



LEI

WAGENINGEN UR

Vertical Coordination in ECA Supply Chains : Evidence from the Dairy Sector in Romania

Dr. Siemen van Berkum

LEI-WUR

The Hague, The Netherlands

E-mail: siemen.vanberkum@wur.nl

Version: September 2004

Report prepared for the World Bank (ECSSD) project 'Dynamics of Vertical Coordination in ECA Agrifood Chains: Implications for Policy and Bank Operations'. The author thanks Jos Bijman, Department of Business Administration, Wageningen University, for his help in designing the questionnaire and other useful suggestions.

Contents

Executive summary

1. Introduction
2. Structural features of the dairy supply chain
3. Milk flows within the sector
4. Vertical relations between the processing industries and primary sector
5. Impacts of vertical coordination
6. Conclusions and policy recommendations

Executive summary

This paper analyses changes in the structure of dairy farms and in the dairy supply chain in Romania during transition, and in particular how vertical coordination in the supply chain has evolved. The analysis draws on data analysis, literature review and on interviews with two foreign owned and two Romanian dairies.

Key conclusions are that:

- the sector is characterised by a very small scale of production: only 0.25% of all dairy farms – 2,250 in number - have 10 cows or more;
- the milk processing industry is generally very fragmented: there are around 550 dairies of which 250 have a capacity of less than 1000 ton/year;
- only 20-25% of the milk production is being delivered for processing. Farm usage (family consumption and animal feed) and direct sales on street markets are main outlets;
- all interviewed dairies contract many small-scale holdings and a few large-scale farmers;
- All interviewed dairies offer their farmers assistance programmes on farming and milking practices and on matters pertaining to farm economics;
- All four dairies provide a service of pre-financed inputs and medium-term investment credits. Yet, except for the dairy owned by a farmers association, interviewed dairies offer these service only to the larger farms;
- Improving milk quality and securing the milk supply base are the major reasons behind offering these assistance programmes;
- FDI and EU integration have been the major driving forces behind changes in quality standards. Yet, little enforcement of quality standards regulations on dairies and street market sales are destructive to industry efforts to raise the general milk quality level in Romania.
- Poor milk quality is a major constraint to further development of the sector. To address this, key policy issues refer to improved access to extension and medium- and long-term capital, a proper enforcement of quality standards and a supportive legislative framework for establishing co-operation among farmers. Extension packages tailored towards small- and medium-sized farms could importantly raise productivity and quality of production at these units. A grant aid scheme could increase small-scale farmers' access to capital necessary for production- and productivity-increasing investments. A strictly implemented and controlled system of quality standards should create a level playing field for all dairies in Romania and contribute to a higher quality level. Government support to help establish producers'

organisations would increase the level of organisation of small-scale farmers, which is an important tool in strengthening their bargaining power in the supply chain, leading to improved access to input and output markets.

1. Introduction

A major problem in the agricultural sector and in rural areas in countries in transition is the breakdown of the relationships of farms with input suppliers and output markets. The simultaneous privatization and restructuring of the farms and of the up- and downstream companies in the agrifood chain has caused major disruptions. The result is that many farms and rural households face serious constraints in accessing essential inputs (feed, fertilizer, seeds, capital, etc.) and in selling their products. The problems are made worse by the lack of public institutions necessary to support market-based transactions, such as those for enforcing property rights and contractual agreements.

In the absence of appropriate public institutions, private contractual initiatives, often from large food and agribusiness companies, are emerging to overcome these obstacles (in some cases foreign investment has played an important role in this). Large traders, agribusinesses and food processing companies, often as part of their own restructuring, start contracting with farms and rural households to provide basic inputs in return for guaranteed and quality supplies. This process of interlinked contracting is growing rapidly in central and eastern European agriculture and rural areas.

This paper aims to contribute to a larger World Bank study¹ on vertical coordination in ECA agrifood chains by focusing on the Romanian dairy sector. The paper provides an analysis and documentation of the changes that have occurred during the transition in the vertical coordination in the dairy supply, and its effects on the various agents in the chain. The analysis will focus on vertical relations between farmers and dairy processors, with some attention paid to linkages with other stages of the supply chain such as input suppliers.

The paper starts with a brief description of the structure of the dairy supply chain in Romania. Next, we present the components of the dairy sector and its associated milk flows. In section 4, emerging vertical relations are described based on interviews with four dairy companies in Romania. The interviews focus on the types of and conditions for vertical coordination between farms and processors. Section 5 analyses the consequences of vertical coordination for various agents in the chain. The paper concludes with a number of recommendations for key policy changes and investment priorities for promoting the beneficial effects of increased vertical coordination and avoiding or mitigating possible negative effects, from the perspective of both equity and efficiency.

2. Structural features of the dairy supply chain

2.1 Industry structure at primary level

Romanian milk production has traditionally been concentrated in the private sector. In 1989 the state farms accounted for 18% of production, with other large farm accounting

¹ Dynamics of Vertical Coordination in ECA Agrifood Chains: Implications for Policy and Bank Operations, EW-P084034-ESW-BB.

for 28% and family farms for 56%. By 2001 the share of family farms had grown to 97%, whilst that of state farms was 2% and other large (privately-owned) farms 1%. Milk production is, therefore, very much focussed on small scale, family units.

Table 2.1 Size structures of the livestock farms at 1 of May 2001

Specification	FARMS			COWS			Average head / farm
	No. of farms	% of total	Cum. %	No. of head	% of total	Cum. %	
TOTAL	1 188 387	100.00		1 735 979	100.00		1.46
1-2 heads	1 134 118	95.43	95.43	1 444 366	83.20	83.20	1.27
3-5 heads	47 705	4.01	99.45	173 667	10.00	93.21	3.64
6-10 heads	4 316	0.36	99.81	32 415	1.87	95.07	7.51
11-15 heads	964	0.08	99.89	12 806	0.74	95.81	13.28
16-20 heads	435	0.04	99.93	7 727	0.45	96.26	17.76
21-30 heads	301	0.03	99.95	7 525	0.43	96.69	25.00
31-50 heads	225	0.02	99.97	8 624	0.50	97.19	38.33
51-100 heads	145	0.01	99.99	10 167	0.59	97.77	70.12
>100 heads	178	0.01	100.00	38 682	2.23	100.00	217.31

Source: MAAP, DG of Livestock, January 2002

The privatisation process at farm level resulted in a very fragmented farm structure. Just over 95% of farms have 1-2 cows (Table 2.1). These farms have 83% of all milking cows in Romania. Only 0.25% of all farms – 2,250 in number - have 10 cows or more. Around 85 000 milking cows, or 5% of the total herd of milking cows are on these larger farms.

2.2 Industry structure at processing level

At the processing level, the current industry consists of ex state firms that have been privatised, plus a developing small-scale private sector, which has matured since 1990. At the end of 2003, most formerly state-owned enterprises were privatised or liquidated, while 10 are still in a process of privatisation. Simultaneously, many new dairies have been established over the years, but also many have ceased to exist (see table 2.2). Data from 1999 indicate that at that time there were 973 dairy processing enterprises in total. Most of them were very small in terms of number of employees: 909 enterprises were reported to have less than 50 employees, 64 dairies had more than 50 employees. Since the end of the 1990s the number of dairies (in operating) has come down to around 600, with a fall of 40% of the number of smaller dairies with less than 50 employees. Yet, the structure of the processing sector remains very fragmented. Comparing 1999 and 2004 data on employment shows that the size distribution in the industry remains very skewed: more than 90% of the units have less than 50 employees. In 2004 around 250 dairies have a production capacity of less than 1000 ton milk a year each.

Table 2.2 Size distribution of dairy industry, in number of employees

Size band, in numbers of employees	Number of enterprises in 1999 (January 1)	Number of enterprises in 2004 (January 1)
0-49	909	552
50-99	21	17
100-249	25	18
250-499	11	4
Over 500	7	1

Source: data 1999 from NIS, 2002, data 2004 from MAAP

An important development is that some foreign investment has entered the sector, especially from France, The Netherlands, Greece, Germany and Switzerland. Some of the foreign owned companies belong to the larger dairy processors in Romania. Table 2.3 lists a number of companies, which are estimated to have taken-in more than 20 000 tonnes in 2003. Most of these companies have several factories and produce in different locations across the country. The six largest dairy companies of the country account for around 25% of the dairy processing sector intake (see also figure 3.1). Three out of the six largest dairies are foreign owned: Friesland, Hochland and Danone. Furthermore, Friesland has bought 40% of shares in Napolact in 2002.

Table 2.3 List of large dairies companies in Romania

Name of the company	Estimated intake in 2003, in tonnes
Friesland România	80 000
S.C. Napolact	80 000
Hochland România	30 000
Danone	25 000
Prodlacta	25 000
Raraul	23 000

Source: MAAP, 2004

The structure of the dairy industry may change very rapidly in the years to come. The outlook of EU accession calls, among others, for complying with EU quality norms and standards. According to MAAP data, only 17 dairies produce according to EU standards. These factories represent 15% of the milk processing capacity in Romania. Around 75 dairies are subject to restructuring investments with Phare or SAPARD assistance in order to enable them to fully adapt the EU acquis requirements. The latter group of dairies represent 25% of the production capacity of the present industry. The remaining companies do not produce according to EU norms and are not included in support programmes for improvements. The majority of these firms – around 500 in total – will have to close down their operations by accession, as they lack the financial means to invest in the necessary modernisation of equipment.

3. Milk flows within the sector

Figure 3.1 provides an overview of the dairy sector, its components and associated milk flows. Data refer to the year 2000, but more recent (2002 and 2003) statistics indicate

rather stable milk production and consumption trends over the years 1998-2003.² Figure 3.1 has been compiled with the use of several sources of data, including those of the MAAP (Ministry of Agriculture, Food and Forests) and Friesland Română. The farm usage and direct sales component of the diagram in particular (right hand side) has been produced using a high degree of estimation. It has been suggested that the real quantity of milk used on farm and direct sales could vary by $\pm 50\%$. This in turn suggests that total milk production in Romania could be anything between 3000 million litres and 6800 million litres (i.e. $\pm 40\%$ of the estimated figure of 4930 million litres).

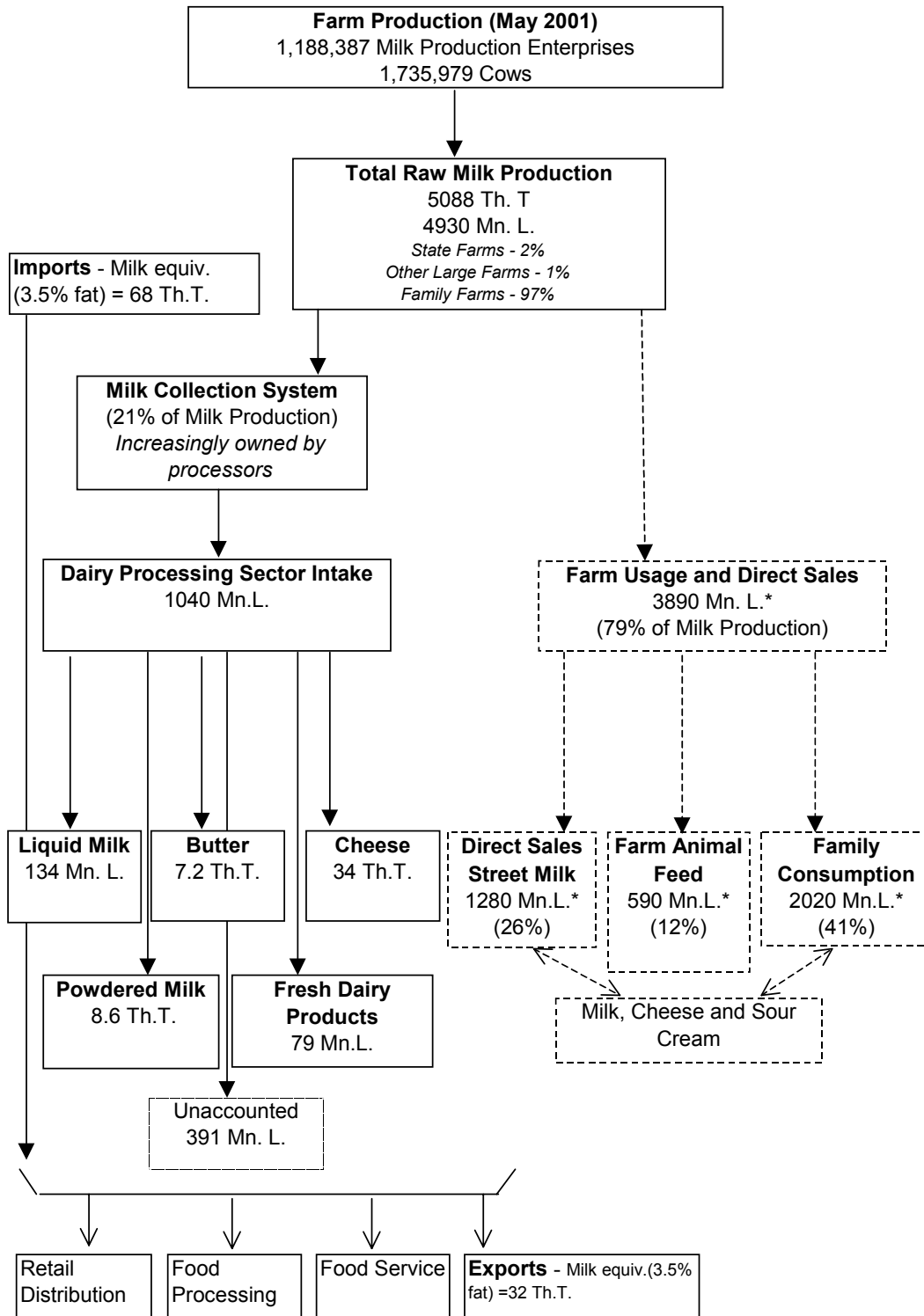
In 2000, approximately 1.2 million producers produced 5.1 million tonnes (4930 million litres) of milk. Similar production levels in the EU are achieved by Ireland and Denmark, while the EU(15) has a total milk production of 122.6 million tonnes. Imports with a milk equivalent of 68,000 tonnes (in 2000) represent only 1.3% of total consumption.³ Exports with a milk equivalent of 32,000 tonnes are less than 1% of total supply. Since the start of transition and up to 2002 imports have exceeded exports, leading to Romania being a net importer of dairy products. Yet, the level of imports has always been very modest, while exports have never played an important role.

It should be noted that a major feature of the current Romanian dairy sector is the low utilisation of total milk production by processing enterprises, with only 21% of estimated milk production being delivered for processing. A high proportion of milk is retained on farms for family and livestock usage, and significant quantities sold directly to consumers, frequently through street markets. Farm family consumption is estimated at approximately 41%, farm feeding of animals at 12% with a further 26% being sold directly by producers through street markets and direct sales to low-income consumers. In estimation of the scale of milk production, which does not go for processing is subject to a high degree of variation. The high level of farm usage and direct selling is a consequence of several factors, which include the small-scale structure of production, a consequential lack of commercial orientation amongst many producers, an underdeveloped milk collection system, the big difference between the procurement price and the street market price, and the unreliability of milk payments made by some processors with delays in payment to producers of up to 3 months (see Leat and Van Berkum, 2003). It is also likely, however, to be the result of difficulties in regulating direct sales – especially those on the street. A major challenge in the commercial development of the dairy sector will be to increase the supplies of good quality raw milk to the processing sector in a cost-effective manner.

The following section focuses on four dairy companies and their strategies for guaranteed and quality supplies. These stories are examples of how dairies try to overcome the obstacles for good quality raw milk deliveries.

² See, for instance, USDA Gain Report RO2018 (2002) and RO3016 (2003).

³ Imports – largely from the Republic of Moldova - have come down very drastically since June 2002 when Romania adopted the so-called ‘third country requirements’ which required that only countries and plants approved to export to the EU market are eligible to export to Romania.



*Note: Figures marked * may be subject to 50% variation*

Source: Leat and Van Berkum, 2003

Figure 3.1 Overview of Romanian milk sector and milk flows

4. Vertical relations between the processing companies and primary producers

4.1 Introduction

The companies interviewed are two foreign and two Romanian companies (see box 4.1). The two foreign companies are among the largest dairies in the country. The Romanian companies are a large- and a small-sized dairy. The companies are questioned about their contract partners (who are they?), the support they offer to farmers (what kind of support and to whom?) and the agreements made in contracts (on quality, quantity logistics and finance support). Section 4 concludes with an impact analysis of vertical coordination on the quality level of milk, production, market access and structure of the sector.

BOX 4.1 Company profiles of dairies interviewed

PROMILCH, located in the Iasi county (North-East Romania), was started as a private company by three local people. In 1999, the farmers association ISPA joined with investments in equipment. These investments were possible through the Dutch PSO support programme. Gradually ISPA Eco SRL, a limited liability company fully owned by the ISPA members, expanded its share to 65% of the total share holding. The factory in its present form opened in 2001 and it processes mainly milk delivered from the ISPA collection centres (85%). In winter, the quantity of milk processed is 6 000 litres/day, which increases to 11 000 litres/day in spring and summertime. The plant has a capacity of 15 000 litres/day, or 5400 ton/year. Promilch focuses largely on fresh dairy products. Its markets are small local shops and one or two local supermarkets.

RARAUL is a former state company, built in 1960 for producing mainly milk powder and butter. These are still the most important products, together with cheese. The enterprise was privatised in 1994 through a system in which employees could buy shares. Presently, 5-6 people own 67% of the shares, while 5% of the shares are owned by a farmers' association and the rest by employees. In total there are around 270 shareholders. The company is located in the North of Romania and processed around 70 000 kg of milk per day in 2003, from 7 000-8 000 farmers. Major clients are in the processing industries. Around 50% of the company's dairy products is exported.

DANONE – the large multinational dairy, originating from France - entered Romania in 1998. The company processes around 70 000 – 90 000 kg of milk a day into desserts. Danone acquires milk from all over the country, from small farmers whose milk is collected in (around 60) collection points at local level and from larger farms. From the collection points and large farms, the milk is transported to regional collection centres for further transport to Bucharest, where the only processing unit in Romania is located. This factory is a greenfield investment and modern equipped. Danone's products are sold all over Romania, mainly through large international retail chains.

The Dutch Friesland Coberco Dairy Foods (FCDF) owns **FRIESLAND** Romania. FCDF bought the Nutricia Dairy & Drinks Group (NDDG) at the end of 2001. NDDG entered the Romanian market in 2000 by acquiring Somesana, who held a strong position in the North West of Romania, with fresh products and cheeses. In 2003, Friesland Romania processed approximately 200 000 – 250 000 kg of milk a day, in 5 factories. The company acquires milk through 1050 collecting points (from approx. 40 000 small farmers) and from some 600 larger farms (with own cooling facility). By means of a public offer, around 40% of the shares in Napolact in Cluj – among the larger dairies in Romania - were acquired in 2002. Products are sold through various shops around the country, including the international retail chains. The company has an own distribution network, with depots in almost every region in the country.

4.2 Contract partners, milk collection arrangements and quality improvement instruments

Contracts partners

All four companies take in milk from individual farmers. Most of the milk is delivered based on a written contract, in which in most cases the price setting and payment system are arranged. Promilch has a written contract with the farmers association ISPA, its major shareholder and by far its most important milk supplier, and not with individual members of ISPA (which are around 2000 in number). Next to individual farmers, Friesland also contracts intermediate traders. Yet, this is not on a regular basis and when done, this is only a very small (< 5%) proportion of Friesland's total intake. All four companies do business with the very small farmers with 1 or 2 cows. The two foreign owned companies, Friesland and Danone also contract larger farms (which are farmers with more than 3 cows in the Romanian context), some of which can supply daily 300-400 kg of milk on average.

In general dairies in Romania do not lay down milk delivery contracts with small-scale farmers in a notary's deed because transaction costs are too high. Friesland, for instance, has around 40,000 small farmers (with 1 or 2 cows), Raraul has approximately 8,000. Usually, dairies readjust farm prices 3-4 times a year because of inflation and the market situation (due to high seasonality of the production there is a big difference between summer and winter production and thus prices). Farmers consider therefore contracts as rather noncommittal; terms are changing frequently and each time terms change farmers feel free to decide to switch dairies, definitely when one dairy offers better conditions than the other. Dairies, however, do make up contracts in a notary's deed with the larger farms, in an attempt to bind them. This is surely done if dairies provide farms with development assistance (see below).

Collection arrangements

The small farmers either deliver their milk to collection points by themselves or their milk is transported by a milk collector to a collection point. The larger farmers are visited by a tanker collection. Collection and transport costs per kilogram of milk are estimated relatively high, especially in the winter when production is seasonally low. It is interesting to note that the four companies use different systems in organising their milk collection and transport. Raraul and Promilch, for instance, take care of the collection and transport by themselves. Estimated collection costs of these companies are between 10% and 20% of all costs (depending on the season). Friesland and Danone have outsourced the transportation of milk (and their products) to independent conveyors. The collection points and centres that supply Danone are all owned by private entrepreneurs. Friesland owns collection points/centres, in which it has recently invested much in milk cooling and quality testing equipment. Also Raraul and Promilch/ISPA invested in cooling facilities and milk control equipment in milk collection centres. Before the companies did these investments, the centres did not exist or they were only very poorly equipped. Table 4.1 summarises the contract partners and collection arrangements of the four companies.

Table 4.1 Contracts partners and arrangements for collection and transport

	Danone	Friesland	Promilch/ISPA	Raraul
Contracting small farmers	X	X	X	X
Contracting large farmers	X	X		X
Owning collection centres		X	X	X
Arranging transport farm-collection centre			X	X
Arranging transport collection centre-dairy			X	X

Note: X means 'yes' or 'applicable to'.

Quality improvements through payment and control system

Improving the quality of milk delivered is of key importance to further development of the Romanian dairy sector and in the interest of every dairy that wants to produce high quality dairy products. The companies interviewed encourage the improvement of the milk quality mainly through its milk payment system, linking the payment to quality grades. Friesland pays the small farmers according to fat content, measured at the collection points by the company itself. The larger farmers are paid on the basis of fat and protein content, density and germ counts. The latter farms are included in the company's quality system and the milk supply is regularly controlled at the farm. Danone offers a relatively low base price (10% below the market price) but offers bonuses when a farmer delivers milk of above average quality, according to protein content and germ count, and also for constant delivery. In this way farmers can reach a mark-up of 35% above the average market price. Milk quality controls take place at the (larger) farm and at the collection points.

Prices paid by Raraul to farmers are linked to the quality of the milk delivered. Milk samples are taken at the farm through the collector, and these samples are analyzed at the collection points. The factory applies three quality grades: milk at the third grade is penalized by a 15-20% price cut. Promilch's payment to ISPA-farmers is determined according to quality and is based on individual samples tested through modern equipment available at the association owned milk collection centres. Facilities at the milk collection centres allow measuring fat content, density and acidity grades for each individual supplier. This system motivates and stimulates farmers to improve their milk quality. For the bigger farmers, a premium price based on increased volume delivered is negotiated within the contract with Promilch.

Higher prices for better quality milk should encourage farmers to deliver their milk to the dairy that is paying for quality. However, there are signs that the four selected dairies face a tough competition for milk. All interviewed companies indicate that, although price arrangements are set in a contract, prices are negotiated frequently. Friesland claims it is almost continuously negotiating with its suppliers about the milk price and points at

the farmers' attitude that contracts are not considered binding! ISPA reports that prices are established monthly taking into account the market developments. Promilch/ISPA has a one-year contract for the farmers with more than 10 cows but (re-)negotiates prices (at least) every six months.

If prices (or even deliveries) depend on quality, the organisation of quality control is of key importance to the trust farmers have in the system. In case of our selected dairies, milk collectors do quality control before the milk is mixed with other farmers' milk. Subsequently, the milk is further analysed in milk collection centres and in the dairy laboratories. Friesland claims it has a transparent system. The samples to determine the quality of the milk are made available for testing and checking by the responsible public inspection services. Also Promilch/ISPA reports that there are several stages of quality control: the milk collector controls at the farm on density and acidity of the milk, while the farmers' association (through the laboratory staff in the field) in addition controls on fat, protein, dry matter and added water at the collection centre. Furthermore, the factory controls the entire intake itself through its own lab. On top of that, at least monthly the laboratory of the Veterinary Direction and periodically the laboratory of the Consumers' Protection Office are controlling the milk. Danone and Raraul indicate to use a similar quality control system and be governed by external inspection.

The interviewees, however, complain that the public inspection services are not accurate enough to control every dairy in operation. It seems to the interviewed companies that public inspection discriminates against the dairies that are most quality aware, by applying higher standards to them than to others. Furthermore, the public authorities are accused of weak inspections at open-air street markets where milk and cheese is sold non-cooled and not checked on basic food safety requirements (see also section 5).

4.3 Support to primary producers

Extension services

Friesland uses several ways to support their farmers with the aim of improving the quality of milk supply and guaranteeing a stable supply. For instance, the company has 36 milk inspectors out in the field, who visit farmers and advise them on milk hygienic circumstances, cleaning practices and fodder management. This service is in principle open for every farmer who delivers milk to Friesland.

The ISPA farmers association, majority shareholder of PROMILCH, employs staff providing extension services to its 2,000 members. Services provided are various: from supporting farmers in making feeding plans for their herd to a full business plan. In its early days much extension work focused on convincing farmers to improve hygiene in their milking practices. The association distributes leaflets with practical information and hints on cultivating feed, storing milk at the farms, cleaning practices, etc. Staff pays visits to farmers individually and organise meetings, trainings, on-farm demonstrations and trials through which knowledge exchange is enhanced.

Raraul has made several efforts to improve farming conditions in order to improve milk quality. One example is that the company buys in fodder supplements and sells these at reasonable prices to its farmers. Another example is that Raraul distributed pregnant heifers to farmers some years ago. This programme, however, was no success as only a few farmers could qualify for receiving the animals. In order to get a heifer, farmers had to prove they had good animal practices. Those farmers that were successful financed the purchase by pre-financed milk supply to the factory. With SAPARD assistance Raraul intends to set up training centres in the county for education purposes. Raraul considers farmers' education in good animal practices essential to increasing yields as well as improving the quality of the milk. To this aim, Raraul also invested in cooling facilities in collection points.

Danone offers advice services to its farmers. First, a farmer can get advice in drafting his business plan and assess his opportunities for expanding his farm. Second, Danone offers technical advice on feeding, on hygiene, on improving the fertility rate of the cows and other technical farm management issues.

Table 4.2 Elements of a Farm Assistance Programme by the dairies surveyed

	Danone	Friesland	Promilch	Raraul
Extension services	X	X	X	X
Provide good quality inputs financed by deducing milk money	X	X	X	X
Support to purchases of simple inputs by prepayment of milk deliverance	X	X		
Investment support by small loans	X	X	X	
Support in receiving bank loans (e.g. guarantee by your company)	X	X	X	

Investment financing and other input arrangements

Friesland supports only the larger and loyal farmers who want to make investments to improve or expand their businesses. Investments supported by Friesland were mainly in milk-cooling facilities at the farm, while in a few cases updating the milking parlour and improvements of the cowshed were supported. Occasionally the company offers the bank a guarantee, if the farmer is able to give Friesland a collateral. In most cases, however, Friesland's investment support is through pre-payment of a farmer's milk, for the purchase of necessary inputs. Friesland has no programme in which it stimulates farmers to use production-increasing inputs, except that it offers good quality of fodder for reasonable prices. Farmers may use delayed payment for feed purchases or Friesland deduct part of the milk money for a number of months.

Danone, on the other hand, has made pre-financed inputs the corner stone of its farmers development program. The company supports farmers who are aiming at improving their business through small-scale investments in, for instance, spare parts of field machinery and milk installations, and through purchases of feed compounds (concentrates), milk powder (as cattle feed) and detergents (of milking equipment). A farmer may apply for pre-financed inputs only after he has delivered good quality milk to Danone for at least 6

months. Counter valuing the investments in required inputs Danone buys the farmer's estimated milk production in advantage: normally the pre-financing does not exceed the value of one year of production, yet the amount in advance may extend to two or maximum three years of production. As Danone gives a security to the input suppliers, they are willing to deliver the inputs to the farmers.

In addition to pre-financed inputs, Danone is willing to provide farmers with medium-term credits for investments in, for instance, milking installations and animal purchases. A farmer can qualify for investment credits, if he is a stable supplier to the company and if his farm has a certain minimum size. In principle, Danone offers investment credit assistance only to the medium and larger farms, targeting at farms that can deliver around 400 kg/day (in due time).⁴ Furthermore, together with his requests for support the farmer sends in a business development plan. If Danone accepts the plan, the company and the farmer make up a contract in which the conditions for the loan are laid down. Danone normally takes the farm housing and/or land as guarantee for non-deliverance of milk or breach of contract. The contract is signed up in a notary's deed.

ISPA also plays a role in helping farmers with credit, but as her members are predominantly small-scale farmers, borrowers are largely farmers with only a few milk cows. The association uses a Dutch fund – received from Rabobank on very attractive terms - and provides small loans to farmers who want to invest in animals, (re-)construction of stables and/or equipment. Farmers qualify for a loan through an interview in which they have to indicate their business plan. An average loan is around Euro 400, with a maximum of Euro 2000. ISPA loans are to be repaid after a 6-18 months grace period for animals, and a 4-year grace period for construction investments. Farmers do not have to provide any collateral; the milk delivered is considered the 'collateral'. Eligibility criteria for loans include several elements. First, the farmer needs to have a durable relation with ISPA. In practice ISPA requires a delivery period of at least 6 months but preferably 1 year. Important is that a farmer uses an appropriate fodder base at his farm and agrees upon a commitment for further expanding the farm. ISPA personnel, who generally have a close contact with all individual members, need to confirm the assessment on eligibility. The requirements are, however, not too strict and subject to ISPA staff assessments. Trust and reliability are important. ISPA deals with the default risk by having a solidary liability of both the loan beneficiary and the milk collection centre staff who guarantee for the reliability of the borrower.

5. Impacts of vertical coordination

Quality improvement: driving forces and obstacles

Companies surveyed in this paper indicate that improving milk quality is the main driving force behind their assistance programmes. By offering assistance to farmers the dairies want to secure their milk supply base both in quality and quantity terms. Quality

⁴ In the interview, the company's representative mentioned that Danone's assistance programme is targeted at farms with 20 cows or more. According to available statistics, this would refer to less than 1000 farms all over Romania.

improvements are also encourage through quality related payment systems. Furthermore, timely payment of milk delivery is an important instrument to enlarge the dairy supply base and to show that the dairy is a reliable partner. Through these linkages dairies hope to get farmers loyalty in return. Vertical coordination, then, is expected to affect quality and volume of milk delivery positively.

Through quality improvements of their raw material, dairies aiming at strengthening their competitive position and be able to open up new markets for the sector, such as access to the large retail chains. Companies realise that also in Romania the retail sector will become the major market channel for dairy products. The retail sector demands guaranteed supply of high quality products. In order to use the full potential of the Romanian milk sector, quality improvements are a *sine qua none*. If not, the sector's competitiveness will be weakened, which will result into further import penetration.

Next to market forces, EU integration drives changes in the quality awareness in the supply chain. Presently, milk quality norms set by the Romanian government are only referring to minimum requirements to guarantee that the milk is safe for human consumption. These Romanian standards are generally lower than EU standards. Normally, however, dairies measure milk quality in terms of fat and protein content, density and somatic count. Yet, the number of Romanian dairies that use the latter quality norms as a base for milk payments is, according to the interviewed dairies, still low.

At the same time, efforts of those dairies that are trying to encourage farmers to improve the quality of milk delivered are undermined in several ways. Most (small) dairies accept low quality milk and yet pay farmers attractive prices. These dairies generally do not invest in quality improvement measures and do not request quality-improving investments from the farmers. Farmers are not encouraged to make any invest in quality improvements and do not have the financial means to do so. Low quality products can still be sold, as a majority of consumers are not so discerning yet. There are even accusations that inspection institutions apply double standards, allowing dairies to operate without production licences, to sell their products without paying taxes, and to produce without obeying basic quality standards. This has a very destructive impact on industry efforts to increase the quality of milk delivered. Interviewees indicate that the price differences between high and low quality milk is not so big during the winter months when production is seasonally low. During these months there is much competition between the 'good' and 'bad' dairies in order to secure their supply. Contract enforcement is a problem as most agreements with the smaller farmers are not in a notary deed, while frequent price adjustments incite farmers to reconsider their business relation with their dairy and to switch between dairies.

Street market selling is another obstacle to rapid improvement of the quality of dairy products in Romania. An estimated quarter of all milk production is sold directly to consumers at typical peasant street markets as fresh dairy products including cheeses (see figure 3.1). Formally, the issues of animal health of the animals used to produce the products or the hygienic quality of the products sold is controlled by veterinary and local authorities, yet the quality of products sold are generally considered far below EU

standards (Leat and Van Berkum, 2003). As long as such outlets exist and the terms on which products are sold accepted, farmers have little incentives to improve milk quality.

Impact on yields and production

Impacts of the contractual arrangements on farm level are difficult to indicate, as this brief research did not include interviews with farmers. Yet, it may be assumed that when a farmer takes the advice, uses better fodder and is granted small loans for investments in more productive cows, housing and/or milking parlour equipment, his cows will yield more milk and production increases. Examples of dairy farmers in Leat and Van Berkum (2003) indicate that farmers, willing to learn, can achieve better performances even when they have access to modest development assistance. In the same vein, relatively small changes in the industry’s practices can have a major impact at farm level. An example from Friesland is illustrative in this respect. In 2001 the company bought a Romanian dairy, which utilised less than 50% of its capacity and had a bad reputation with respect to paying its farmers. Without changing anything but paying-in-time, Friesland succeeded in taking-in 20-30% more milk within a time period of 3 months. If farmers are convinced that a processor is reliable in making its milk payments, producers are generally prepared to deliver (more of) their milk.

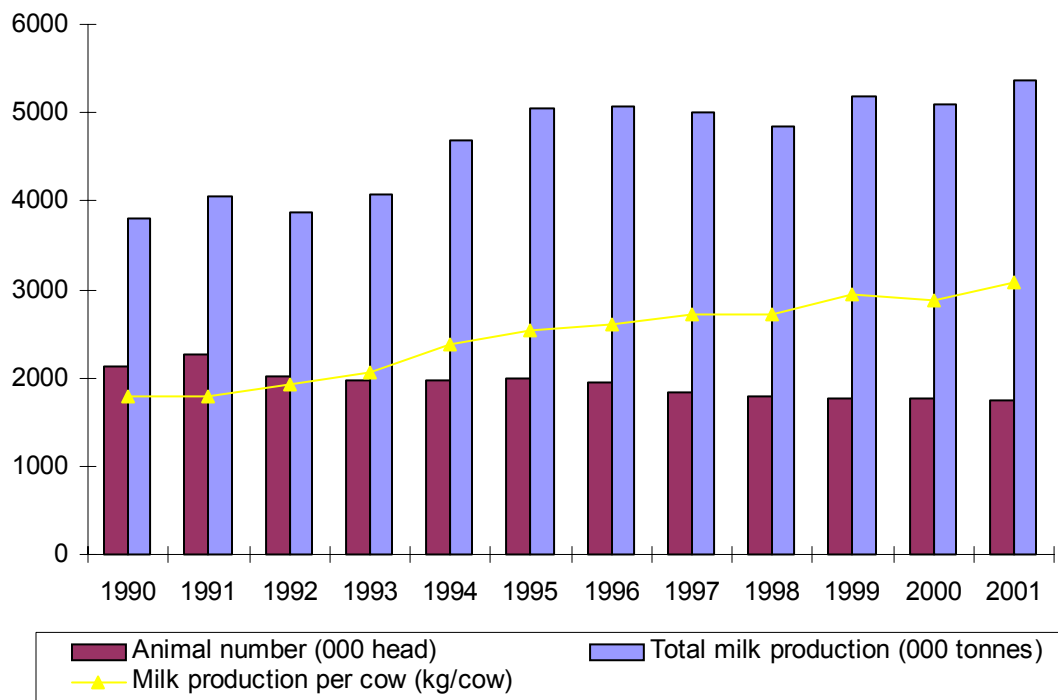


Figure 5.1 Cowherd, milk production and milk yields in Romania, 1990-2001

Source: National Institute for Statistics, Annual Statistics 2002, Chapter 13 Agriculture

The general picture for the Romanian dairy sector is that yields are increasing but slowly (figure 5.1). Total production has not moved up much as the cowherd decreased slightly over the years. Whether assistance programmes have contributed to these results is very doubtful: the initiatives as reported by the four surveyed companies seem too few to have

a noticeable impact on the average yields in the country. Also on a dairy company level, it is hard to identify any impact on intake per farmer. Again, the number of farmers receiving assistance is pretty low. Furthermore, the supply base of most dairies changes continuously as a significant part of small-scale farmers deliver milk to dairies on a of-and-off basis, selling also part of their production on the street markets, and switch from one dairy to another.

Access to input and output markets

Vertical coordination improves access to inputs for farmers. Dairies subject of this survey provide farmers with extension service and advice on various husbandry issues, hygiene standards and farm economics. Training, extension and knowledge exchange are important inputs in a country where the governmental extension service system still needs very much restructuring and modernisation to comply with the present needs of a privately-run farm sector.⁵ Some companies act as intermediate between the farmer and input producers, which enhances access to compound feed, fertilisers and/or machinery, small equipment and spare parts. Dairy companies have a much better bargaining power towards the input supplier than a(n individual) farmer has, negotiating discounts while offering input suppliers much more secure payment guarantees than farmers can. Furthermore, farmers have improved access to (small) loans for (small) investments, if financial support of investments is include in the assistance programme. However, most dairies seem very cautious in providing farmers with loans: they select farmers eligible for loans very carefully. Except for the farmers association ISPA, dairies select only the larger, loyal farmers for (some form of) company credit support. This illustrates that, when it comes to support in terms of investment finance, larger farmers are positively discriminated against small ones. The larger farmers are offered the chance to take loans, not the small farmers. At the same time, it should be emphasised that in case of the three larger companies the total number of farmers included in the farmers assistance programmes is relatively low. For instance, Danone reports that no more than 10 new participants enter its development programme every year. Friesland refers to ‘some cases’ in which the company provided loans for investments.

With respect to access to output markets, the dairies surveyed have contracts with super markets, some of which are international retail chains. This enlarges the market for dairy products from Romanian farmers.

Vertical coordination and FDI

For the development of the sector foreign investment in dairy processing industry is of significant importance. Romania has received some foreign investors in the dairy sector since 1998 when Danone came in. Since then, several foreign companies have followed, such as Friesland (former Nutricia group, Netherlands), Parametro (Greece), Hochland (Germany), and Dorna Lactate (Switzerland). These investments show that foreign companies see good prospects in the Romanian dairy market in the longer term. There are several important impacts on the Romanian dairy sector that can already be identified as arising from these foreign investments (see also Leat and Van Berkum, 2003). One clearly observes that the competition in the market has increased. More firms with better

⁵ See also Davies and Van Berkum (2003).

products are entering the market and competing with the existing established businesses. Increased competition from internationally operating companies has encouraged several developments. More competition has fuelled a growing tendency of specialisation in the sector. Until privatisation started, every dairy unit produced the whole range of dairy products, in order to utilise all the milk delivered and to serve the local community with a full range of products. Pressure from competitors has forced processors to use scarce resources on as large a scale as possible, and to concentrate on processing fewer products is one way of achieving this. The increased competition has already had, and will continue to have, an impact on the numbers of small-scale producers and these will reduce. Furthermore, the foreign investment has resulted in an increasing number of products being available to the consumer. Moreover, as these companies want to accept only milk of good quality, they initiate further efforts to implement strict quality standards right along the dairy chain.

Winners and losers

Although the larger farmers have some privileges in assistance programmes with respect to investment funds eligibility, there are no signs that the present vertical coordination arrangements in the Romanian dairy supply chain exclude small farmers. Despite high transaction costs dairies are willing to collect the milk from small plots, largely through collection points. The two foreign dairies interviewed in the survey explicitly indicated to like to reduce the number of small-scale suppliers and work with larger suppliers. Yet, the problem is that there are only very few dairy farms with more than 5 cows in Romania (see table 2.1). For the moment, dairies have to accept this situation until restructuring and consolidation in the sector starts off. In the meantime, the larger dairies are keen to assist their supplying farmers in improving their conditions for producing higher quality milk by providing advice, improving access to inputs including investment means and enhancing access to output markets. Farmers who are willing to learn and develop get chances to further develop their business. The companies, however, restrict such support to the more loyal and larger suppliers, due to high transaction costs and problems of contract enforcement. The result is that this assistance only accrues to a small number of farms and has only limited impact on sector development.

The dairy sector is very fragmented: around 95% of all dairy farmers have 1-2 cows. Therefore, in order to have an impact on dairy sector development assistance programmes should be targeted at upgrading small-scale farms too. Initiatives taken by a dairy association like ISPA show that an effective organisation of small-scale dairy farmers can provide its members with basic farm level support on matters of key importance (feeding, milk quality and hygiene) and a secure market outlet. Furthermore, by investing in further processing, this association adds further value to raw milk and strengthens the market position of its members. This example shows that small-scale farmers have future perspectives when effectively organised.

6. Conclusions and policy recommendations

Key problem for sector development is the low and unstable quality of milk delivered. Investments for quality improvement are seriously hampered by the typical small-scale structure with low productive holdings. Vertical coordination through private contractual arrangements, which include assistance programmes try to tackle major bottlenecks for quality and productivity improvements. In the dairy sector in Romania, vertical coordination through contracting is not widespread yet. Foreign companies have taken initiatives in this field, which to date have been followed by only a few Romanian dairy factories. So far, the impact is limited in terms of number of farms assisted as well as in yields and production increase. Government policies on a number of fields could help to complement and increase the effectiveness of the companies' farm assistance programmes and at the same time address the issue of competitiveness of the sector. Key focus of public policy should be to help bring the small farms into the private supply chain. Below, some recommendations for policy change and government involvement are suggested.

Establishing extension and information service

The sector importantly suffers from a low milk quality from small-scale, low productive holdings. Many issues contribute to that situation, such as low feed quality, a lack of quality and hygienic orientation on the farms and a lack of basic husbandry skills. A well functioning public extension and information service can contribute importantly to improving the general knowledge level in the sector and increasing quality awareness. On-farm training should focus on how to change working practices so as to improve milk quality. Similarly, such measures may also affect productivity positively, as less milk will be lost due to bad hygienic practices.

The structure and functioning of that system will, however, need to be reviewed in the light of changes taking place in the agricultural research and education sectors to ensure that the knowledge and technology transfer from the research and education sectors is efficient. In addition, the development of extension packages tailored towards small- to medium-sized farms and to semi-subsistence households could do much to raise the productivity and quality of production at these units. The strengthening of the links between the extension service and the agricultural schools through, for instance, an "entrepreneurial skills course", could also be beneficial. Presently, the Romanian government is investing in improving its agricultural knowledge and information service.⁶

Improve the farmer's access to capital

Productivity and quality of production is also low due to a lack of use of capital. Farmers have little or no financial means of their own to invest in working capital, and have difficulties in getting access to loans for investment in housing and other fixed assets. This survey pointed at some examples in which dairy processors assist farmers in these

⁶ In 2004 the Romanian Government - with World Bank and some other donors' assistance – is in a process of starting up a project on the modernisation of the Agricultural Knowledge and Information Systems (AKIS), in which one of the main tasks is to establish an efficient and effective extension system.

fields. The examples also show that – with the exception of the farmers’ association - dairies have a preference for supporting the larger farmers and consider small-scale farmers generally not creditworthy enough to be included in their financial assistance programmes. However, given the very low levels of capital used, small investments in, for example, animal housing, a cart or machinery to cultivate the land, may result very quickly in increased labour and land productivity on small scale farms. Investments in better milking equipment, cleaning products, etc., may make a difference in terms of the quality of milk produced. The latter may also lead to more litres being sold for processing, as the processor will reject less milk. Investments like these are so important to the small-scale farmer for improving working conditions and increasing productivity. A grant aid scheme could be established to help farmers have improved access to financial means. Investments like the ones mentioned could be funded by a farm improvement scheme with grant aid provided within the structure of an approved Farm Improvement Plan (FIP). In such a FIP, a farmer formulates his wishes / objectives with respect to necessary improvements on his farm and substantiates why they should be eligible for grant assistance. A medium-term business plan is an integrated part of the FIP. The Romania Government may use SAPARD funds to finance FIP’s.

Develop, implement and control quality standards

It has been noted that there is a striking difference between dairies in terms of milk quality awareness. In this situation, dairies that demand their farmers a higher quality of milk delivered face significant competition from dairies with a much lower quality awareness. Due to Romania’s present low prosperity level, domestic consumers may accept these quality differences. Yet, it is a government task to ensure uniform applied quality standards that guarantee at least a similar level playing field for all dairies, and a minimum food safety level. All dairies should operate with appropriate production licenses and comply with basic quality and food safety rules.

Unregulated milk and dairy product sales, especially those on street markets, could compromise public health initiatives. For instance, Brucellosis and Tuberculosis (TB) are significant risks to public health. The potential seriousness of the risk, suggests that it should be tackled from both ends of the food production chain. On-street sales should be regulated and licensed so that the observance of health, hygiene and milk quality conditions by vendors can be monitored. The size of the market and potential for relocation would however make such monitoring difficult. All milk producers should, therefore, be registered and subject to on-farm inspection of production, health and hygiene standards. The compulsory testing of milk for bacterial and cell counts would, subject to the imposition of limits, further protect public health.

Stimulate the establishment of producers associations

The ISPA-example illustrates what an effective organisation of small-scale farmers can achieve. Presently, there are only a few farmers associations in Romania, mainly because of a distinct mistrust of farmers. Yet, there are many reasons why cooperation could be advantageous to small-scale dairy farmers.

One good reason is to collectively invest in collection centres. Establishing well-facilitated collection centres for milk is a major requirement for developing the competitive performance of the Romanian milk sector. Leat and Van Berkum (2003) provide an example of the type and level of investment required to establishing a small-scale collection centre for approximately 250 small farmers. Total costs of establishing a collection centre, including a second hand cooling tank and a centrifuge, would imply an investment of around 7000-7500 US dollar, or 30 dollar per farmer when 250 farmers line up with each other. This example is based on the experiences of ISPA and represents good quality information on this type of investment. It shows that the level of investment required from each farmer can be relatively modest if sufficient numbers invest and only appropriate facilities are provided.

Establishing a co-operative in order to invest in a collection centre has more positive side effects. Small-scale farmers have no bargaining power when dealing with processors and/or input suppliers (including financial institutions). By joining forces, farmers would be able to negotiate better terms with parties from other stages in the chain. Furthermore, dairies may reduce transaction costs importantly when they do not have to deal with all small-scale farmers individually, but instead with one legal person – an association – that represents a group of small farmers.

Presently, Romania has a co-operative law (Law 36/1991), which allows the formation of legal entities in Romania that can operate according to general co-operative principles. However, that law has serious drawbacks, such as the prohibiting of commercial activities and the obligation to pull all the land and production resources (see Davies and Van Berkum, 2003). Modification of this law so that the operation of a legislative framework does not inhibit co-operation, could have an important impact on the development of small-scale farming in Romania. Furthermore, public extension services could help increase farmers' awareness of the benefits of associations and could include training of those who are to assist in co-operative development. Start-up grants to help cover temporarily the operational costs could strongly encourage the establishment of farmers associations.

References

Davies, S. and S. van Berkum, Policy themes identified in the sector reviews, in: S. van Berkum, S. Davies and S. Popov, *The Romanian Agrifood Chain: On the Road to Accession*, Ministry of Agriculture, Forests, Water and Environment, Bucharest, 2003.

Leat, P. and S. van Berkum, Dairy sector analysis, in: S. van Berkum, S. Davies and S. Popov, *The Romanian Agrifood Chain: On the Road to Accession*, Ministry of Agriculture, Forests, Water and Environment, Bucharest, 2003.

MAAP (Ministry of Agriculture, Forests, Water and Environment), *Statistical information on the situation in the dairy processing industry*, Bucharest, January 2004.

USDA Foreign Agricultural Service, *Romania Dairy and Products, Annual 2002*, Gain Report number RO2018

USDA Foreign Agricultural Service, *Romania Dairy and Products, Annual 2003*, Gain Report number RO3016

Interviews

Friesland Romania: Mr. G.de Boer, country manager

Danone: Mr. Petrisor, managing director raw material acquisition

Promilch/ISPA: Mrs. E. Baladur, director general of ISPA

Raraul: Mr. M. Vranau, director general