Questionnaires*

A standard questionnaire form (an example is attached) was prepared for the collection of information from milk processors. The purpose of the questionnaire was to achieve an explanation of the structure of all production and individual product expenses and profitability and also peculiarities of accounting methods applied.

### 2.2 *Questions*

The questionnaire was sent to 29 Lithuanian milk processing firms. The Lithuanian Dairy Association, "Pieno centras", provided a list of recommended firms. Of the 7 firms that provided answers to the questionnaires, one did not complete the form. That firm was not included in further research.

Wholesale and retail firms were directly interviewed.

### 2.3 *Data analysis*

Cost structure and profitability of the products was analyzed according to these groups of products:

- 1 Fresh milk products
  - 1.1 Milk
  - 1.2 Curd

- 1 3 Sour Cream
- 2 Commodity milk products
  - 2 1 Butter
  - 2 2 Milk powder
- 3 Cheese

The individual product costs and profitability of the milk processing firms were analyzed based on aggregated data regarding the groups of products mentioned above. The accounting of Lithuanian dairies is based on cost allocation according to norms. Therefore it is possible to state that a factory's cost accounting relating to individual products is not precise. Because of this reason, a more exact analysis of production costs and their tendencies is achieved by using the aggregate sums of production costs and prices according to the main groups of products.

In this report, the pricing structure of milk products is divided into these levels:

- 1 Raw materials (separately presenting milk, the collection of milk, and preparation expenses)
- 2 Conversion expenses – manufacturing costs (labor costs, energy costs, and other production costs, which include auxiliary materials, maintenance of equipment, amortization, and other production costs, are all examined separately)
- 3 Operating expenses (sales and administration expenses)
- 4 Financial expenses – interest expenditures (cost of equity capital not included)
- 5 Profit margin before taxes (in this report, two profit margins are used: (1) gross profit margin (or gross profitability), which is calculated as the difference between the revenues (prices) and production costs and (2) profit margin (or profitability), which is net profitability after interest expenses but before profit tax)

In the analysis of wholesale and retail chains, the existing trading margins are analyzed and factors influencing them are presented.

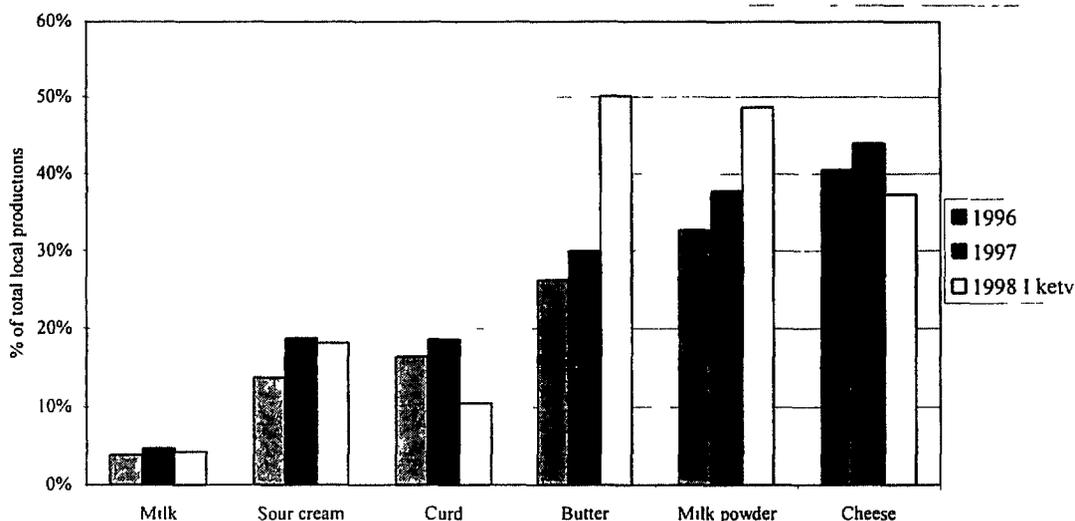
### 3 Representatives of the Questioned Companies

The prepared questionnaires were completed by six milk processing firms. These companies represent the major groups of Lithuanian firms according to the product mix and market orientation.

- 1 Having a wide product mix and a firm position in the Lithuanian market – 1 firm
- 2 Specialized cheese factory – 1 firm
- 3 Specialized in the production of commodity milk products for export and not having a firm position in the local market – 4 firms

Figure 1

**Production Volume of Represented Companies in Comparison with Total Production of Lithuanian Manufacturers (1997)**



The revenues of the firms that completed the questionnaire totaled 373 mill LTL in 1997. According to turnover, the firms can be divided into these main groups:

- 1 More than 80 mill LTL – 2 firms
- 2 From 20 mill LTL to 80 mill LTL – 1 firm
- 3 Less than 20 mill LTL – 3 firms

According to the number of employees, the firms can be divided into these main groups:

- 1 More than 600 employees – 2 firms
- 2 From 250 to 600 employees – 1 firm
- 3 Less than 250 employees – 3 firms

## 4 Milk Processing Firms

Milk processing companies are the essential value-adding part in the milk product marketing chain

### 4.1 Possible Calculation Mistakes

The cost accounting of the Lithuanian dairies is based on cost allocation according to norms. Therefore it is possible to state that a manufacturing cost accounting relating to individual products is not precise. Companies use different accounting methods and direct comparison of cost items may not be precise.

- The allocation of rates for raw materials and overhead differs from company to company. The profitability of individual products can be dependent upon transfer pricing. That's why some products in companies' accounts might seem very profitable or unprofitable.
- Energy expenditures differ from company to company, as some companies have their own boiler houses, that are not considered separate departments of the companies, energy costs include only the costs of fuel but not all of the boiler house maintenance costs. The companies that buy thermal energy from other suppliers also pay different prices.
- Because of inflation and insufficient indexation, the long term assets of a company often have a low book value. The undervaluation of a product (because of insufficient depreciation expenses) can complicate the process of technical renovation in a company (because of the lack of money).
- Some companies ascribe their operating overhead directly to production costs. Transportation and other selling expenses that should be accounted as operating overhead are accounted as manufacturing costs by some companies.
- The profitability of the manufacturing operations is analyzed in this report. As the production and sales volume of some milk products (e.g., butter, cheese) are not the same in different seasons, the profitability of the products presented in this report might differ from the results reported in companies' income statements.

### 4.2 Product Mix

The product mix of the firms that participated in the survey is presented below.

As the diagrams below show, the commodity milk products (butter and milk powder) comprise about 50% of the companies' product mix according to production costs. Cheese makes up about 30-35%, the remaining part, 15-20%, is fresh milk products.

Figure 2

Product Mix (1997)

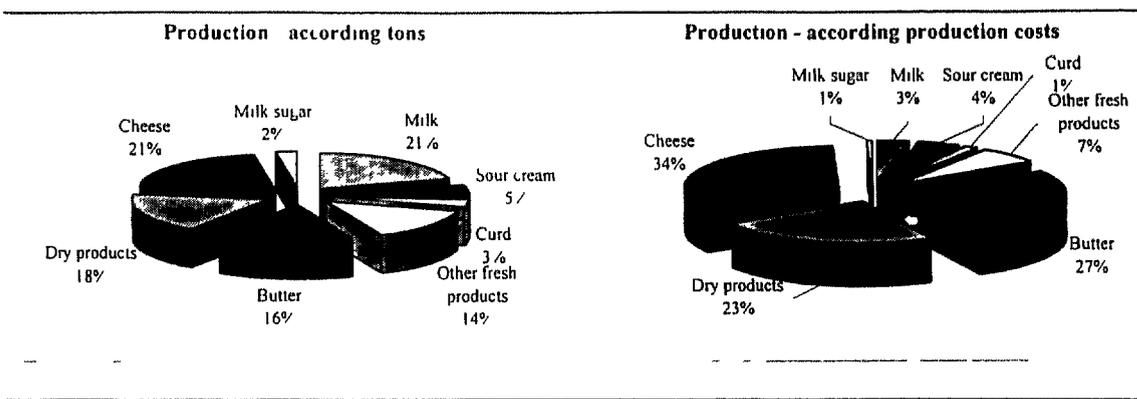
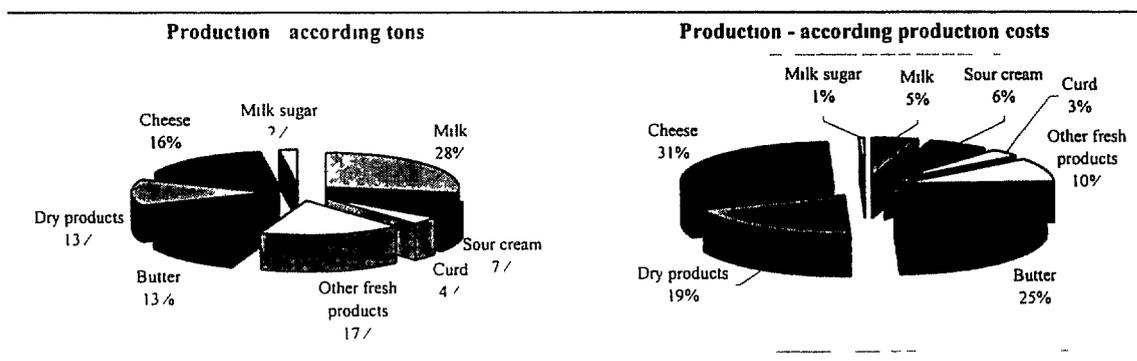


Figure 3

Product Mix (1998 I quarter)



4.3 Fresh Milk Products

Fresh milk products are divided into the following categories

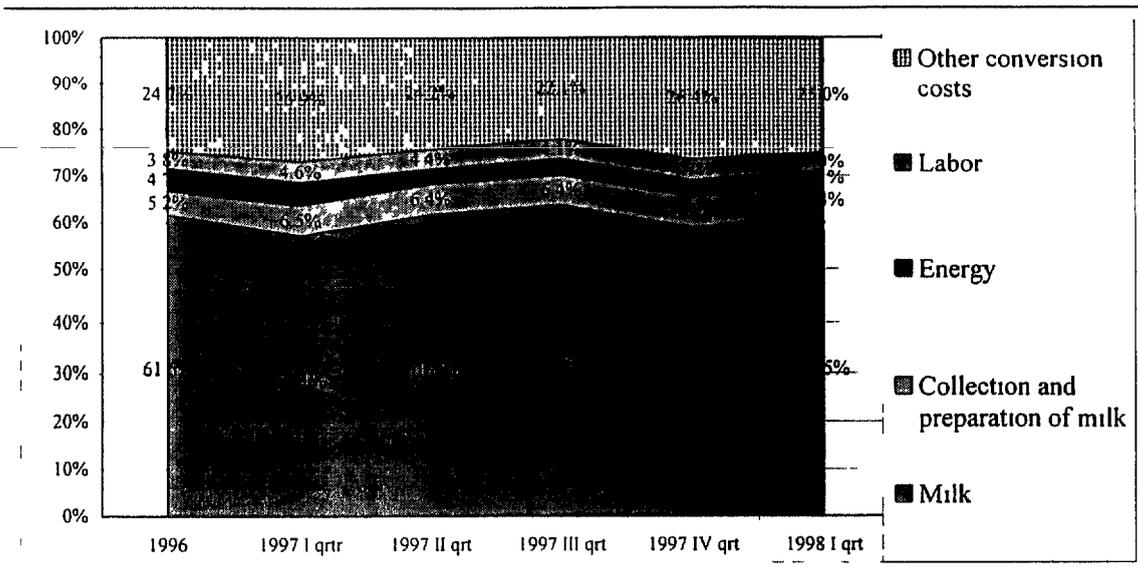
- Non-condensed milk and cream without sugar or other sweeteners (0401)
- Butter-milk, sour milk and sour cream, yogurt, kefir and other fermented or sour milk or cream (0403)
- Fresh, unaged cheese (0406 11), curd cheese (0406 12), and curd (0406 13)

Fresh milk products comprise 15 – 20 percent of the product structure according to manufacturing cost for all of the companies that responded. Fresh milk products are mostly produced for the local market. Exports comprise only a small portion of sales – about 10 percent.

Raw milk (including milk collection and preparation costs) comprises 65 – 70 percent of the fresh milk manufacturing cost structure. Energy and labor costs make up from 3.5 to 4.5% for each item.

Figure 4

Manufacturing Cost Structure of Fresh Milk Products



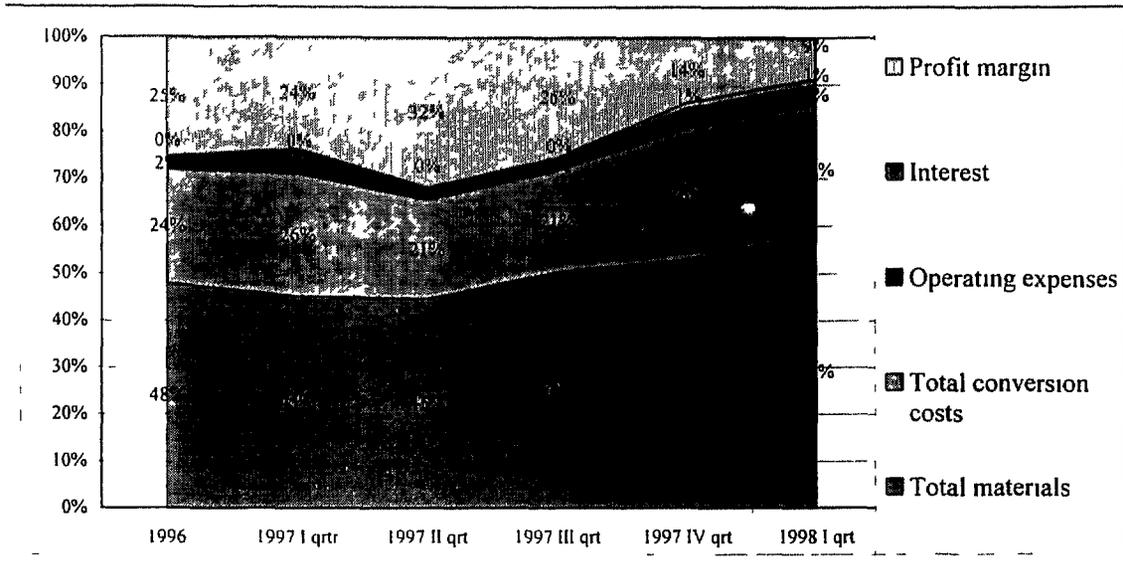
Fresh milk products are one of the most profitable groups of milk product mix. The profitability of fresh milk products reaches 25 percent before taxes. Strong positions in the local market allow companies to achieve high operating profitability. In the local market, an increase in cost of milk products is usually offset by a corresponding increase in sales price. Because of this reason, the profitability of fresh milk products remains stable despite increases in manufacturing costs.

On the other hand, the local market, which is the main source of profitability for milk processing companies, is limited. An increase in the market share of one company takes place at the expense of pushing other companies out of the market, but not expanding the market itself. Because of this reason, the general growth of the companies oriented only to the local market is not possible.

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Figure 5

## Factory Price Structure of Fresh Milk Products



The main components of fresh milk products (milk, sour cream, and curd) are reviewed separately below

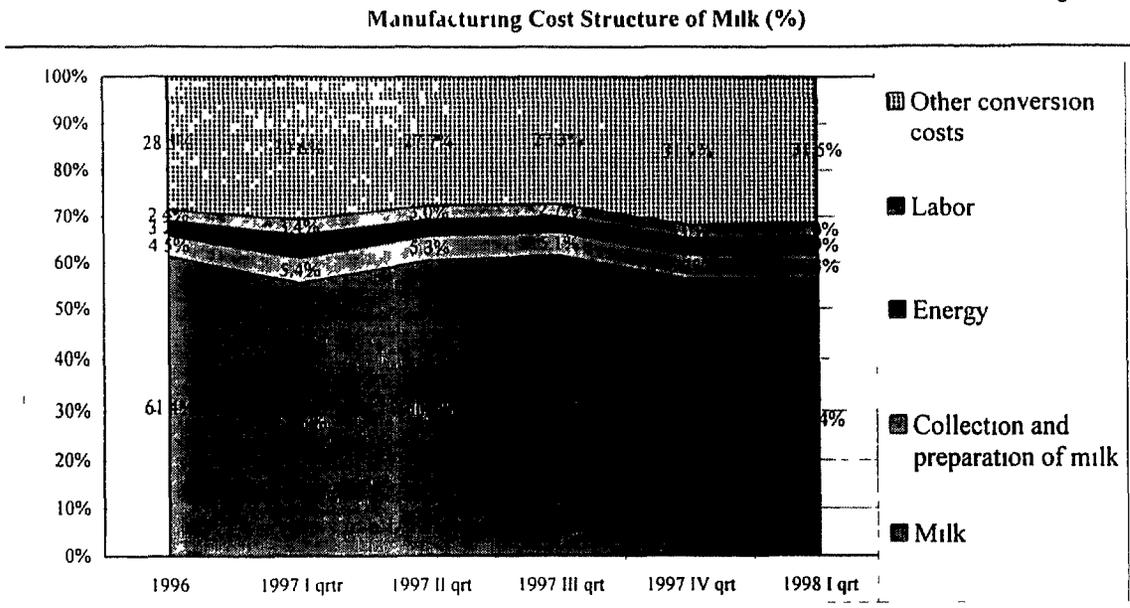
#### 4 3 1 Milk

Milk as a product is distinguished by various amounts of fat (up to 6% fat) The aggregate cost and pricing structure of milk with various amounts of fat of the milk processing firms that were analyzed is presented below

In manufacturing cost structure of milk, the largest expense, about 65-66%, is for raw milk (including the collection and preparation of raw milk) Processing (conversion) expenses make up about 35% of the production costs for milk Among the conversion costs, salaries make up a rather small part – about 4%

The structure of milk production costs strongly depends upon seasonal factors In the summer, when the supply of milk grows several times, production volume increases considerably and the share of fixed conversion costs in the overall product cost structure decreases In the winter, the use of production capacity decreases several times, and the share of fixed conversion costs increases

Figure 6



Milk manufacturing costs in absolute terms also varies depending on the season. In 1997, raw milk and its collection and preparation costs were almost stable and were correspondingly 0.53 LTL and 0.05 LTL for one kg of processed milk. Conversion costs varied from 0.28 LTL during the summer to 0.39 LTL during the off-season. In 1997, the cost of processing one kg of milk grew by 6% i.e. from 0.87 LTL to 0.92 LTL. During the first quarter of 1998, the cost of processing one kg of milk reached 1.06 LTL, mostly because of a rise in the price of milk and the growth of added processing costs for one unit of product due to decreased production during the off-season.

In all of the milk processing price structure in 1996 and 1997, net profits (before profit tax) were 20%. The profitability of milk varies throughout the year, because the retail price of milk sold to customers barely changes when the price of raw milk does not change, while processing costs are larger during the off-season and smaller during peak times.

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Figure 7

Structure of Milk Factory Price

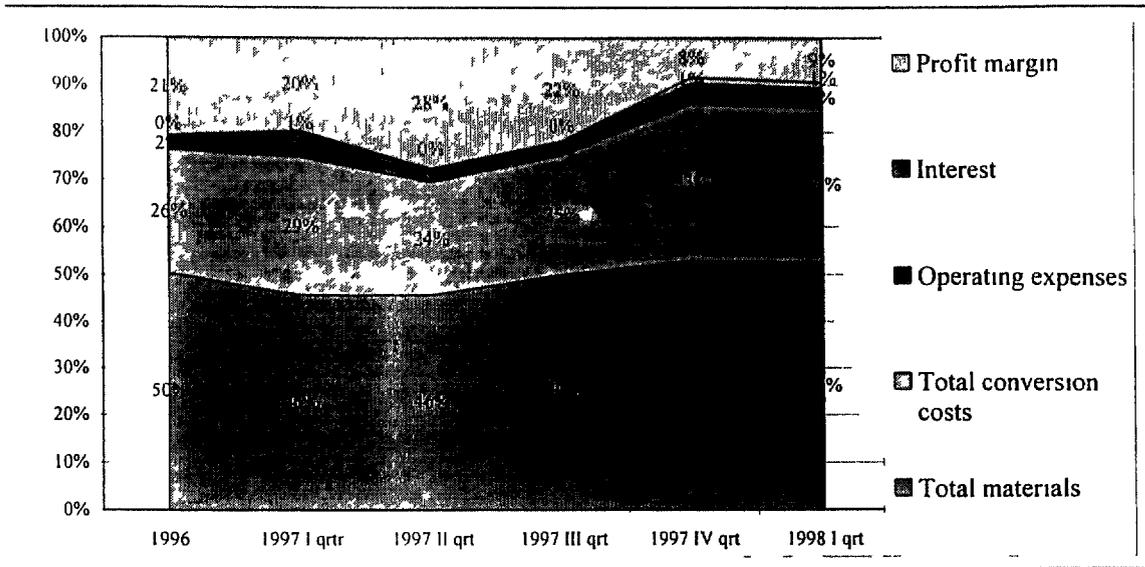
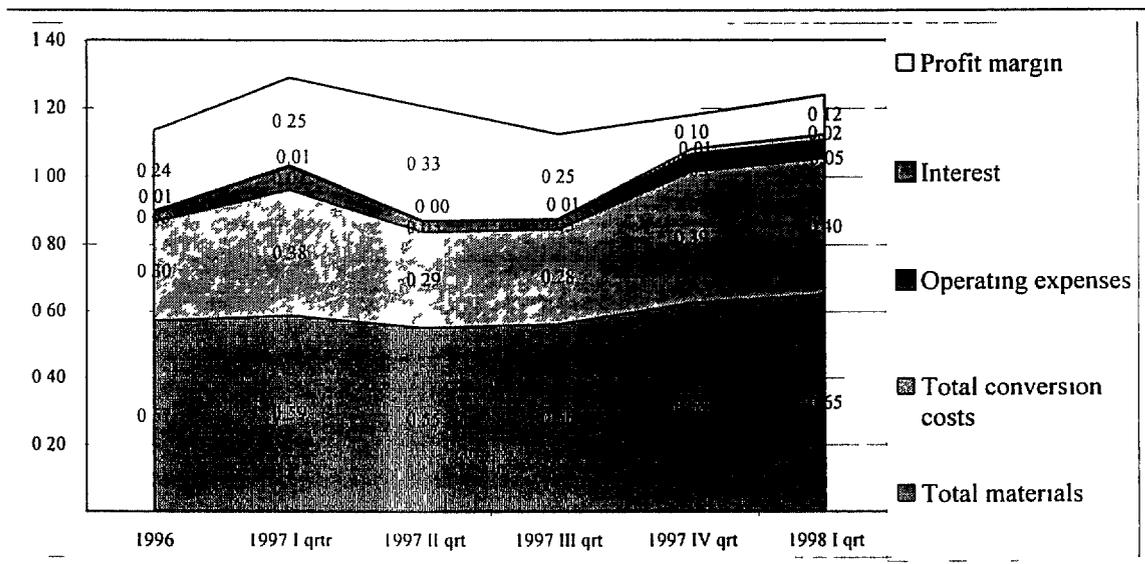


Figure 8

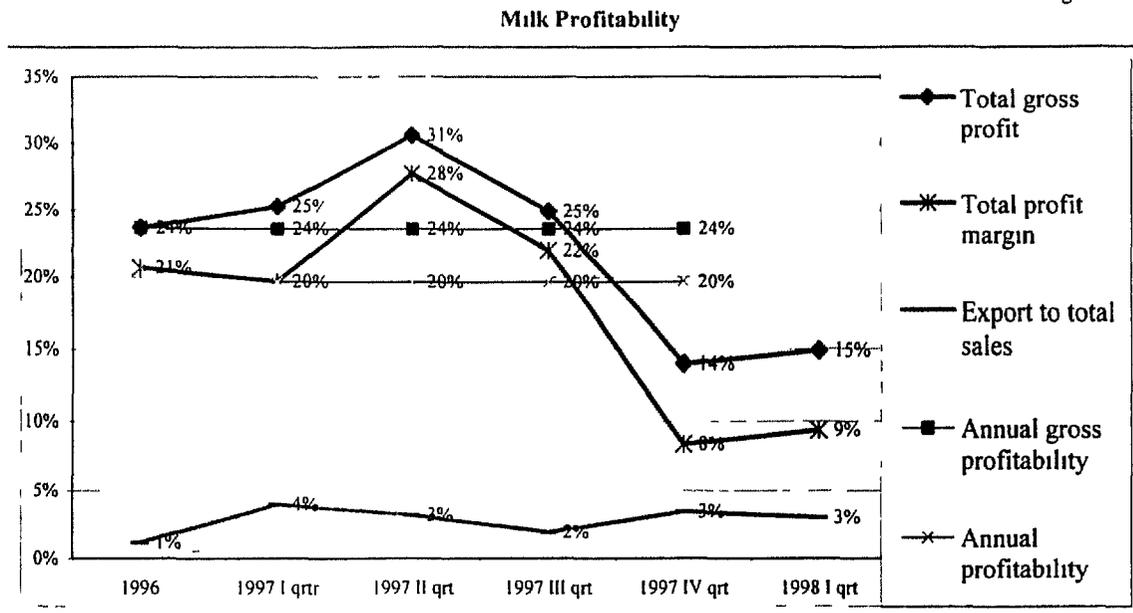
Factory Price of Milk (LTL / kg)



The average sale price for milk was 1.14 LTL in 1996 and 1.21 LTL in 1997. This price was practically the same as the average sale price in the local market. The export prices for milk were larger, but the insignificant amount of milk that was exported did not have a large influence on the general profitability of milk.

95

Figure 9



### 4 3 2 Sour Cream

Sour cream makes up 1/4 of all fresh milk products. There is no great difference in the production costs of the various types of sour cream, because there is not a large difference in their fat content. Packaging has a somewhat larger influence on production costs.

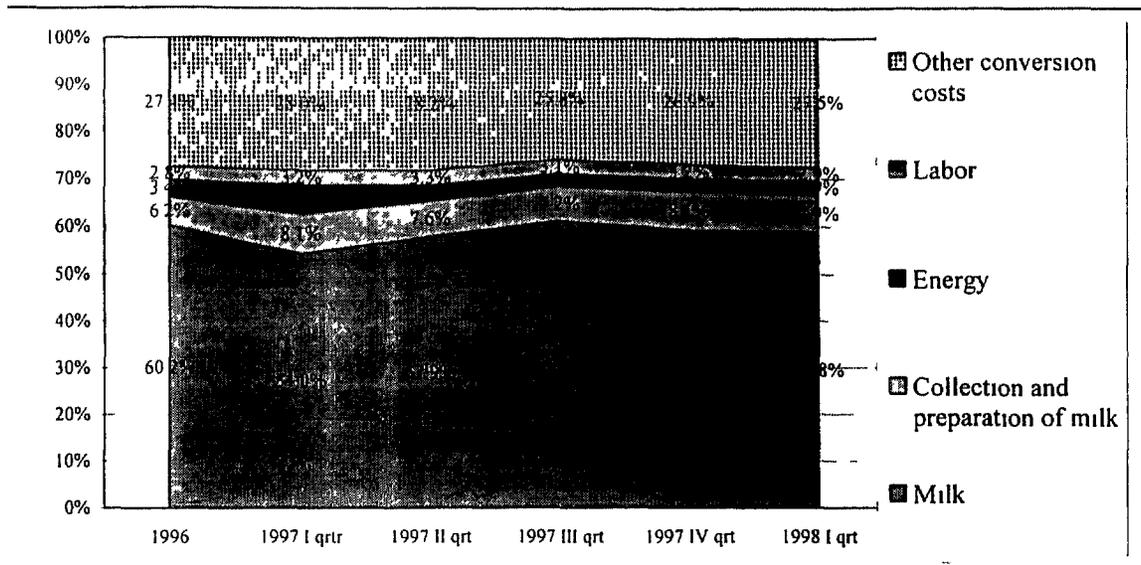
The cost structure of sour cream is similar to the cost structure of milk because overhead costs are normally allocated according to the raw milk base. Similar to the common milk processing, in the sour cream cost structure the biggest part corresponds to raw milk - about 58 percent. A slightly larger share than in common milk processing corresponds to milk collection and preparation costs - 7.7% on the average. About 33% of the expenses of producing sour cream are manufacturing overhead (conversion) costs. Conversion costs include labor expenses that make up about 3%.

Like milk, the cost of producing sour cream is dependent upon seasonal factors.

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Figure 10

Sour Cream Manufacturing Cost Structure (%)

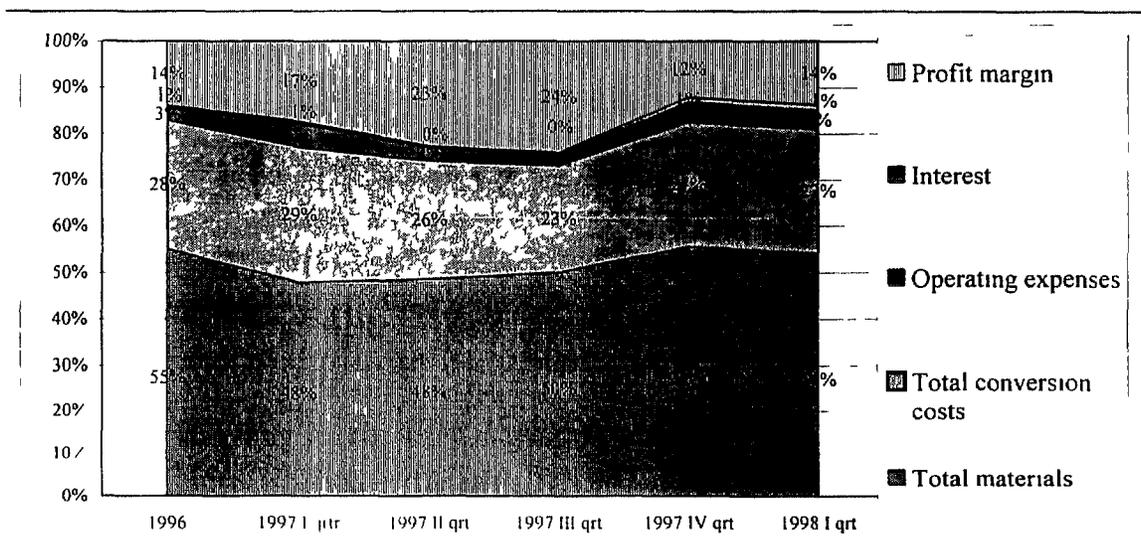


In 1997, the profit before taxes from sour cream production grew to 20% (In 1996 it was 14%) The price of sour cream varies according to the season, although it varies less than production expenses Even though prices are decreased during the peak season, sour cream is most profitable during that season

Exports of sour cream are not significant Therefore, higher prices for exports, like in the situation with milk, do not have a significant influence on profits

Figure 11

Factory Price Structure of Sour Cream



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Figure 12

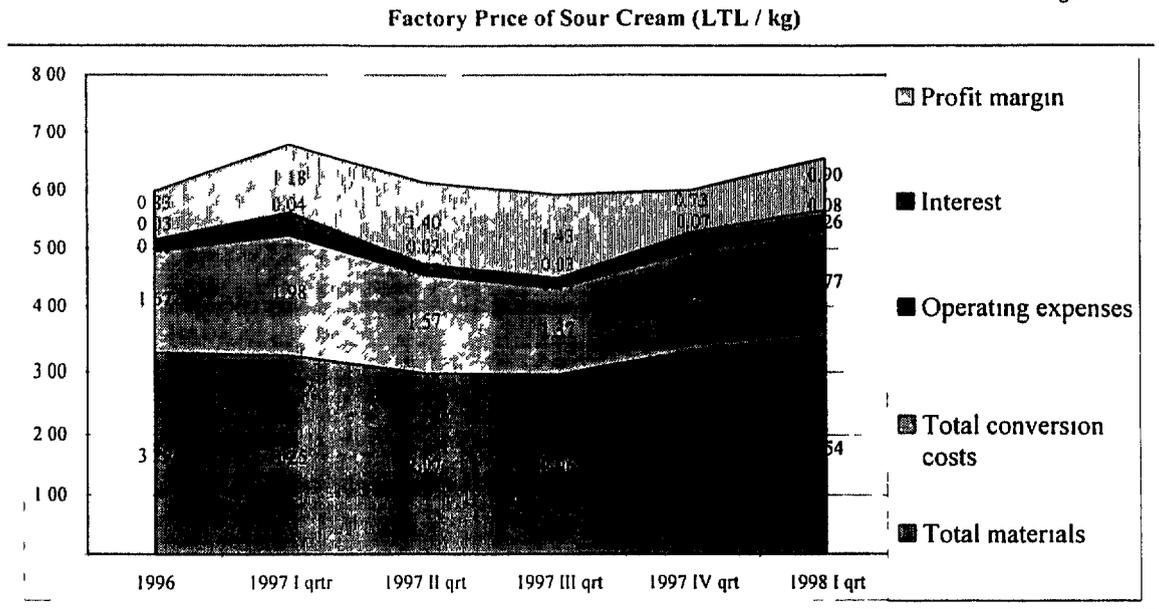
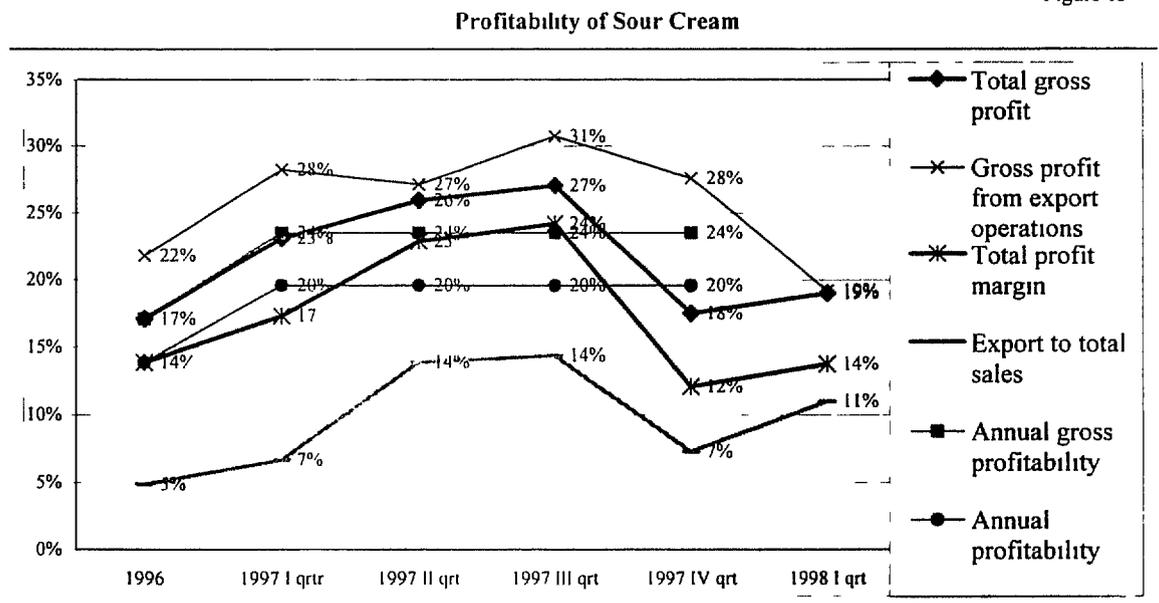


Figure 13



### 4 3 3 Curd

The cost of producing curd can vary up to 50% depending upon fat content and type of packaging

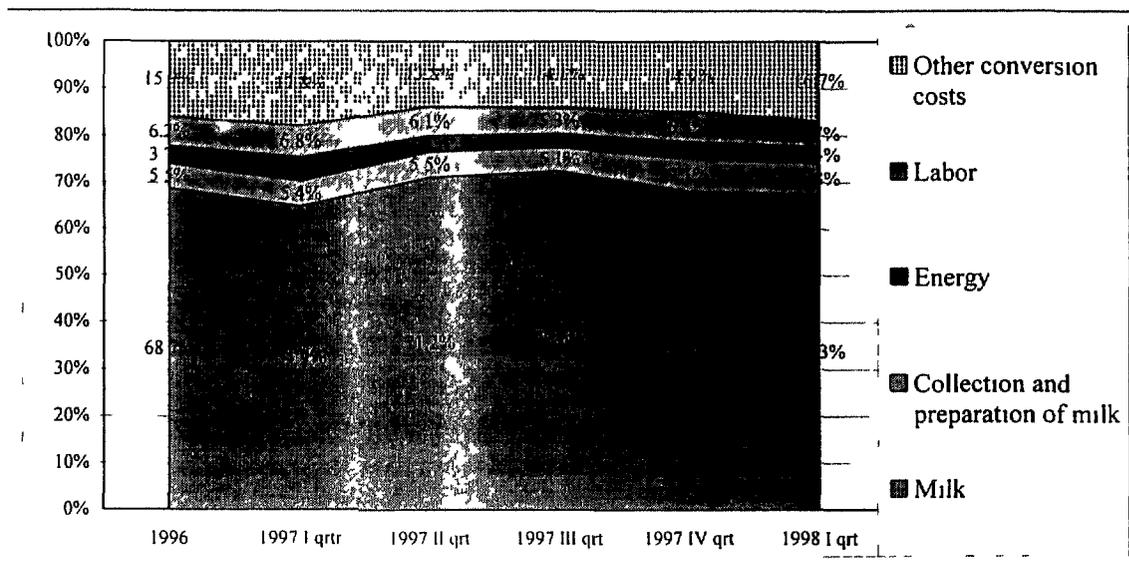
The structure of curd production expenses is different from other fresh milk products, e.g., milk and sour cream. The share of raw milk in the manufacturing cost structure amounts to 70% (i.e., 10% more than for milk and sour cream). The labor expenses for the production of curd are two times higher than for milk and sour cream and reach 6%. The share of the

98

forementioned costs is larger at the expense of a reduced share for other conversion costs  
 The total conversion expenses for curd can reach 25%

Figure 14

Curd Manufacturing Cost Structure (%)



Net profit (before profit tax) from the production of curd decreased in 1997 and amounted to 16 percent (It was 19 percent in 1996) The production costs for curd, like all fresh milk products, is conditioned by seasonal factors and the use of production capacity Curd is therefore most profitable during the peak season There are no significant exports of curd For that reason, larger prices for exports do not have a significant influence on profits

Figure 15

Factory Price Structure of Curd

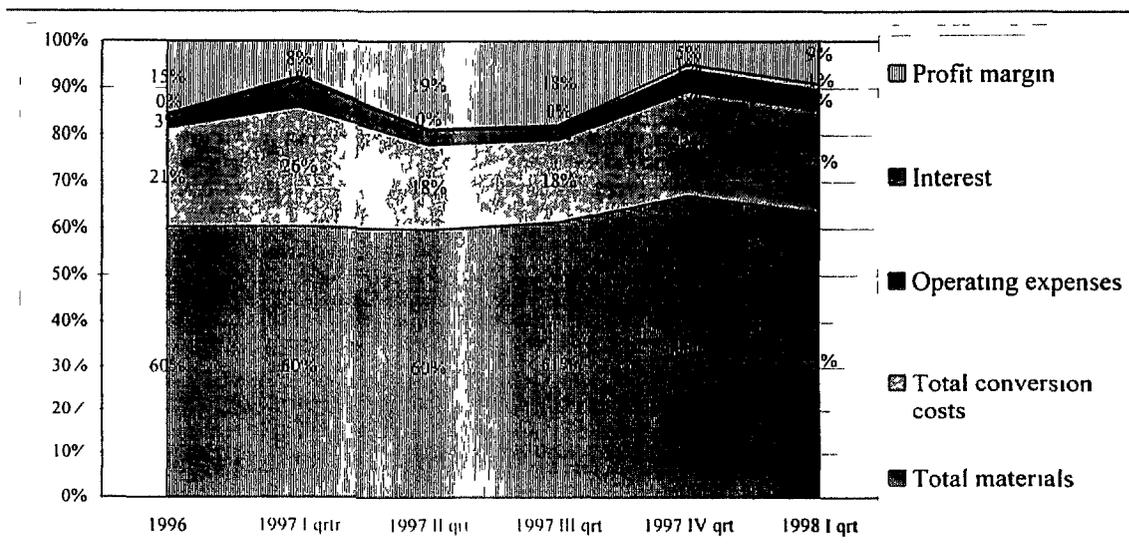


Figure 16

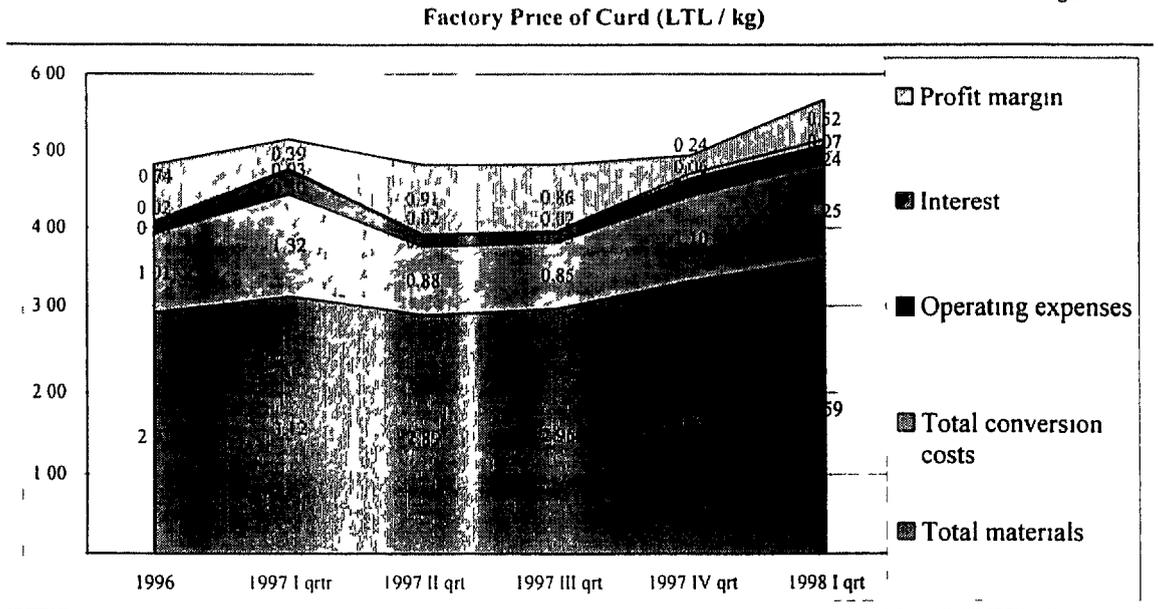
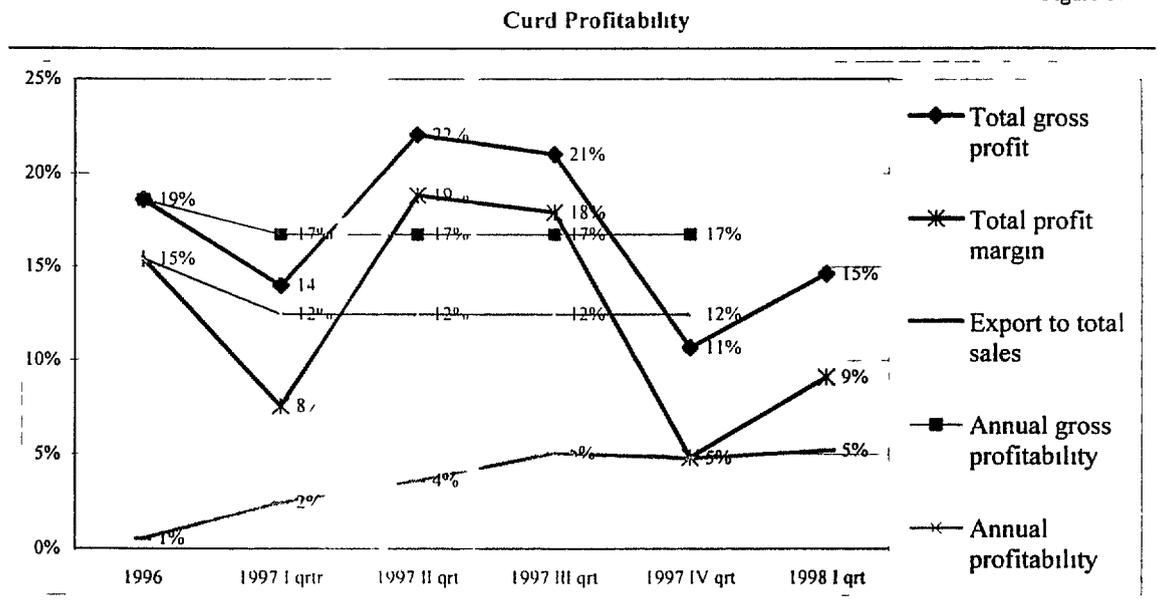


Figure 17



#### 4.4 Commodity Milk Products

Commodity milk products make up about 40-45% of all milk production (according to production costs). Most commodity products are exported. Commodity milk products are divided into these groups:

- Butter (0405)

100

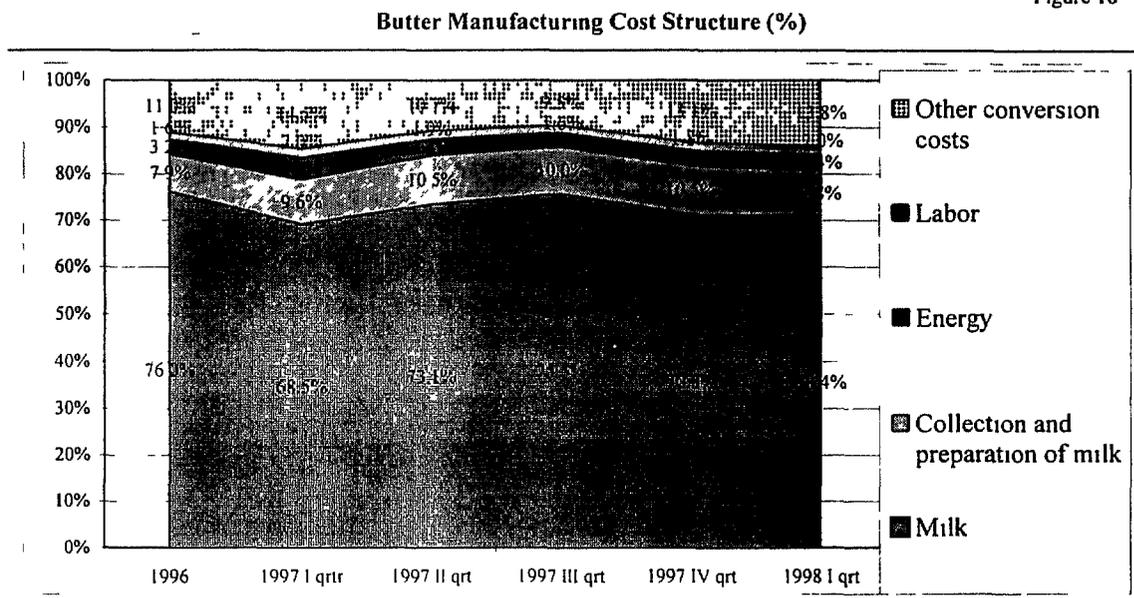
- Milk and cream, condensed or with sugar or other sweeteners added (0402), included in this category is powdered skim milk products (with a fat content of 1.5% or less)
- Casein (3501)

#### 4.4.1 Butter

Butter comprises about 1/4 of all manufactured milk products. The cost of butter varies up to 25% depending upon the grade and form of packaging.

In the general cost structure for butter production, the largest part, about 83%, is composed of raw materials (milk and its collection costs). In the case of fresh milk products, this figure is 67%. Processing (conversion) expenses are analogically about 17% of total costs. Energy costs comprise about 3.4%. Labor costs vary about 1%.

Figure 18



Expenses for processing butter strongly depend on seasonal factors. During the summer, when the milk supply grows several times, production volume increases considerably and the share of fixed costs in the overall cost structure decreases (e.g., in 1997, production expenses for butter varied 20%). On the other hand, the price of butter is also significantly influenced by the season – sales price decrease during the summer. In 1997, the average pre-tax loss for sales of butter was 12% (in 1996 losses were 3%), while during the peak season losses for sales of butter reached 24 percent (despite significant decreases in costs).

Figure 19

Factory Price Structure of Butter

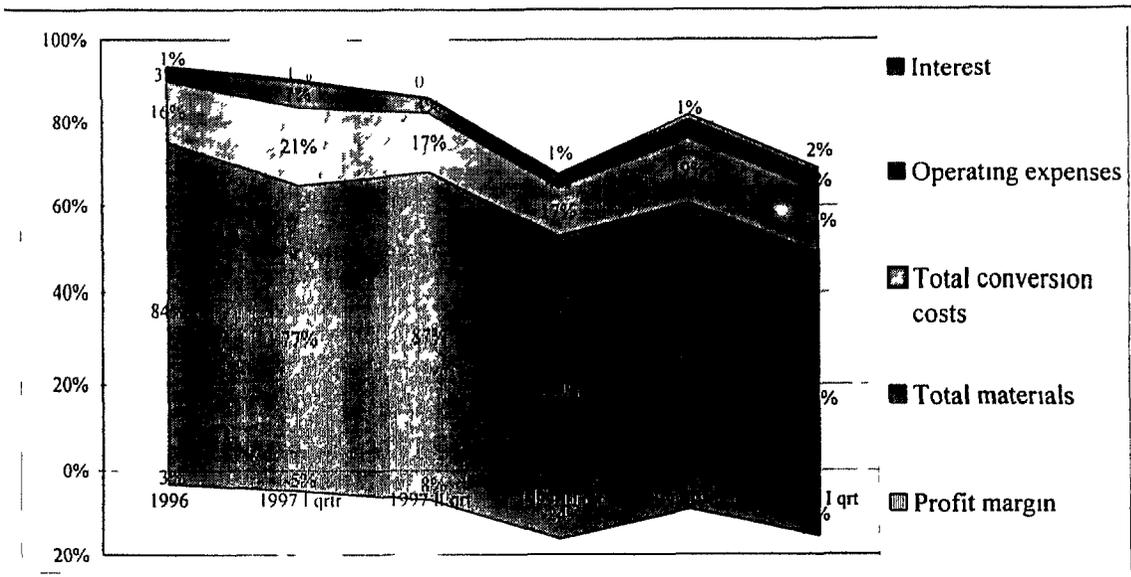
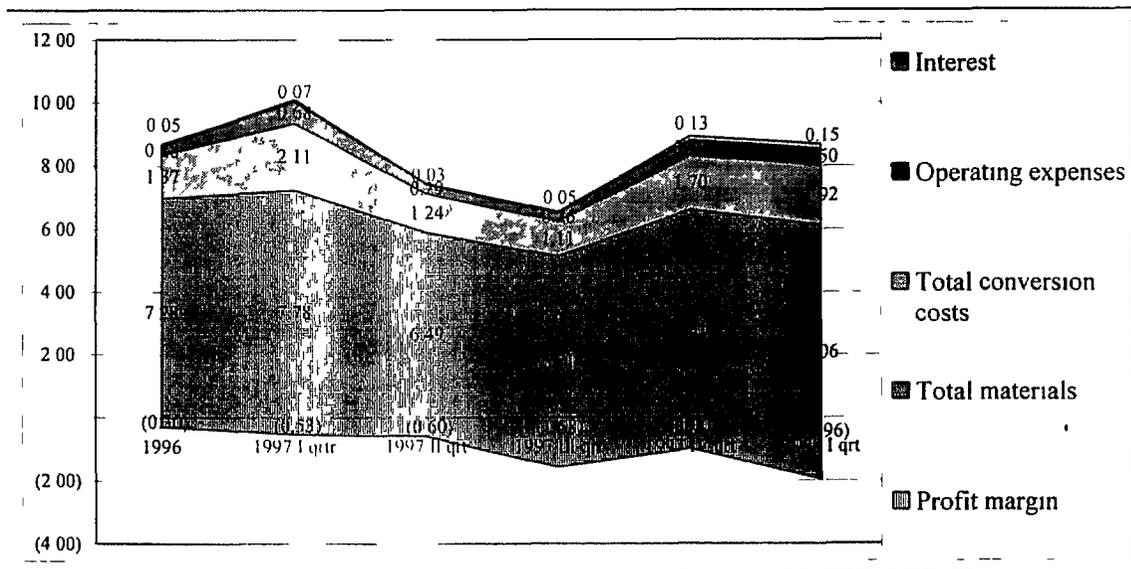


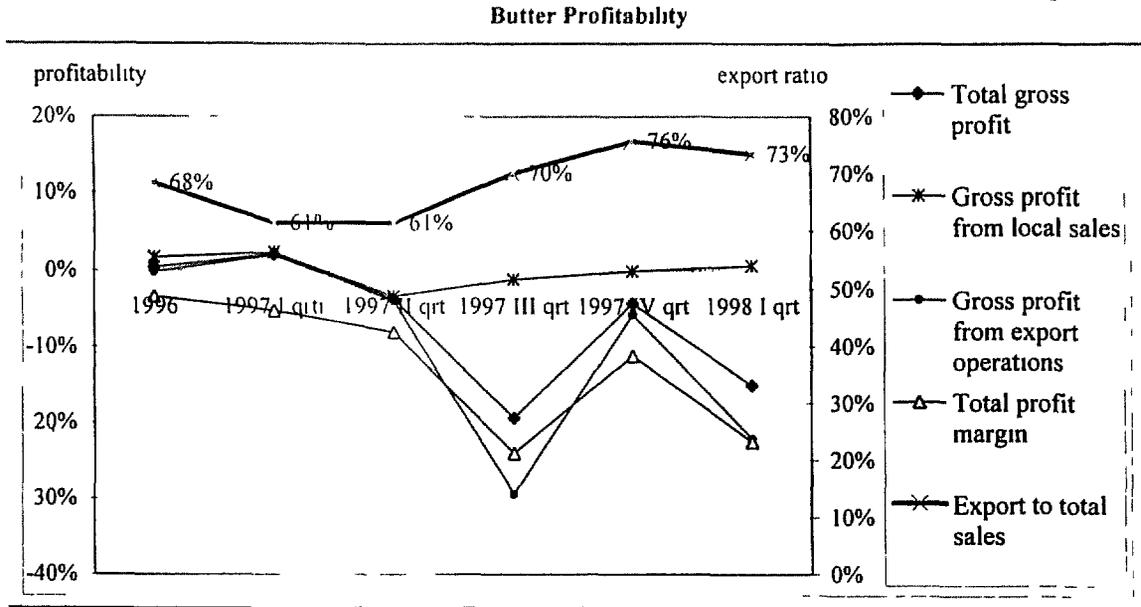
Figure 20

Factory Price of Butter (LTL / kg)



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Figure 21

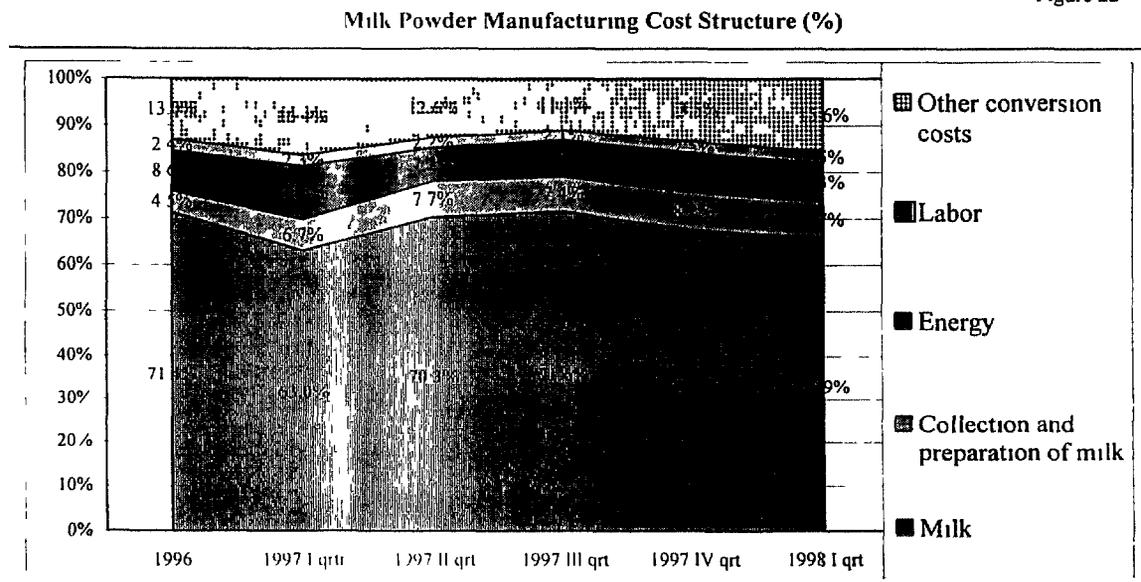


4.4.2 Milk Powder

Powdered milk (or dry skim milk products, which have a fat content not exceeding 1.5%) make up the largest part of dry milk products. Milk powder is mostly exported (90% of all production).

In the cost structure of dry skim milk products the largest part is composed of raw materials (an average of 77%). Energy expenditures, which comprise about 7.5% of the cost structure, form an exceptional part of the conversion costs.

Figure 22



The production of powdered milk balances on the edge of being a loss-making venture. During the peak season, the profit received from decreases in production costs compensates for the losses experienced during the off-season.

Figure 23

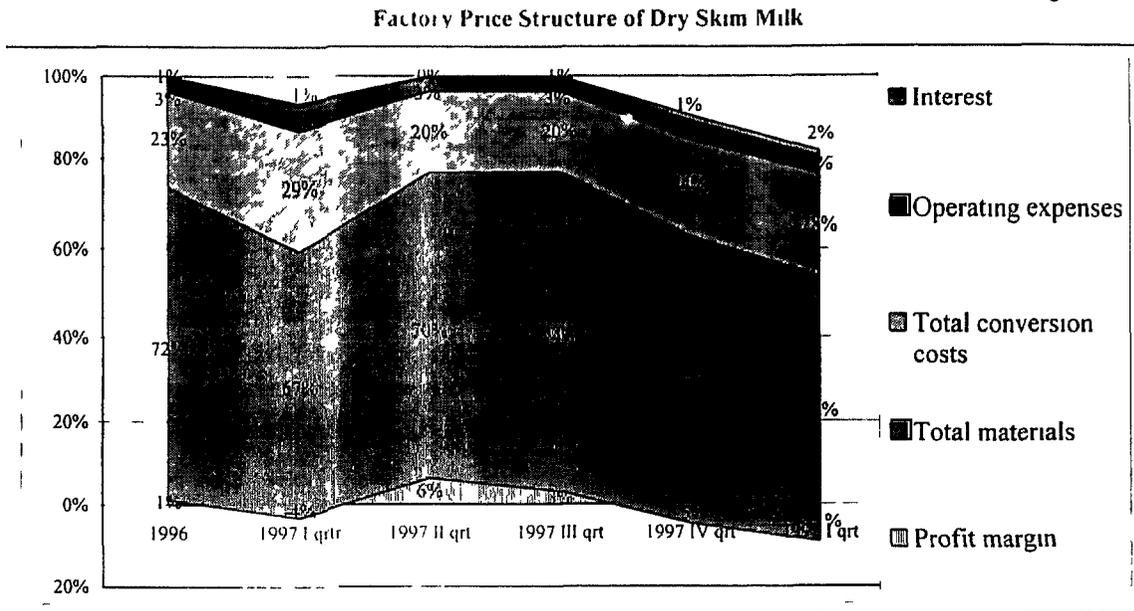
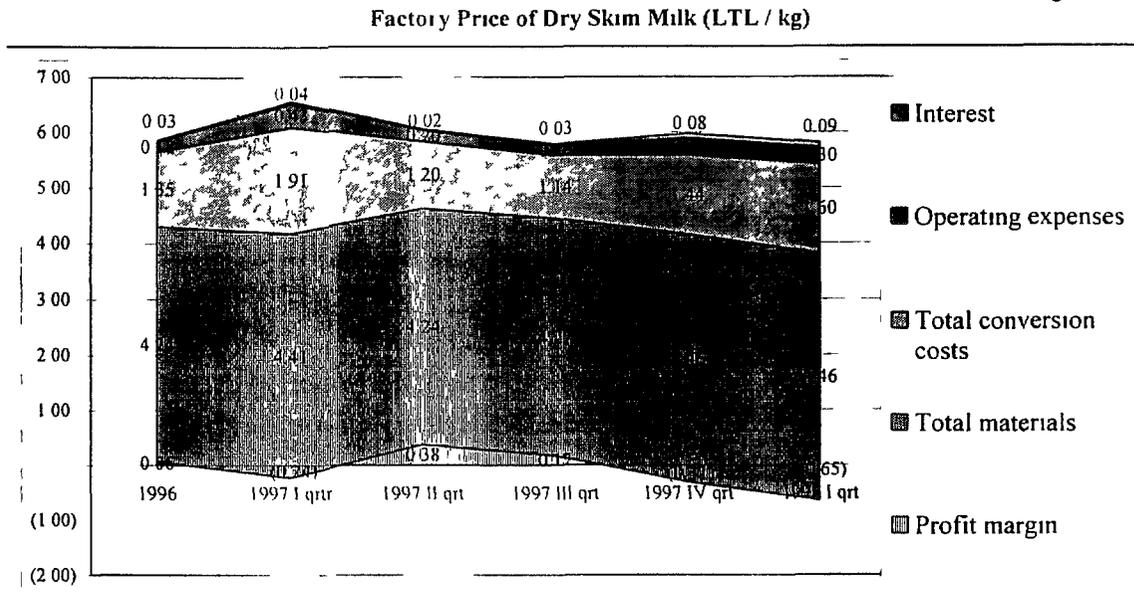


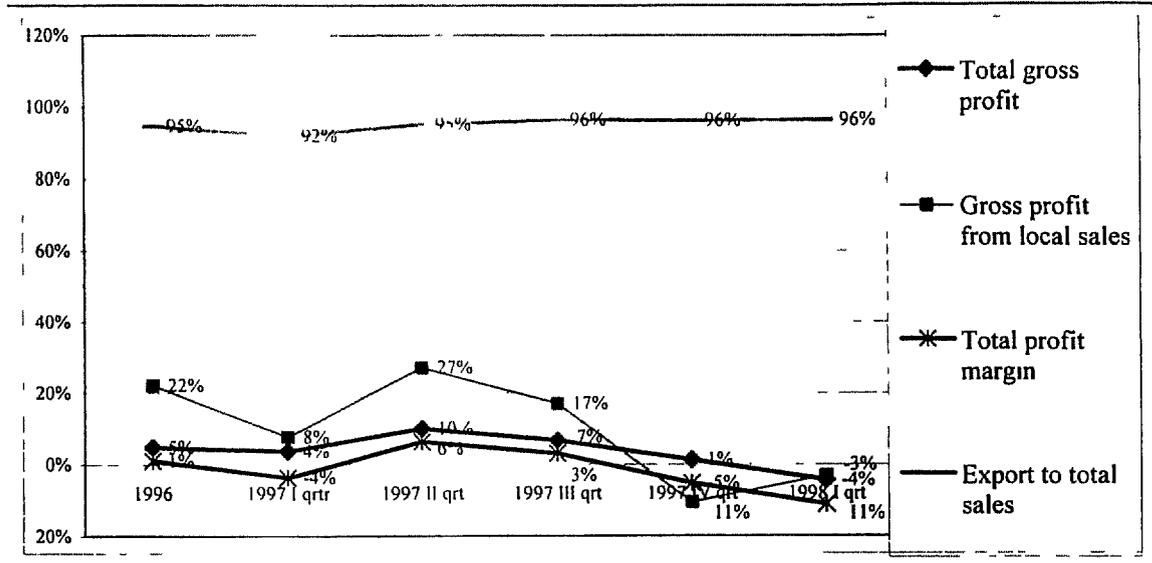
Figure 24



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Figure 25

Profitability of Dry Skim Milk



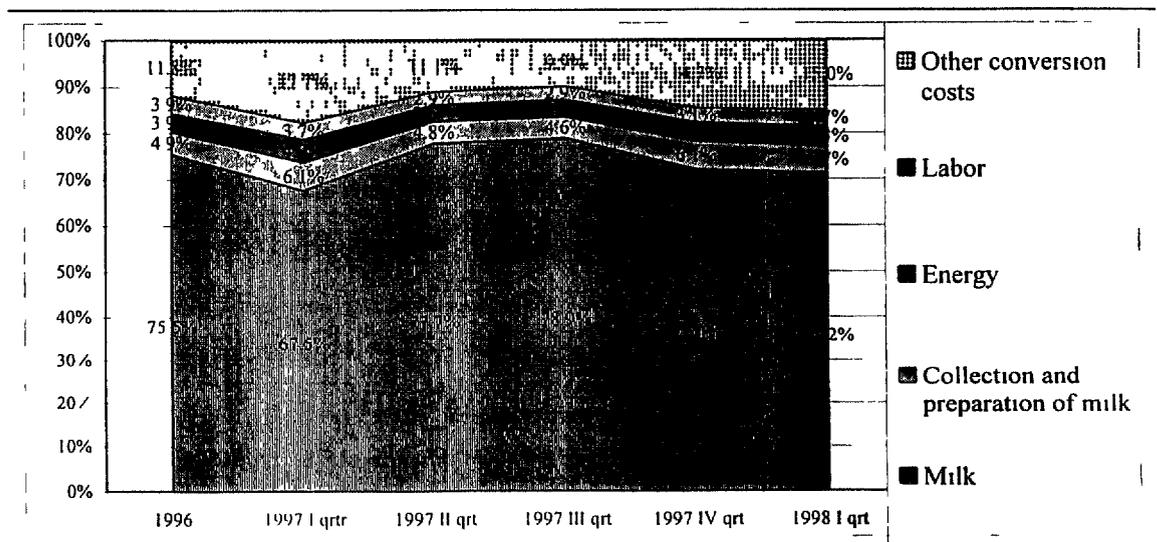
4.5 Cheese

The production of fermented cheese (hereinafter cheese) is oriented toward export (80%)

The largest part (80%) of the cost structure of fermented cheese is composed of raw materials. The remaining portion (20%) is conversion costs. Energy costs makes up about 4%, and labor costs make up about 3%. Differently than in the manufacturing of other milk products, depreciation has more weight and comprises from 2 to 2.5% of all manufacturing costs. That is an indispensable condition for large investment into the new technologies.

Figure 26

Cheese Manufacturing Cost Structure (%)



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Although fixed costs comprise a small share of the cost structure of cheese, seasonal (utilization of production capacities) factors are nevertheless very important – costs can vary up to 20 percent. The decreases in costs increase the profitability of the product, which during the peak season of 1997 reached 25 percent (the average for the year was 18%)

Figure 27

Factory Price Structure of Cheese

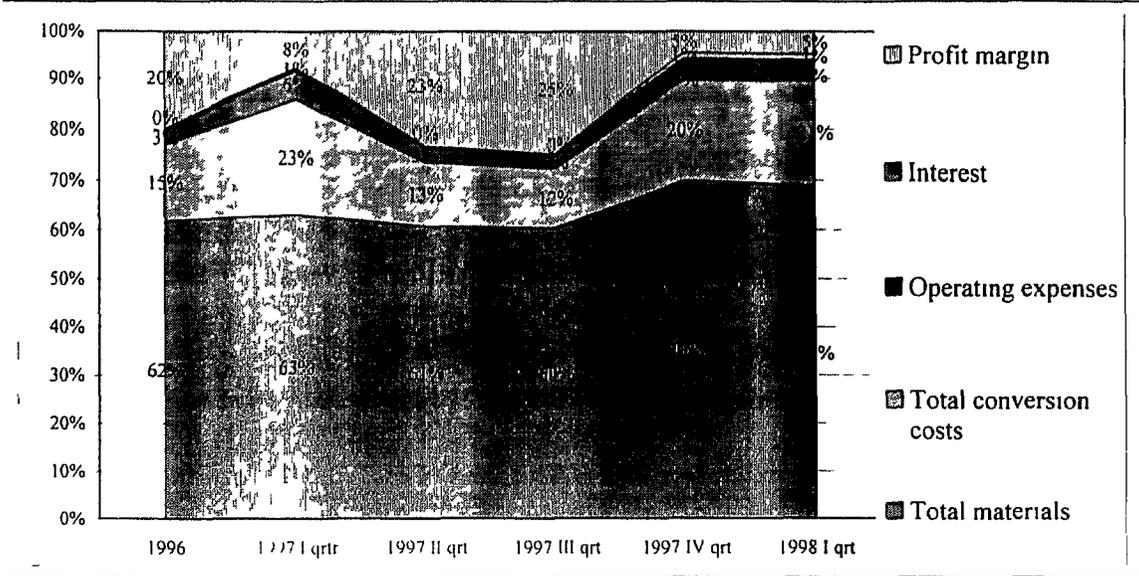


Figure 28

Factory Price of Fermented Cheese (LTL / kg)

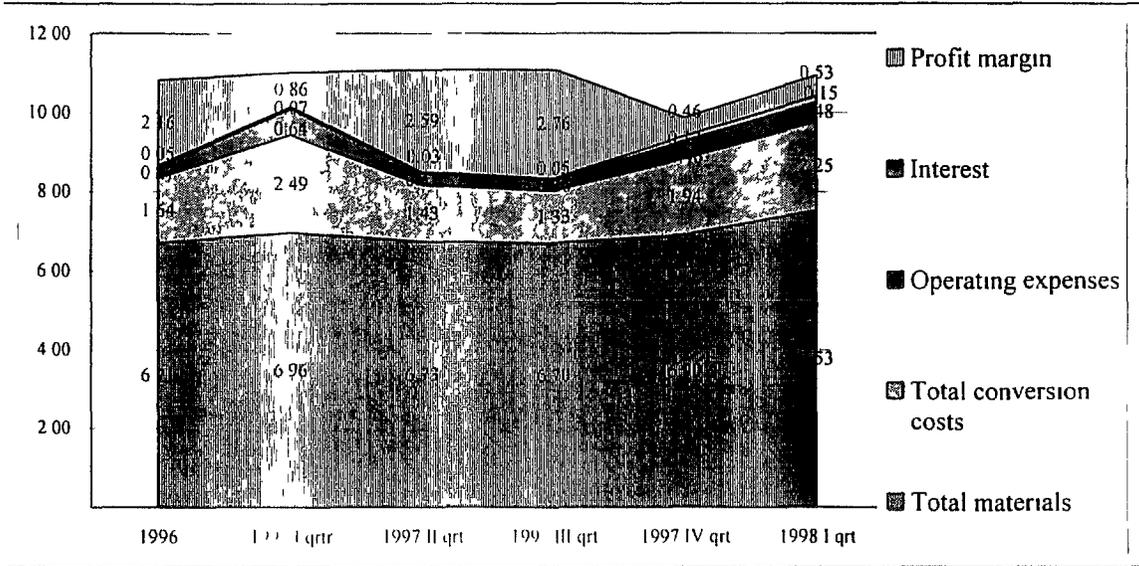
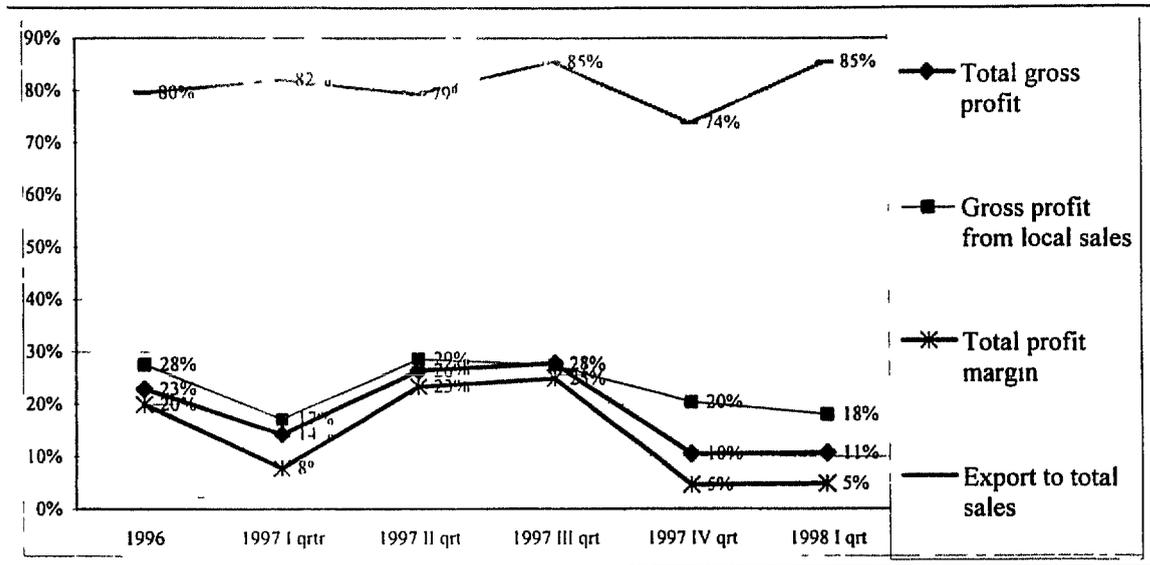


Figure 29

Profitability of Fermented Cheese



4.6 Other Products

Other products were either not produced by the companies that responded (i.e., ice cream, canned milk, peptate) or their weight in total volume of production was insignificant (i.e., milk sugar)

4.7 Analysis of the Whole Products Mix

Raw materials (raw milk and its collection and preparation costs) comprised 75-80% of the general cost structure energy – 4.8% salaries – about 3%

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Figure 30

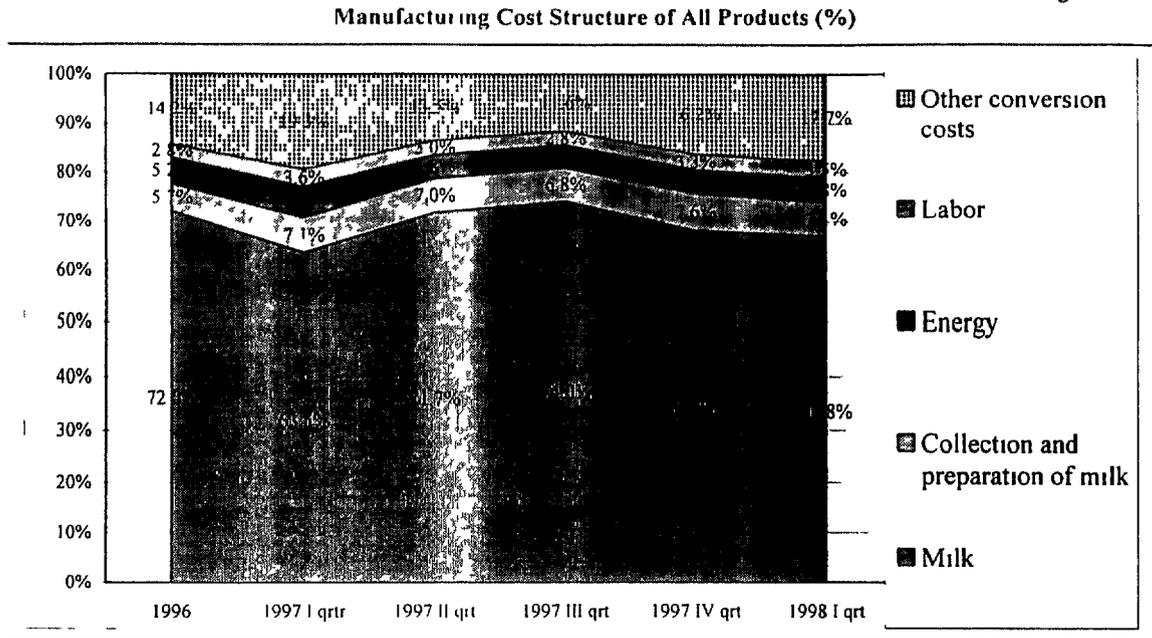
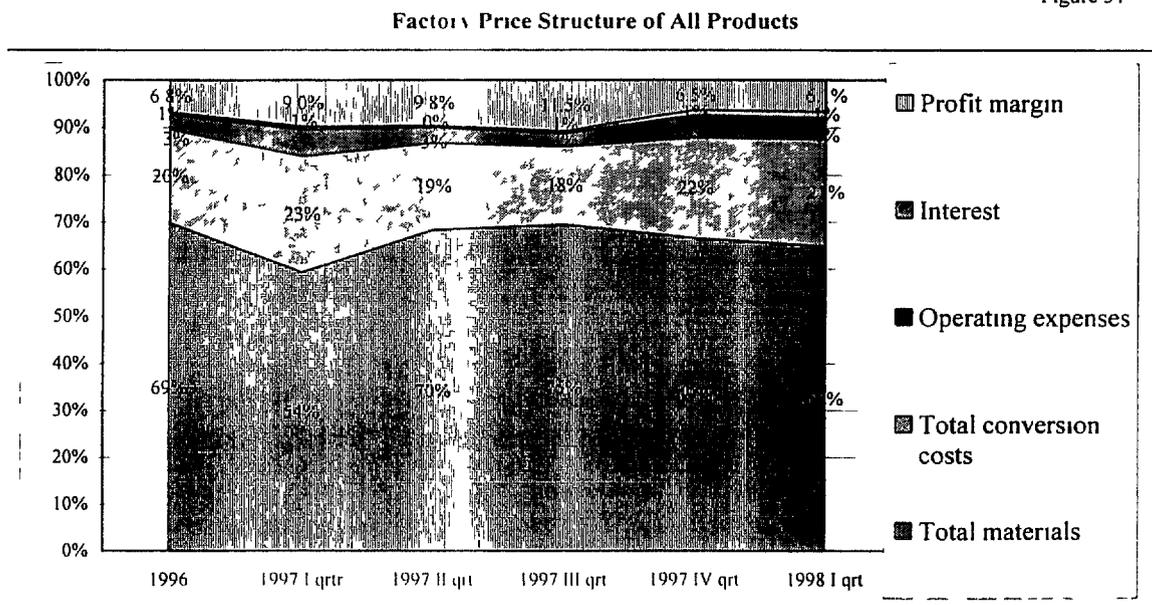


Figure 31



## 4.8 Pricing Tendencies

### 4.8.1 Balancing of Product Mix

From the financial standpoint the products manufactured by Lithuanian dairies is two-sided – profitable and unprofitable. Milk products that are produced for domestic market (e.g., fresh milk products) and cheese (produced both for domestic and export markets) are highly profitable. The demand for milk products is not highly elastic to the prices, so an increase in

production costs is covered by domestic consumers by an increase in prices in the domestic market. At the same time, milk products that are exported (mostly butter) are unprofitable because Lithuanian producers can not influence export prices.

Milk producers that have a balanced product mix (when unprofitable products are covered by the profitable ones) operate profitably. The companies that are not able to achieve a firm position in the domestic market and mostly produce commodity milk products (butter and milk powder) for export balance on the edge of making losses.

#### 4.8.2 Instability of Exports

Nowadays more milk products are exported than sold in the domestic market. The export of milk products allows companies to achieve an economy of scale, because their production capacity is too large for the domestic market. Lithuanian producers can not influence export prices, as the export price is influenced by the supply from various countries.

The main products that are exported are cheese and commodity milk products – butter and milk powder. Fermented cheese, over 80% of which is exported, is a profitable product. The profitability of milk powder, over 90% of which is exported, is about zero and the export of butter, over 80% of which is exported, is unprofitable.

Any increase in production costs directly influences the profitability of exported milk products. Companies are not able to influence export prices and receive lower profits (e.g., cheese) or suffer higher losses (e.g., butter).

Because the state regulates the main production cost element – the prices of milk as a raw material – it can more or less influence the results of individual companies or even decide their future (especially companies that are export oriented).

#### 4.8.3 The Size of the Domestic Market

The domestic market is the main source of profit for milk processors. The high profitability of milk products in the domestic market helps to solve the problems of balancing product mix (the profit received in the domestic market compensates for export).

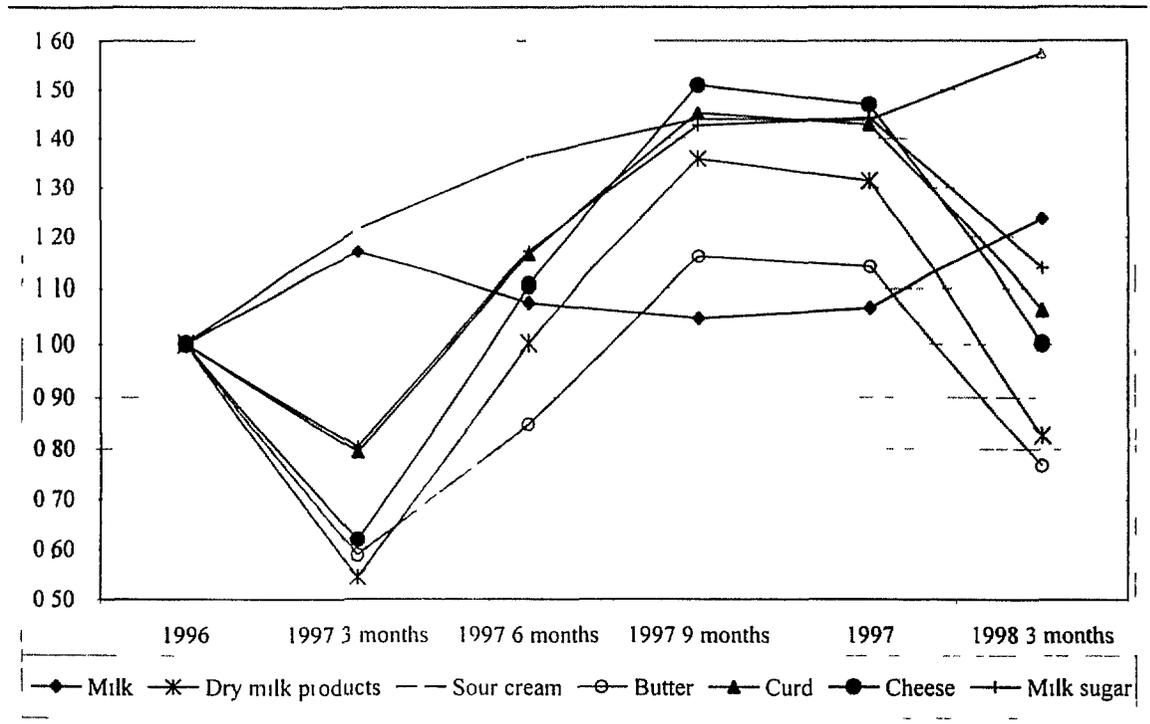
The size of the domestic market is quite limited. The increase in the total consumption of milk products is much slower than the increase in the capacities of the milk processing companies. This means that an individual firm can increase its share of the local market only at the expense of other firms, i.e. the aggregate results in the milk industry do not change. A milk processing company can not increase its capacity only because of the local market, but it can increase its capacity for goods that are profitable for export (e.g., fermented cheese).

#### 4.8.4 Seasonability

The Lithuanian milk processing industry is strongly influenced by seasonal factors. The supply of milk is influenced by the season – in summer (peak season) the supply of milk is more than three times higher than the milk supply in winter (off-season). Even though the overhead in the milk processing industry is not considerable, such seasonal fluctuation has a significant impact on production costs. Besides that, seasonal fluctuation leads to low utilization of capacity during the off-season.

Figure 32

Change in production volumes compared to 1996



#### 4 8 5 Concentration of Capital

All the assumptions presented above stimulate the concentration of capital in the Lithuanian milk industry. The concentration of capital allows companies to optimize the structure of the product mix. Large companies control a larger part of the milk purchasing market and are able to allocate milk as a raw material for more profitable products (especially during the off-season, when there is a lack of milk). Besides that, large companies can more successfully export surplus products both by strengthening their positions in certain markets, and by pressuring export intermediaries.

Large companies using effective marketing can force small and inefficient companies out of the local market. As the price of milk as a raw material gradually increases, the companies that are oriented to export markets will go bankrupt or will have to merge with large companies.

## 5 Wholesale

Milk processing firms normally give wholesale intermediaries discounts from their declared average prices. The prices given in this report do not include discounts. Therefore, when calculating milk marketing chain pricing, wholesalers' margins should be added to these prices.

Wholesale milk distribution in Lithuania can be divided into two main levels:

- Agent trading
- Wholesale intermediaries

Agent trading is the most widespread form of distribution. Agent trading can vary depending on the variety of marketing services offered by intermediaries. The amount of marketing services influences intermediaries' commissions.

The simplest form of agent intermediaries represents the client to find customers and make contracts in the client's name. This particular form of marketing includes searching for clients, making contracts in the name of the milk processing firm, collecting orders, collecting money, renewal of product mix, laying out production in windows or on shelves, etc. For the aforementioned services, the agents get a discount (margin) of 1.5-4%. The level of the margin depends on the processor's position in the local market. Firms having a strong position in the local market give smaller discounts. Those firms that do not have a strong market position give the agents larger discounts. Margins also depend on geographical location. Agents selling goods throughout a large region receive larger discounts because of higher logistical expenses.

A more complicated form of agent distribution involves agents using their own transport and warehouses. This form of distribution is more common for the distribution of fresh milk products. The most simple form of this kind of distribution would be using the agent's transport in a certain region, with this transport being loaded directly from the producer's transport. A more complicated form would be using both the agent's warehouses and transport. In this form of distribution, agents normally get a discount of 5-10%. The size of the discount also depends on the processor's position in the market.

Wholesale intermediaries perform all of the aforementioned services. In addition, wholesale intermediaries take on a financial risk, i.e., wholesale intermediaries purchase goods from producers and sell them to retail intermediaries. In this case, wholesale intermediaries also assume the risk of clients not paying. Wholesale intermediaries receive the largest discount – from 7-10%.

The size of the wholesale margin is conditioned by the quantity of marketing services and related costs. The pricing structure of common agents is composed of labor expenses (about 35%) and transportation and additional expenses (about 30%). However, in the cost structure of wholesalers using their own transport, transportation costs comprise the largest share. The profits (before tax and interest) of wholesale intermediaries vary 10-30% from the wholesale margin that they receive.

The aforementioned discounts are largest for fresh milk products. Processors having a strong position in the local market normally use services of exclusive dealers in certain regions.

The discounts for fermented cheese vary 3-5% depending on the season (5% in the summer)  
Firms that distribute cheese products ordinarily sell various products, including other milk products

## 6 Retail

Consumers of milk products usually buy these goods at retail stores (a portion is sold to industrial users e.g. confectioneries and other sectors of the food industry)

The retail sale of milk products can be divided into two main groups

- Large supermarkets
- Small food stores

For large supermarkets the sale of milk products is not directly a profit making venture. Milk products serve more to attract customers to the supermarket. Because milk is an everyday product, its price level causes the customer to form an impression about the price levels throughout the store. For that reason, supermarkets are not interested in making large profits from the sale of milk products. Supermarkets ordinarily margin milk products 5-7% or rarely 10-12%. This margin is minimal and normally is just enough to cover the supermarket's expenses.

A supermarket's margin also depends on the milk processor's position in the Lithuanian market. For large and well-known suppliers, which spend large amounts of money for advertising and product support in the Lithuanian market and which supply a full assortment of milk products, there is a minimal margin. For producers that are not well-known in the market and offer a limited assortment of goods normally at lower prices, there are considerably higher markups.

Small food stores follow one of two margin strategies – minimum or maximum. Stores that use maximum margins (25-30%) tend to sell less well-known cheaper products, in order to get even larger margins of profit. The majority of these stores seek to get profits with minimum turnover. Stores using the alternative margin strategy try to earn money by increasing their turnover.

Trading margins used are universal for all milk products supplied by a single producer.

## 7 The Pricing Structure of the Milk Product Marketing Chain

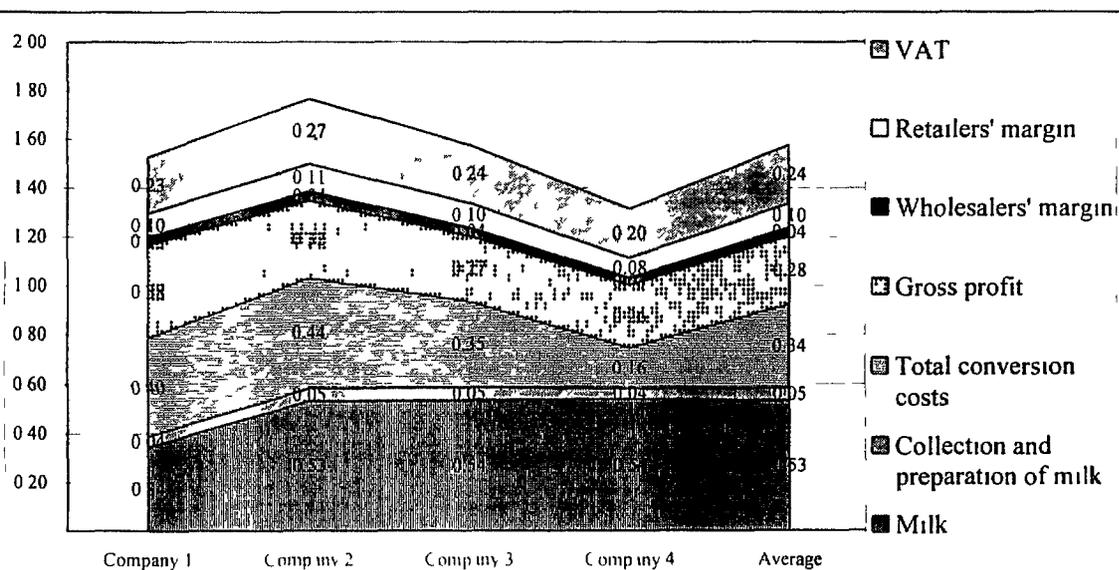
The pricing structure of the individual groups of milk products in the domestic market is presented below. The pricing of the groups of milk products in the diagrams below is based on the following principles:

- The production costs of milk processing companies are based on the actual results from 1997
- Manufacturing costs according to individual products are milk as a raw material, collection and preparation of raw material, and conversion costs
- The difference between product revenues and manufacturing costs is considered to be gross profit
- The sales prices of products are set according to actual results from the local market
- The profit margin for wholesalers is considered to be 3% from the factory price
- The profit margin for retailers is considered to be 8% from the wholesalers' price
- VAT – value added tax – is calculated as 18% from retailers' price

### 7.1 The Pricing Structure of Marketing Chain for Individual Milk Products

Figure 33

The structure of milk retail prices (1997)



#### Notes

(1) Company 1 produces and sells an insignificant quantity of milk as a separate product (1% of the volume of all of the companies that responded). The lower cost of milk as a raw material for company 1 is because of the rates that are used in the accounting process.

(2) Company 2 produces and sells an insignificant quantity of milk if compared to other products. The large quantities of other products cause lower overhead.

Figure 34

The structure of sour cream retail prices (1997)

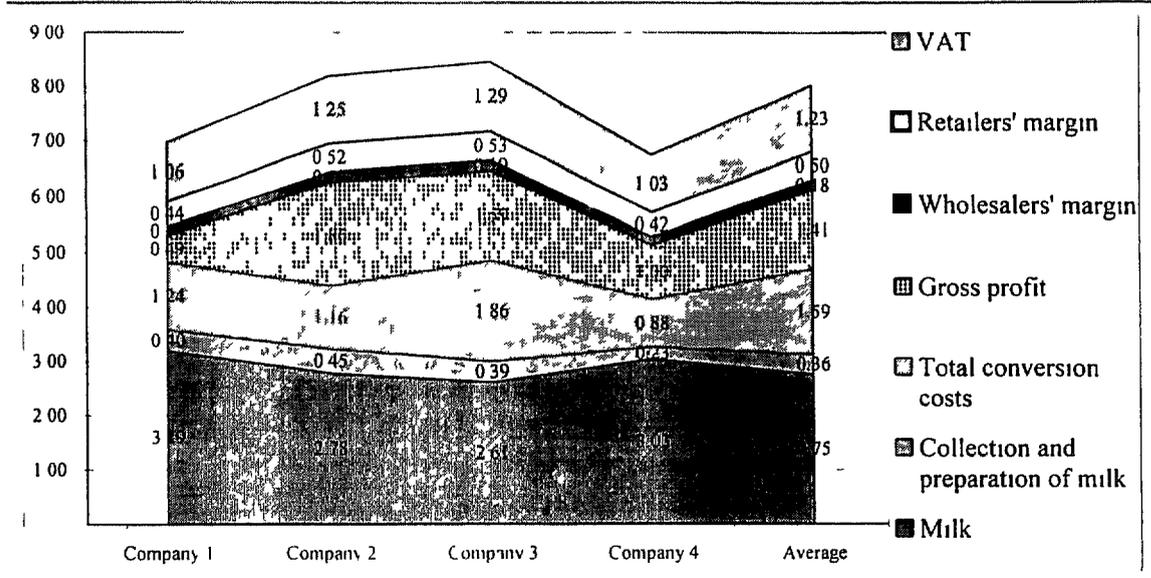
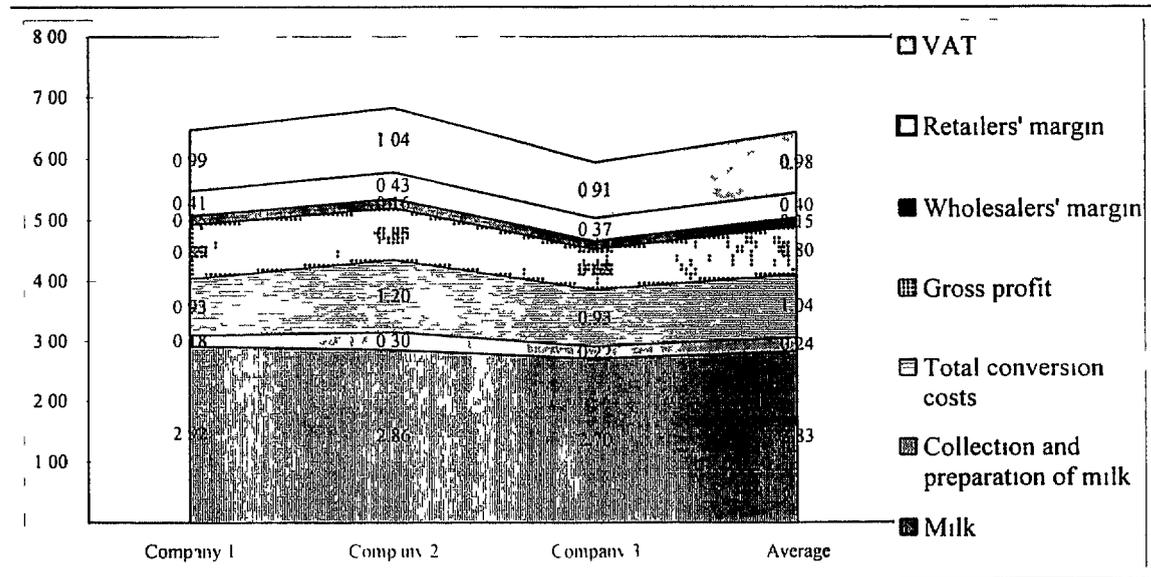


Figure 35

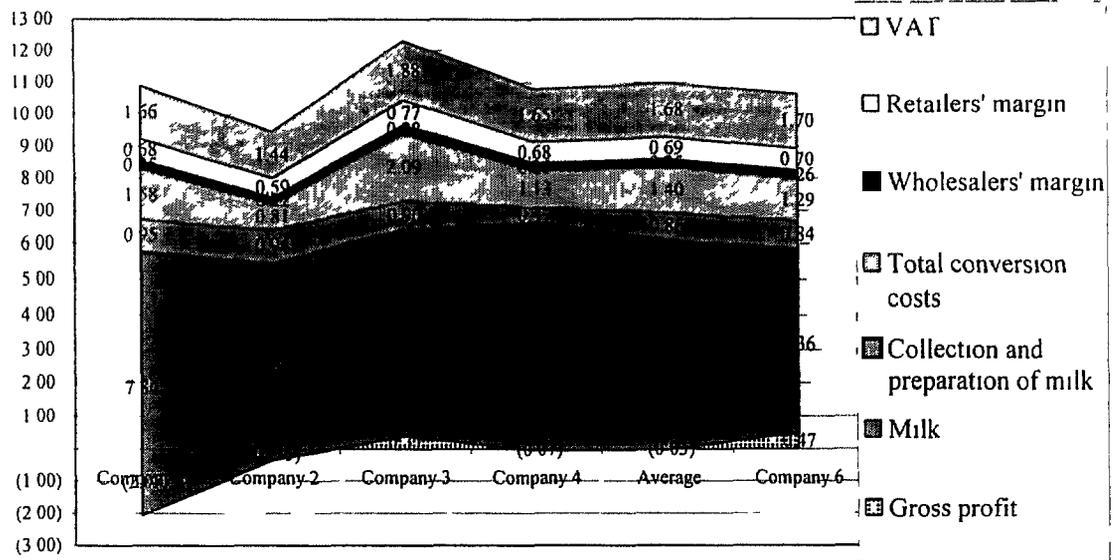
The structure of curd retail prices (1997)



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Figure 36

The structure of butter retail prices (1997)



Notes

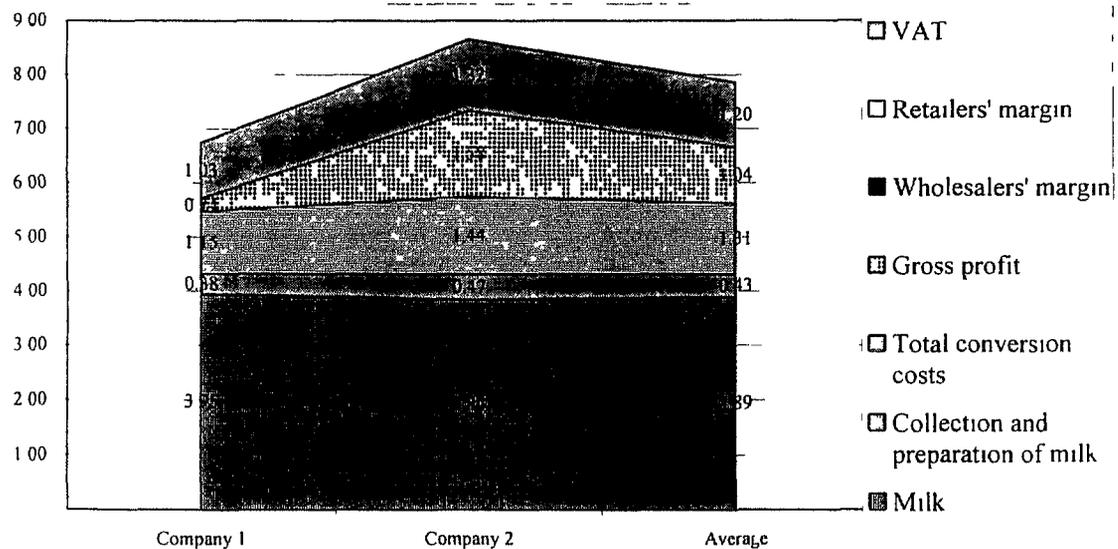
(1) This diagram shows the pricing structure of butter in the local market. Butter sales in the local market in 1997 were profitable, contrary to butter exports.

(2) Companies 1, 2, and 6 specialized in the production of commodity products for export. While not having a strong position in the local market, they can not sell their production at higher prices. Company 6 produces butter only (is a subsidiary).

(3) Company 3 has strong positions in the local market and that is why the sales of butter in local market is the profitable business.

Figure 37

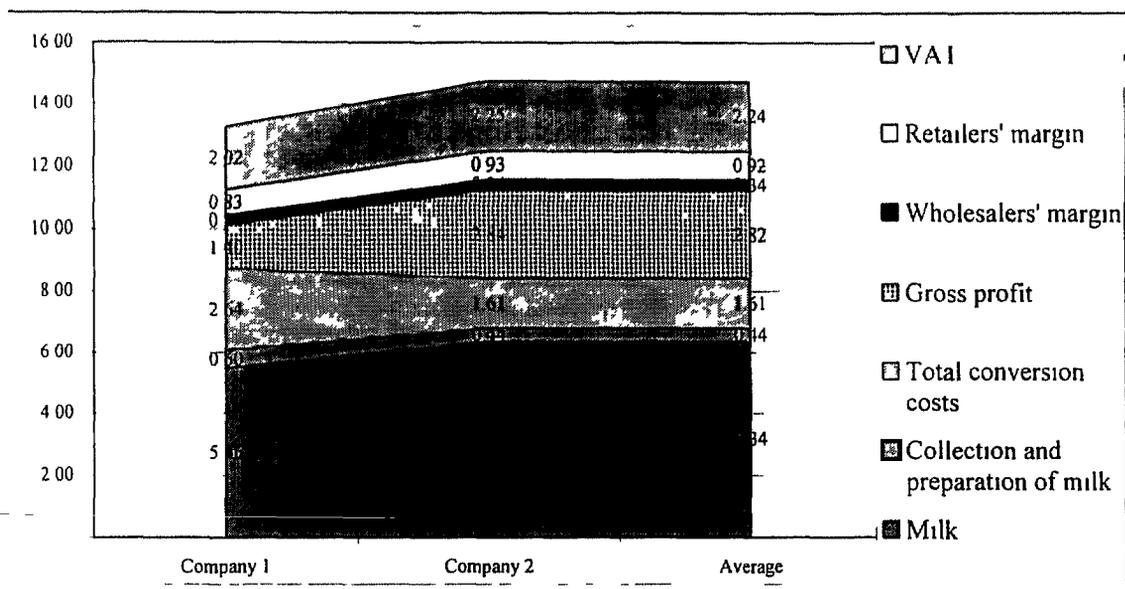
The structure of milk powder retail prices (1997)



Note: Low fat milk powder is mostly sold directly to consumers. That is why the profit margins for wholesale and retail are not calculated.

Figure 38

The structure of cheese retail prices (1997)



## 7.2 The Ratio Between Retail / Wholesale Pricing and the Price of Raw Milk

The ratio between the average retail / wholesale prices of individual milk products in the local market and the price of raw milk are presented in the diagrams below. If compared with the data of other countries, this ratio reflects (1) the level of the country's retail prices for milk products and (2) the efficiency and competitive position in the international markets of the country's dairy industry.

The diagrams below show the existing ratio between average retail prices of individual milk product groups in domestic market or export markets and average price of raw milk. The diagrams also show the dependency of this ratio on the changes in cost of milk as a raw material. This ratio is calculated according to actual 1997 results and using the following assumptions:

- The conversion costs for milk processing companies do not change
- The profit margin of the individual products of milk processing companies remains the same when calculating in absolute figures (the dependency of the profitability from the sales is decreasing but the return on equity remains the same)
- The same percentages of wholesale and retail margins and VAT (18%) are used for the calculation

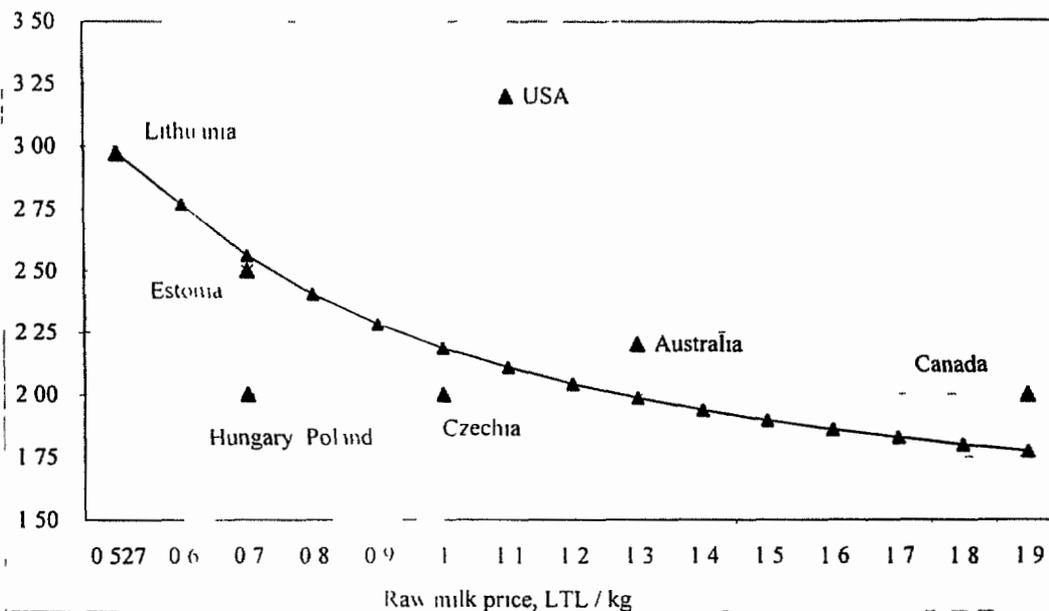
A detailed analysis comparing the marketing margins in different countries is a complex task and is out of this paper. The comparison of margins and ratios between retail / wholesale prices of milk products and raw milk prices of different countries can be obscured by a number of different factors.

- The marketing practices in countries are different concerning calculation of standard raw milk components (i.e. butterfat content and protein content) Therefore, the comparison of the price processors pay for raw milk should be adjusted for each of the country's practices concerning the basis for which payments are adjusted
- Other payment practices vary from country to country including the payment for collection and transporting of raw milk to the plant or delivery point
- The payment practices for milk products vary from country to country as well. For some countries the wholesale prices of milk products may include packaging, delivery and other costs, while for the other countries wholesale price does not include any packaging, transportation and other marketing costs
- Domestic policies, as the mostly disturbing market equilibrium, must be taken into consideration when making such comparisons. In certain markets trade protection, mandated minimum prices, price differentials, limits on margins, direct and indirect subsidies, custom duties and other domestic policy provisions affect the prices paid and the kind of marketing margins that exist
- In addition taxation systems of different countries may have impact over the margins and product pricing. The differences in VAT, sales taxes and even profit taxes impose variations while comparing margins and prices of different countries

Referring to the above examples and other possible concerns, comparing numbers without accounting for these kinds of factors can cause distortions in making conclusions. Therefore the comparison presented in this paper in Figures 39-42 are offered for information, but should not be cited as absolute comparisons. These are raw figures which have not been equalized to account for many differences in marketing practices and the policy mechanisms utilized in the countries represented in these figures. Thus the ratio between the prices of milk products and the price of raw milk may not fully reflect the efficiency or competitive position of certain countries.

Figure 39

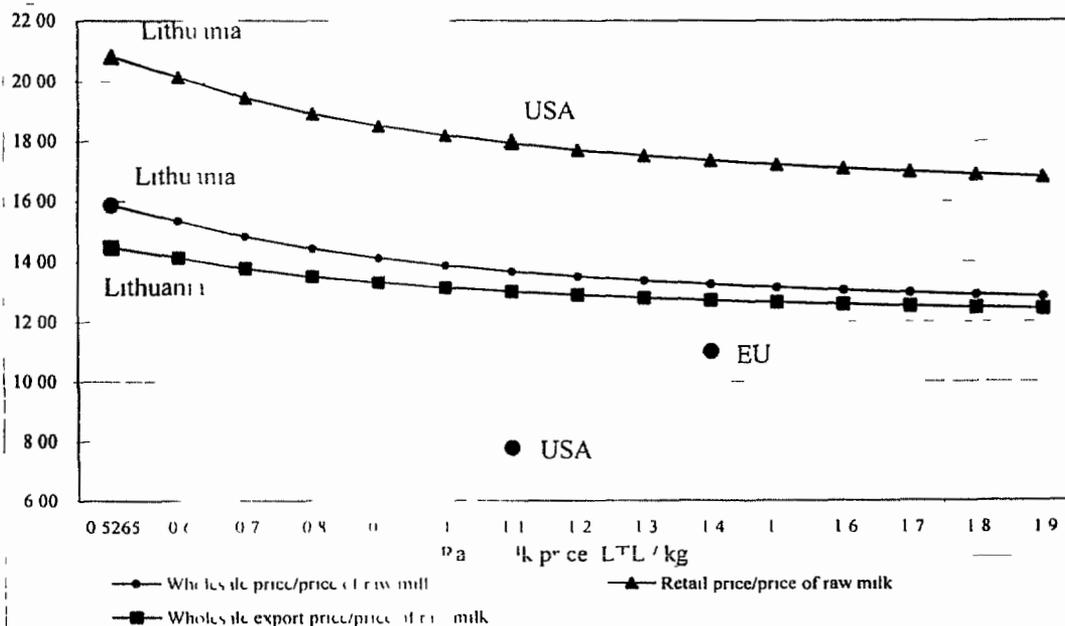
The ratio between the retail price of milk and price of raw milk



Note: The ratios of retail price of milk and the price of raw milk in other countries were provided by Pieno centras as for milk with 2% fat. Lithuanian mean was calculated for all sales of milk in Lithuanian market.

Figure 40

The ratio between the retail (wholesale) price of butter and price of raw milk



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Figure 41

The ratio between the retail (wholesale) price of milk powder and price of raw milk

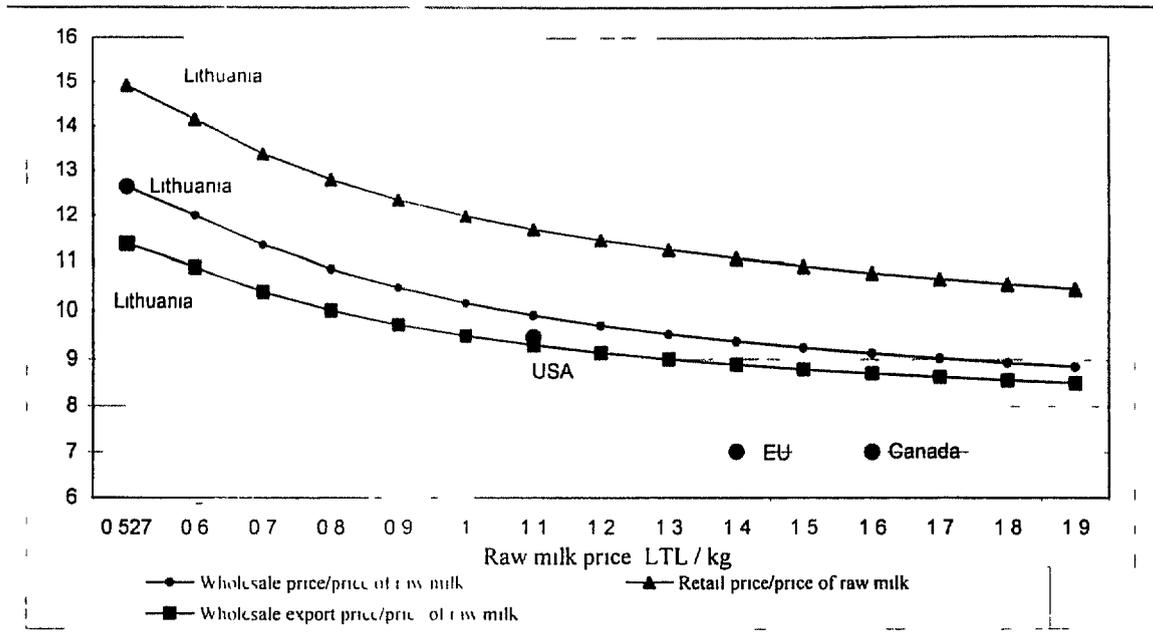
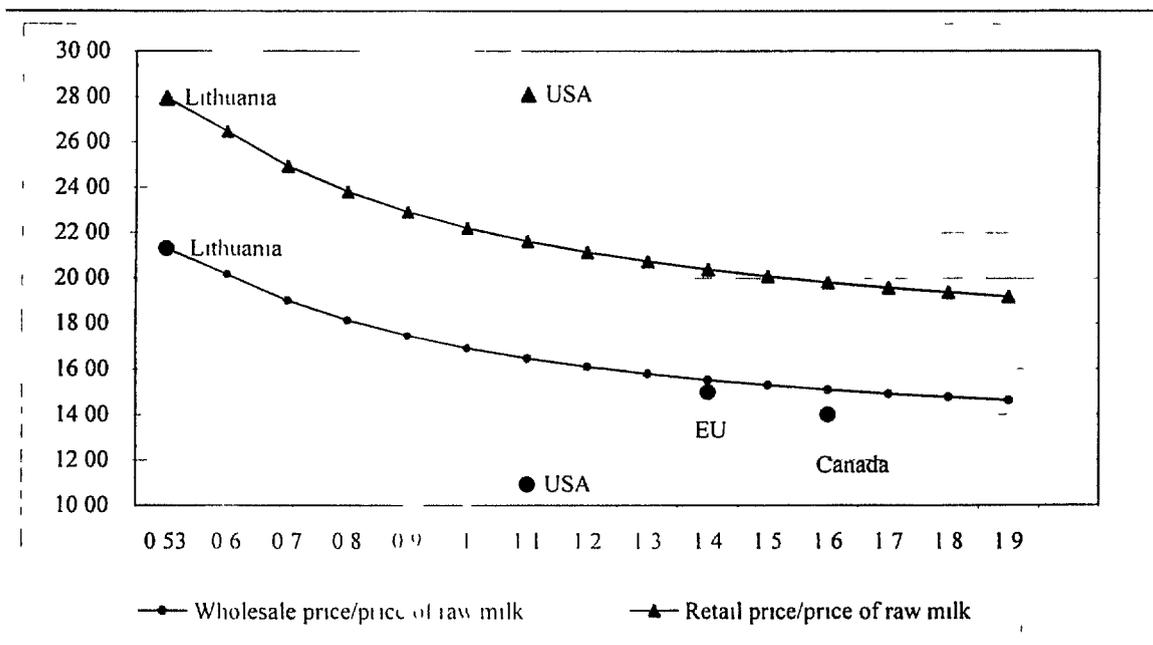


Figure 42

The ratio between the retail (wholesale) price of cheese and price of raw milk

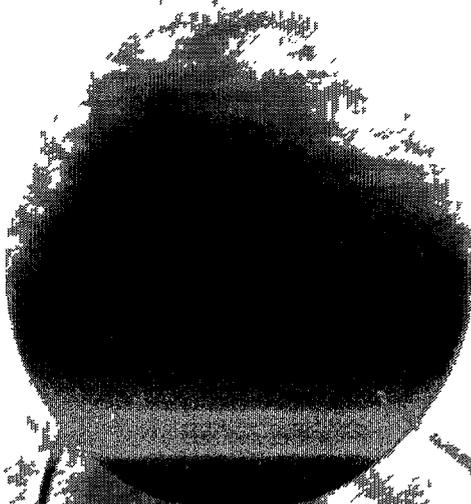


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**ATTACHMENT C**

**Periodicals Article**

**"U S Assistance to the Lithuanian Dairy Sector"**  
*Business & Expositions*  
July-August 1998



The Quests of Business and Pleasure  
Cross in Palanga Airport during  
Summer Season  
(More on page 21)

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# US ASSISTANCE TO THE LITHUANIAN DAIRY SECTOR

by Robert I. Nooter, Policy Advisor

*For the past three years, Lind O'Lakes, a US farmer owned cooperative, has operated a project to assist in restructuring the Lithuanian dairy sector. This project has been funded by the United States Agency for International Development as part of its broad based technical assistance program aiding Lithuania's transition from a command economy to a market economy.*



*Mr. Nooter along with his assistant Mss Jūratė Rupsienė believe that the project results will exert influence upon the lead segment of Lithuania's agricultural sector.*

The goal of the project has been to provide technical assistance to the dairy industry from the point of production to the point of purchase. Advancements in the dairy sector will hasten adoption of efficiency and allow the nation to utilize the potential comparative advantage that the dairy sector offers. Lind O'Lakes' strategy has been to apply an integrated approach addressing all aspects of the dairy industry. However, the project has placed priority emphasis on the critical points in the production, marketing and policy framework.

This project is coming to a close this summer following many successful collaborative efforts working with Lithuanian farmers, milk companies, veterinarians and veterinary technicians, associations, milk industry regulators and policymakers. The central topics addressed in this project have encompassed a range of critical issues including:

- price and income policy
- improvement of milk quality
- adoption of more efficient and effective production practices
- reforming the regulatory system applicable to the dairy sector
- dissemination of information to farmers and processors
- training and education

The project activities were conducted in two phases. The first was aimed at providing support to selected enterprises as they attempted to improve their production capability and quality. The second was targeted at changing the policies concerning the government programs to support prices and income and the regulation of milk and dairy product quality.

## Enterprise Support

In the enterprise support functions, Lind O'Lakes identified four project components through which to target technical assistance. These were:

- private farmer income enhancement
- dairy processor development
- association development and
- firm restructure/restructuring

Lind O'Lakes focused two of the most northern districts in Lithuania, Panevezys and Telsiai, in order to concentrate its effort and due to the large volume of milk processed in these regions. Some of the enterprise related results achieved include improvements in raw milk quality, better dairy product formulation (cheese, pasteurized milk and other products), improved plant waste management, development of sophisticated marketing strategies and improvements in pasture management.

## Policy

In late 1996, the project was expanded by the addition of a policy component with the primary emphasis placed on the price and income support reform and economic modeling. The approach utilized has been to bring various private and public sector interests together to develop greater consensus on approaches to improve government response to the difficult issues affecting the dairy sector. The long term intention is to assist Lithuanians devise solutions that will result in

efficient restructuring of the dairy sector. The two predominant issues addressed are the price and income support mechanisms used to support the dairy sector and the inspection and enforcement of quality requirements.

In the price and income support area, the project assembled a policy working group which identified goals and objectives for the dairy sector and proposed alternative policy programs which were then analyzed in the economic model that was developed.

This group is comprised of members with disparate and often competing interests and one accomplishment has been the establishment of a cohesive relationship among the members of the working group. This is reaping significant benefits as producers and processors are engaging each other in dialogue in a more open and constructive fashion.

This was achieved in part through a very successful US training session in November. The ten members of the working group participated in intensive discussions about the mechanisms used in US dairy policy and also examined the modeling techniques used to evaluate international US and Lithuanian dairy programs. During the program, the group met with policymakers, economists, regulators, farmers, industry representatives and program administrators.

With the knowledge gained during this training session and through much time and effort, the group contributed its judgment and expertise to the development of the

Lithuania Dairy Policy Model which was devised by economists at Iowa State University working in collaboration with Land O Lakes. The group reviewed the data input, projected results of the scenarios and recommended modifications so that the model improved the accuracy of the results it predicts. In addition, the group considered alternative policy programs for evaluation in the model. These alternatives were presented in a dairy policy seminar and in a briefing of members of the Seimas held in April 1998.

The economic model and resulting material developed in this project demonstrates the expected results achieved by applying alternative policy mechanisms in the dairy sector. This tool can be used by Lithuanian analysts in the coming years as policymakers chart a course for the future. It is expected that the mechanism will be valuable in basing future policy decisions on sound economic analysis.

**POSITIVE RESULTS**

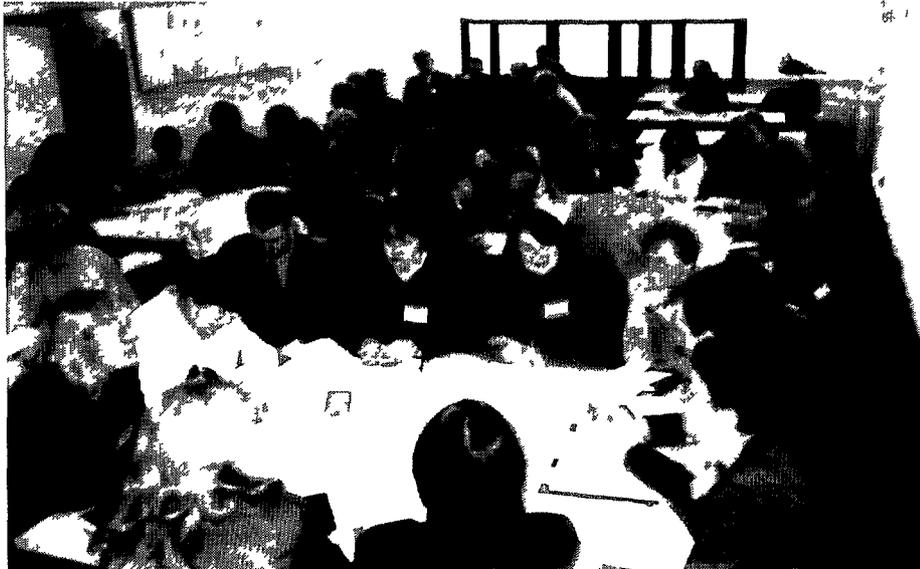
The results of Land O Lakes activities have been very positive and encouraging. The Lithuania dairy sector has great potential and is moving in the right direction in most of the critical issue areas. However,

continued improvements are necessary and the next few years will be difficult and challenging. The Land O Lakes project has contributed to many of the positive developments that are currently occurring in the

without strong sustainable relationships with Lithuanian partners. In order to achieve sustainability by working with the recipients of technical assistance, Land O Lakes has established strong relationships with many

farmers, milk companies (Birzai Milk Company, Rokiskis Cheese Company and others), the Lithuanian Veterinary Services Department, the Lithuanian Milk Processors Association, the Lithuanian Dairy Producers Association, the Agricultural Chamber and its membership, the Lithuania Food Institute, as well as other companies, institutions and individuals.

Land O Lakes has been very fortunate and grateful to



*Milk industry specialists were debating at every seminar.*

Lithuania dairy sector at both the enterprise development and policy reform levels. The ultimate results of this project will not be fully evident for some years, as the seeds which we have planted take root and blossom. It is clear that the Land O Lakes project and the program funded by the US Agency for International Development have helped the Lithuania dairy sector make significant advancements toward becoming an internationally competitive producer of quality dairy commodities and products.

It would not be possible to achieve the goals set forth by Land O Lakes and USAID

have worked in an environment in Lithuania where the human resources are motivated, well educated, and responsive to technical assistance. The success of the project was the result not only of the expertise of Land O Lakes but also on the ability and courage of the Lithuanian partners to face change. As this project phases out of existence, we salute our counterparts and wish the best for the Lithuanian dairy sector. Land O Lakes has confidence and hope that the advancements of the past few years will continue and that the sector will realize its potential as the leading segment of Lithuania's agricultural sector.

**JAV PARAMA LIETUVOS PIENO SEKTORIUI**

*Trejus metus JAV ūkininkų kooperatyvas Land O'Lakes vykdė projektą, kuris turėjo padėti restruktūrizuoti Lietuvos pienininkystės sektorių. Projektą finansavo Jungtinių Valstijų Tarptautinio Vystymo Agentūra. Tai JAV techninės paramos programos, padedančios Lietuvai peršvarškinti iš komandinės į rinkos ekonomiką, dalis.*

**P**agrindinis projekto tikslas – pieno pramonės suteikti techninę pagalbą naujų gamybos ir produkcijos teikimo ir žemės ūkio integravimo. Land O Lakes lūkesti integruoto požiūrio išnagrinėti visus pieno pramonės aspektus. Tiesiogiai projekto autoriams rūpėjo įsigilinti į gamybos ir rinkos politiką ir pienininkystės politiką.

Sitvissu šiuo projektu bus ugrysi. Kirtu su juo bus ugrysi d aug sekmingų bendra

dribavimo su Lietuvos ūkininkų įmonėmis, veterinarijos asociacijomis, pieno pramonės įdovus ir politikus pavyzdžių. Pagrindines projekto gvildentos temos:

- kaimo ir pajamų politiką
- pieno kokybės gerinimą
- nisesniu ir efektyvesniu gamybos procedūrų taikymą

- pieno sektoriaus reguliavimo sistemos reforma
- informacijos plitimas ūkininkams ir perdirbėjams
- mokymas ir švietimas

Projekto veikla buvo vykdoma dviem etapais. Pirmojo etapo tikslas buvo gerinti pasuinktųjų įmonių gamybos ir įėjumus ir kokybę. Antrajame etape projekto autoritai siekė pikersti vyriausybės vykdomą kainų ir pajamų politiką, taip pat pieno ir jo produktų kokybės reguliavimą.

**Parama pieno perdirbimo įmonėms**

Įmonių pramonės prognozoje Land O Lakes išskyrė keturis projekto komponentus. Tai:

- ūkininkų pajamų didinimas
- pieno perdirbėjų remimas
- asociacijų plėtojimas
- žemės ūkio bendrovių restruktūrizavimas

Land O Lakes dėmesį sutelkė į du Siles Lietuvos regionus Panevezio ir Telšių apskritys, kuriose perdirbama daug pieno. Pasiekti rezultatų pagerejo pieno žaliavos kokybė, išsitingiau pradėti išvoti pieno produktai (sūris, pasterizuoti pienas ir kt.) kruopščiai tvarkomos gamybos atliekos, vystomos sudėtingos marketingo programos, nasiau panaudojamos ganyklos.

## Politika

1996 metų pabaigoje projektas buvo papildytas pieninkystės politikos komponentu. Dėmesį pradėti telkti į kaimo ir pajamų reikšmą bei jų ekonominį modelį. Suderinti su skirtingais privačių ir valstybinio sektorių interesais, imta keisti vertybių pozicijas sudėtingas pieno sektorių problemis. Mūsų konkretūs siektiniai buvo padėti lietuviams surasti sprendimus, kurie prispartintu pieno sektorių restruktūrizaciją, taip pat atskleistų pramonės mechanizmus kainų ir pajamų santykiui reguliuoti, atsirastų griežtesni kokybės reikalavimai.

Tim buvo suburtas politikos darbo grupė, kuri pasiūlė alternatyvias programas. Ši grupė sudarė dažnai konkuruojančių struktūrų su skirtingais interesais atstovus. Tada vienas iš mūsų pasiekimų – kad darbo grupėje įsivyravo darnus bendravimas. Pieno gamintojai ir perdirbėjai užmezgė itin įdomią konstruktyvų dialogą ir tai duoda reikšmingą naudą.

Dilinau, tam pasitarnavo lipkričio mėnesį Jungtinėse Valstijose organizuoti lėšų skeningi mokymai. Dešimt darbo grupės narių dalyvavo intensyviose diskusijose apie mechanizmus JAV pieninkystės politikoje, tyrinėjo modeliavimo metodikas, naudojamas tarptautinėms JAV ir Lietuvos pieno programoms įvertinti. Mokymų metu grupė susitiko su politikos ekonomistais, ūkininkais, pramonės atstovais ir profesionaliais administratoriumis.

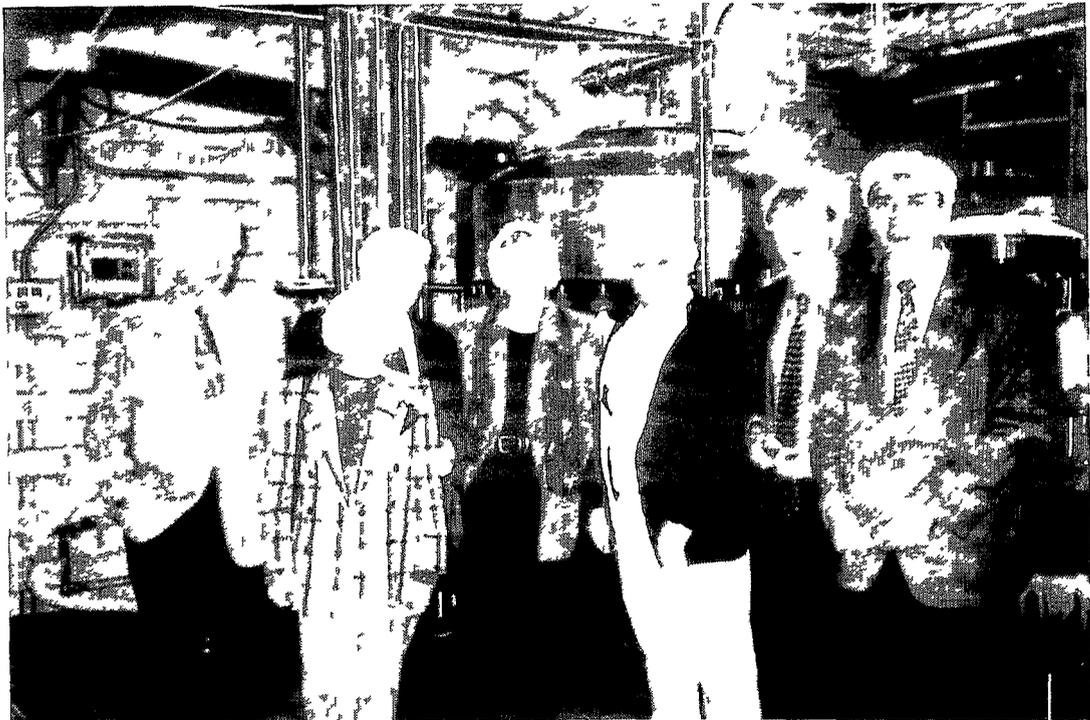
Su šiomis kitomis žinomomis pisinu

dojusi savo patirtimi grupė prisidėjo prie Lietuvos pieno politikos modelio sukūrimo. Modelį sugalvojo Ajovos Valstijos Universiteto ekonomistai bendradarbiaudami su Land O Lakes. Grupė nagrinėjo pateiktus duomenis, projektavo konkrečias situacijas ir scenarijus, taikė savo rekomendacijas ir pakartimus, taip tobulindami modelio rezultatų tikslumą. Be to, grupė svarstė alternatyvias politikos programas. Šios alternatyvos buvo pristatytos per pieno politikos seminarą ir susitikimą su Seimo nariais 1998 m. balandžio 22-23 dienomis.

Projekto sukurtas ekonominis modelis ir jame pateikta medžiaga demonstruoja liukiamus rezultatus taikant alter

netus, kol mūsų pascetos seklos išdys ir suzydes. Vis dėlto jau šiandien aišku, kad Land O Lakes projektas ir ši Jungtinių Valstijų Tarptautinio Vystymo Agentūros finansuojama programa padėjo progresuoti Lietuvos pieno sektoriui, daryti šiam tarptautinėje rinkoje konkurentabiliu ir kokybišku pieno prekių ir produktų gamintoju.

Land O Lakes ir USAID tikslų nebūtų buvę įmanomi pasiekti be glaudaus bendradarbiavimo su projekto partneriais lietuviams. Tvirti santykiai ir gražus bendravimas užmezgė su techninės paramos gavėjais, daugeliu ūkininkų, pieno perdirbimo įmonių (Biržų akcine pieno bendrove "Rokiškio Sūriu" ir kitomis)



Policy working group at Anderson Erickson Dairy

natyvius politikos mechanizmus pieno sektoriuje. Lietuvos analitikams šis mechanizmas bus naudingas politinius sprendimus grindžiant sveika ekonomine analize.

## Teigiami rezultatai

Land O Lakes veiklos rezultatai yra teigiami ir drąsinintys. Lietuvos pieninkystės sektorius turi didelį potencialą daugelyje esminių sričių judama teisingai kryptimi. Ateityje keleri metai bus tiesiog sunkūs ir reikšmingi tobulėjimo procese. Land O Lakes projektas prisidėjo prie daugelio teigiamų poslinkių šiandien Lietuvos pieno sektoriuje pastebimų tiek perdirbimo įmonių, tiek politikos reikšmės lygį. Tačiau galutiniai šio projekto rezultatai dar nebus tikrai uždūs kelius

Valstybine veterinarijos tarnyba Lietuvos pieno perdirbėjų asociacijai, pieno gamintojų asociacijai, Žemės ūkio rūmams ir jų nariams Lietuvos maisto institutu, taip pat su kitomis kompanijomis, institucijomis ir asmenimis.

Land O Lakes išties pasisekė, kad ji dūbo Lietuvoje, kur žmonės moka sėkėti savo tikslu, yra išsilavinę ir atidūs techninei pūamui. Projekto sėkmę lemė ne tik Land O Lakes patirtis, bet ir Lietuvos partnerių sugėėjimas, drąsiai patikti pirmas. Pasibūgus šiam projektui, mes sveikiname savo partnerius ir linkime Lietuvos pieninkystės sektoriui paties geriausio. Land O Lakes tiki, kad pastarųjų metų pasiekimai bus tęsimi toliau, ir pieninkystės sektorius išnaudos savo potencialą kaip svarbius Lietuvos žemės ūkio segmentus.