



The Thai dairy sector under liberalised trade conditions

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Table of contents

Executive summary.....	4
1 Introduction	5
2 The international environment.....	7
2.1. Global dairy trade	7
2.2. Price formation of dairy commodities.....	9
2.3. Global trade policy	11
2.4. Ambitions of the major dairy exporters	13
2.5. Outlook for global markets	14
3 The Thai dairy sector	15
3.1. Structure of the Thai dairy chain.....	15
3.1.1. Dairy farming.....	15
3.1.2. Milk collection.....	17
3.1.3. Processing	18
3.1.4. Retail and foodservice.....	19
3.2. Dependence on imports	19
3.3. Competitive strength in the upstream part of the Thai dairy chain	21
3.3.1. Competitive strength of dairy farming	21
3.3.2. Competitive strength of milk collection co-operatives.....	22
4 Impacts of a liberalised trade environment on the Thai dairy industry	23
4.1. Competition between raw milk and imported dairy ingredients	23
4.2. Processor arguments in choosing between local sourcing and imports.....	24
4.3. Quantitative assessment of the impact of liberalised trade conditions	25
5 Options to mitigate the negative impacts of liberalisation	27
5.1. Opportunities to improve the competitive position of Thai dairy	27
5.1.1. Options for improvement in dairy farming	27
5.1.2. Options for improvement in milk collection	28
5.2. Options for government guidance to mitigate effects	28
5.3. Opportunities for new business.....	30
6 Conclusions and recommendations	31

Executive summary

The main objective of this report was the analysis of the likely impacts of an FTA between Thailand and New Zealand. Nevertheless, for the title of this report we used the phrase “The Thai dairy sector under liberalised trade conditions” because, with or without FTAs, the Thai sector will become subject to growing international competition.

The world-wide trend, initiated in the GATT/Uruguay Round and further promoted in the current WTO/Doha Round, is towards global trade liberalisation. The main difference between the process driven by WTO and FTAs is one of timing. While the time horizon of the WTO process is more uncertain, FTAs are likely to bring down barriers to trade a lot quicker. This means that the Thai dairy sector should begin to bring their competitive standards into line with international competitive standards sooner rather than later. Further increases in expensive milk production will only make it more difficult later on for the dairy industry to adjust to a more liberal trade environment

The overall impact of trade liberalisation on the Thai dairy sector will be determined by a combination of factors, of which some – like for instance its own competitive strength and the overall growth of the Thai dairy market - can be influenced by the sector itself whereas others - like for instance conditions on the global dairy market and economic development in the Thai economy - are out of their hands. We strongly feel that in a situation where the industry manages to improve its overall competitive strength in terms of production efficiency and qualitative standards, the impacts of a liberalised trade environment will be limited and opportunities for local milk production to grow will remain.

However, several conditions will have to be met in order to turn such a future scenario into reality. To boost the competitive position of the Thai dairy industry, efforts should focus at three levels: dairy farms, co-operatives, and the government.

International comparison shows that Thai dairy farmers already operate efficiently by world standards. Still, considerable opportunities to improve the competitive strength of Thai dairy farming through cost reductions and quality improvements remain. Improvements in these areas are likely to make local milk cost competitive in a liberalised trade environment and of a quality that makes its application more versatile and hence more attractive to processors. The combination of the two may put the dairy industry in a much better position to attract investment to absorb increasing volumes of local raw milk.

Given the fragmented nature of the milk collection co-operatives, any scale increases (i.e. reduction in the number of co-operatives through consolidation) is likely to lead to cost efficiencies and higher quality milk.

The government’s role in the dairy chain should change from fully determining the market conditions and setting the prices to a more remote role whereby the government provides the conditions for fair competition and the incentives for better quality and cost efficiency.

The Thai dairy industry at both farm and co-operative levels has considerable scope to improve efficiencies, lower production costs and improve milk quality, thereby creating the conditions for more local raw milk demand from processors and consumers. The government can make a considerable contribution to this process and, in doing so, create a more favourable investment climate in the dairy sector.

1 Introduction

This report is a collaboration effort between Rabobank and the Fiscal Policy Research Institute (FPRI), an affiliation of the Ministry of Finance of Thailand, to jointly analyse the likely impact of the Thailand-New Zealand Free Trade Agreement currently being negotiated.

The extent of the impact on the dairy sector is largely determined by the difference between international and local competitive standards. Therefore, the analysis starts with two chapters that address international developments and local characteristics. This should give enough insight to provide a thorough basis for the assessment of the impact of a freer trade environment in the following chapter. The next chapter addresses the options to mitigate the possible negative impacts of the FTA and we end with our conclusions and recommendations.

Although the occasion for this analysis is the Thailand-New Zealand FTA, we deliberately used the phrase “The Thai dairy sector under liberalised trade conditions” for the title because it is our opinion that the Thai dairy sector is bound to become increasingly subject to international competition, with or without FTAs.

2 The international environment

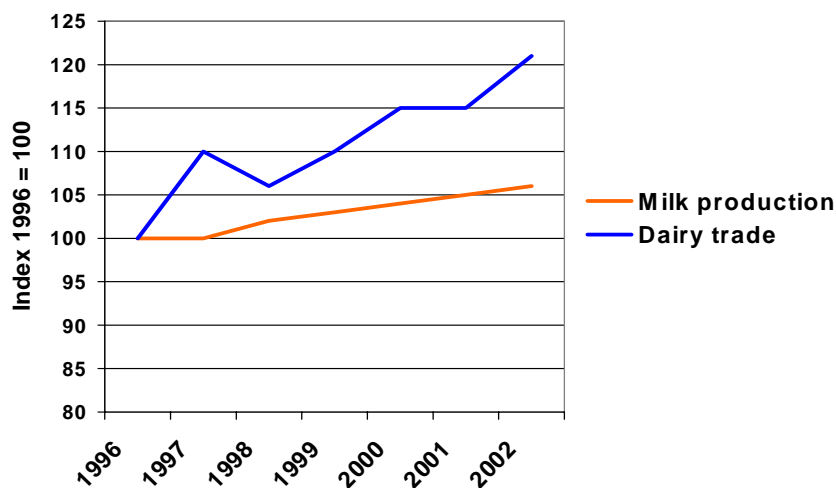
Most dairy trade concerns dairy ingredients like skimmed milk powder and butter oil, which to a large extent are used by importers to supplement deficiencies in the local milk supply. However, about half of the whole milk powder trade and a significant part of cheese trade are in end-consumer products.

For the sake of this report we will focus mainly on those traded products that directly affect the supply and demand balance of the local Thai dairy sector. These products are skimmed milk powder (SMP) and whole milk powder (WMP). The term whole milk powder is actually a simplification because it comprises the broad range of milk powders with a fat percentage above 1.5, but for convenience sake we will stick to the term WMP.

2.1. Global dairy trade

Milk is a perishable product. Therefore it is no surprise that, if we exclude intra EU trade, only 7% of global milk production is traded internationally. Still, the volume of dairy trade is growing at a faster pace than global milk production. International travel has created growing demand for products produced in other parts of the world and the latest WTO agreement has created better access for dairy exporters to potential import demand. Some regions in the world are not likely ever to be self-sufficient in dairy products due to their unfavourable production circumstances, while other regions have built their entire dairy industry based mainly on their export positions. Changes in this landscape of global dairy trade are occurring slowly but surely, driven to a large extent by political measures as well as by individual company ambitions.

Figure 2.1 Growth of global milk production and global dairy trade



Source: ZMP, 2004, Rabobank, 2004

The figure below shows that global dairy supply is still dominated by the EU, Australia and New Zealand, with Asia, North America and the Middle East the main destinations for dairy exports.

Figure 2.2: Major trade dairy flows (>= 250,000 tonnes of milk equivalents)



Source: Dutch Dairy Board, Rabobank, 2004

Since 1995 the EU’s global market shares have been on the decline for all dairy products except for whey. Lower levels of price support in the EU and the irreversible global trend towards abolishing export restitutions will further reduce the EU’s role in the dairy commodity trade.

Figure 2.3: Global market shares in milk equivalents



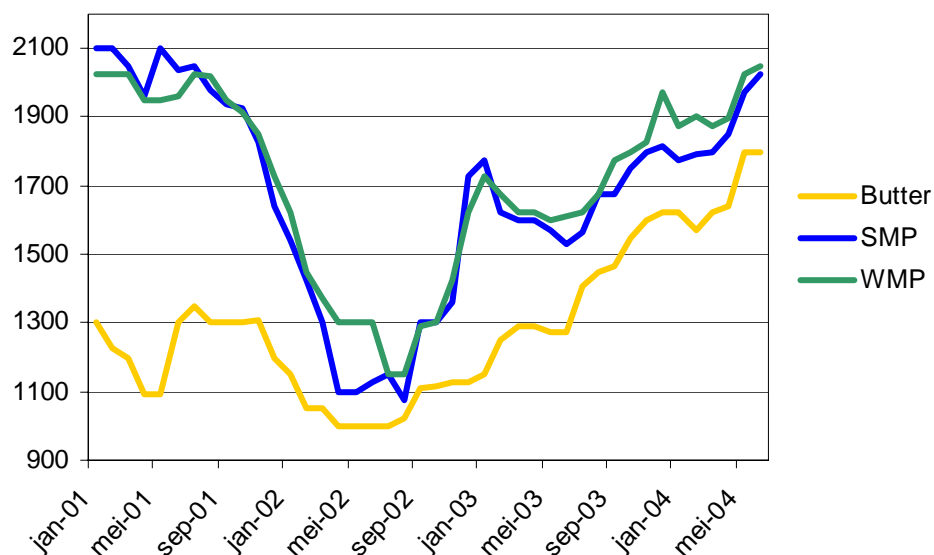
Source: Dutch Dairy Board, Rabobank, 2004

Australia and New Zealand have been the main beneficiaries of the EU’s declining role in global dairy trade where both countries have the potential and the ambition to play a leading role. This is different to the position of the US, whose potential is offset by a lack of ambition and Argentina whose ambition is not matched by its potential. In 1999 the combined market share of Australia and New Zealand exceeded the EU’s global market share for the first time and three years later New Zealand’s market share alone reached a par with the EU’s market share.

2.2. Price formation of dairy commodities

World market prices of dairy commodities are highly volatile, as the figure below clearly indicates. The figure also reveals that the prices of all dairy commodities are quite strongly correlated, with almost perfect correlation appearing for SMP and WMP.

Figure 2.4 World market prices of SMP, WMP and butter (USD/tonne fob W. Europe)

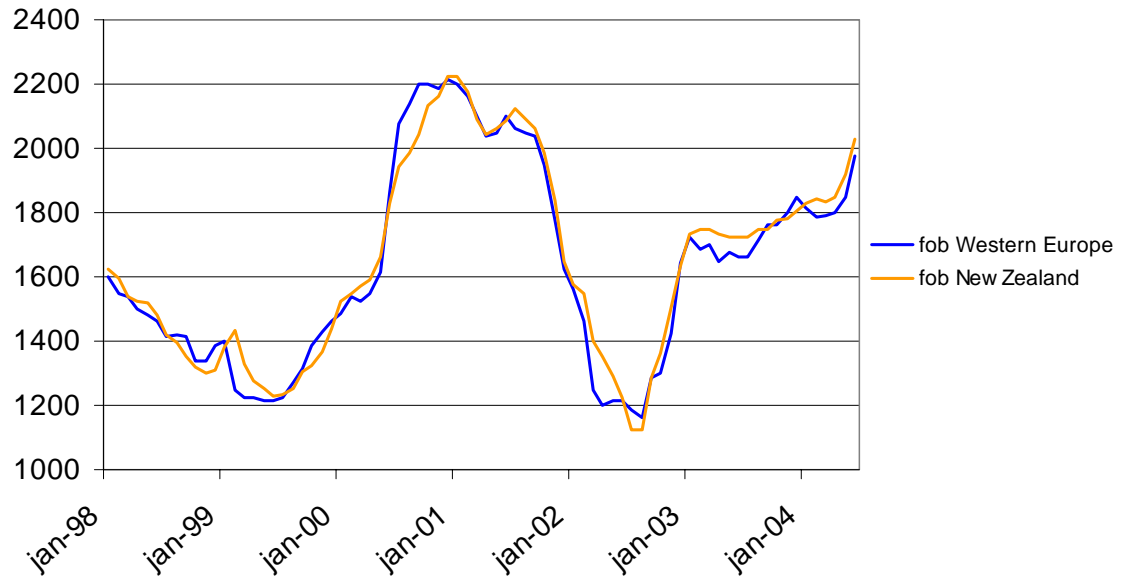


Source: ZMP, 2004, Rabobank, 2004

A large proportion of butter and skim milk powder production in the EU is often referred to as 'residual production'. This means that when all other milk requirements (mainly cheese, fresh products and whole milk powder) are satisfied, the remainder is processed into butter and skimmed milk powder. Since raw milk is a perishable product and cannot be stored, the residual supply has to be processed into storable products like butter and SMP. Production volumes, therefore, are strongly linked to the supply and demand conditions of other dairy products.

SMP is also important in curbing excess supply due to the strong seasonal fluctuation of milk. During the flush season excess milk is processed into SMP and butter for use during the dry season. In Australia and New Zealand especially seasonality in milk production is very strong due to the pasture-based dairy farming systems used in this part of the world. The EU region suffers much less from this seasonality factor. Figure 4 shows that prices measured at Western European (Rotterdam, Hamburg and Gdynia) and New Zealand (Auckland) ports follow very similar patterns.

Figure 2.5 World market prices of SMP in USD per tonne

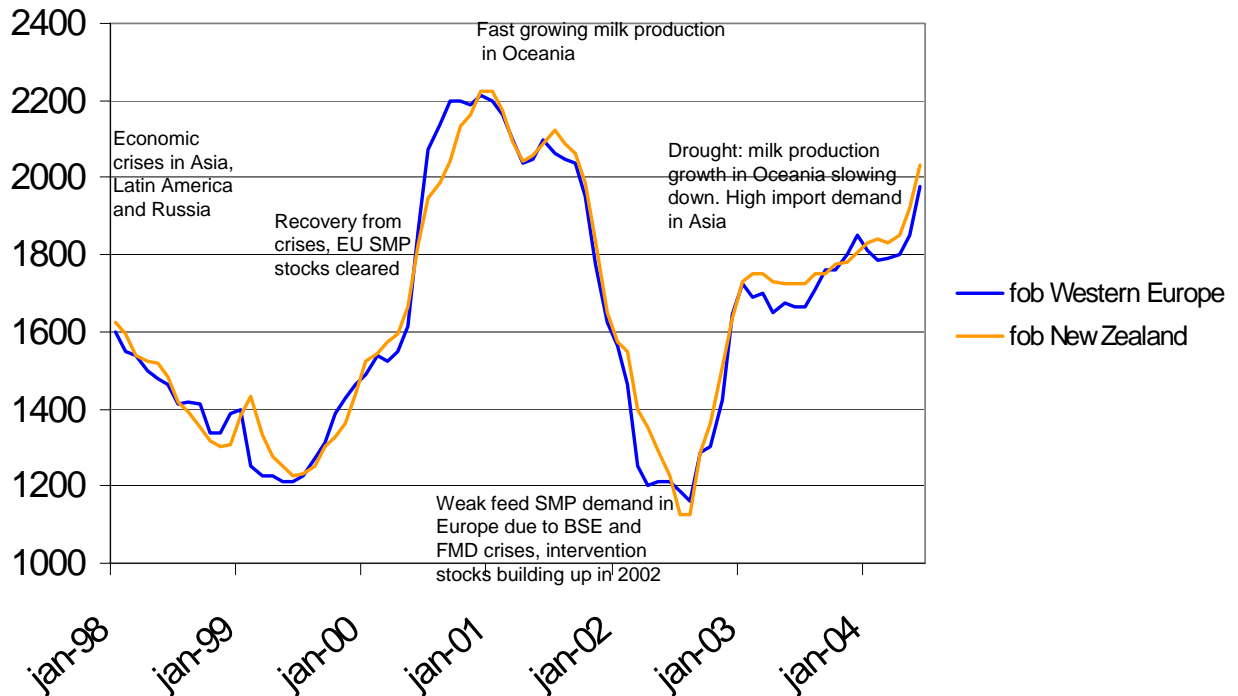


Source: ZMP, 2004, Rabobank, 2004

This volatility of SMP prices can be attributed to a number of reasons, stemming either from the supply side or from the demand side of the market. The first and probably major reason is the 'residual function' of both SMP and butter. This implies that small variations in milk production can have strong effects in the output of these items alone and the total volumes available for export. In general, in the European Union and the United States, only small fluctuations of milk production result in relatively strong variations of the output of butter and skim milk powder. The availability of butter and skim milk powder for export is the result of total local milk production minus total domestic dairy demand, which is usually quite stable. Therefore, the availability for export is subject to much stronger relative fluctuations than production.

On the demand side, prices are strongly affected by the vulnerable demand conditions in the main importing regions. Amongst the major importing countries in the world are many with a rather unstable economic and political environment. For instance, the strong contraction of world trade and the consequent fall in world market prices in 1998 and 1999 were largely attributable to the economic crisis in Asia. Mexico and Algeria are examples of countries whose imports are still very much government regulated. SMP imports in these countries play an important role in government programmes aimed at providing sufficient food at reasonable prices. This further adds to the volatility of import demand because the financial situation of the government in these countries is not very stable either.

Figure 2.6 Major market events impacting on SMP prices



Source: ZMP, 2004, Rabobank, 2004

Under normal market circumstances, global SMP (food grade) prices fluctuate between USD 1,600 and USD 2,200 free on board (fob) per tonne. Nevertheless, in recent years disruptive market conditions have caused prices to drop several times below the USD 1,600 mark. This was the case between 1998 and 1999 due to the Asian and Latin American economic crises and in 2002 due to the BSE and FMD crises in Europe. In 2003 the depressed global market situation was actually solved through the drought in Australia. SMP supplies from this region literally dried up in the course of 2003, causing import demand to return to EU supplies. The build-up of stocks in the EU stopped, reversed somewhat and prices rose significantly above the USD 1,600 level again.

2.3. Global trade policy

Most of the supply and demand issues described in the previous paragraph are driven by agricultural policy measures. Agricultural policy in the EU, the US and Japan are still the main cause of price volatility of dairy commodities on global markets. For instance, the EU's dominance in global dairy commodity trade in previous decades was built on its common agricultural policy aimed at turning the EU net importing position for agricultural products to a situation of self-sufficiency. Eventually the system of producer price subsidisation proved "too successful", leading to surpluses which needed to be disposed of through subsidised exports. With the implementation of the milk quota system in 1984, which basically fixed total milk

production in the EU at a volume of some 120 million tonnes, the oversupply situation gradually diminished.

This trend consolidated further in 1995, when the EU agreed to bring down its volumes of subsidised exports in accordance with the WTO agreement negotiated at the Uruguay round. From that point on, the EU's role in the global trade of butter and SMP dwindled considerably. The world market for dairy commodities will continue to be affected by subsidised European products, but the volumes will be much less. The reform of the EU dairy policy in the summer of 2003, which will result in lower intervention prices for butter and SMP, will even further reduce the appetite of EU processors to produce these products for the world market.

A side effect of the domestic price support policy in the US is occasional oversupply of raw milk. The US has reacted to this situation in the same manner as the EU: stock retention by the Commodity Credit Corporation (CCC) and low-priced exports using its Dairy Export Incentive Program (DEIP). Because of the erratic nature of these oversupplies, the US has never been a very stable exporter of dairy commodities to the world market, but the USD 1,870 per tonne CCC clearing price is often regarded as the ceiling for global SMP prices. Above that level, American SMP starts flooding the global market. Only when the CCC is "out-of-stock", as it currently is and as it was in 2000/2001, do SMP prices rise above this level. Although the level of price support has been reduced over the years, the system is still in place despite the announcement in the 1996 Farm Bill that the price support system would be abolished. Therefore, it is expected that American SMP will continue to occasionally flood global markets. In both 2003 and 2004, exports under DEIP were at the WTO maximum of 68,000 tonnes. Furthermore, the US are frequently accused of off loading their market surpluses under the label of Food Aid. In many cases these volumes have replaced commercial trade.

In **Australia, New Zealand and Argentina** market intervention is, to all intents and purposes, absent. The dairy industries are fully subject to normal market circumstances. Both Australia and New Zealand are strong advocates of further liberalisation of global trade. The WTO should provide the structure for further progress in this field, but developments are currently on hold, the entire process proving very slow and time consuming. This might be one of the reasons why we observe a growing number of free-trade blocks and bilateral trade agreements amongst countries. NAFTA, Mercosur and the new EU-25 are huge trade blocks with more or less free trade amongst the participating countries, New Zealand and Australia are working on all kinds of Regional Trade Agreements (RTAs), and trade volumes to the Asian region are increasingly determined by bilaterally negotiated trade quotas.

Despite the difficulty of saying anything sensible about the timing of events in the WTO environment, the direction is more or less apparent after the Harbinson proposal was put on the table at the beginning of 2003. While the package will probably be diluted, the next agreement is likely to see:

- a further reduction of import tariffs (Harbinson proposed, amongst other things, a cut of 60% on all tariffs over 90% in the next five years);
- higher tariff quota (Harbinson proposed a minimum of 10% of domestic consumption);
- lower export restitutions (Harbinson proposed a 50% cut in the next five years and the rest in nine years) leading to a complete elimination by a specific, not yet agreed, date.

Until the beginning of August 2004 the pace of progress in the negotiation rounds was slow and especially after the Cancun failure, 2004 seemed destined to become another lost year for the WTO. However at the Geneva meeting, the first weekend of August 2004, a major breakthrough

was achieved. The participants reached an agreement on the procedure for the coming negotiations. Though nothing official was yet signed, and the agreement focused mainly on the topic of the export restitutions while little mention was made on the much more controversial topic of import access, the participants still considered the meeting a major breakthrough. With elections coming up in the US and for the EU commission, it is not expected that anyone will make further commitments this year, so 2005 will become an important year for the WTO.

2.4. Ambitions of the major dairy exporters

The recent reform of the Common Agricultural Policy will further reduce the appetite of EU processors to produce SMP and butter. The likely result of less milk going into butter and SMP manufacturing will be that more milk will be allocated to cheese manufacturing, since other product groups offer few opportunities for increased milk intake. This will force manufacturers to increase their export efforts in cheese, since this will be the main outlet for additional cheese volumes. Cheese is probably the only dairy product that can be exported from the EU in significant volumes at a competitive price.

In WMP, prospects for the EU are moderately positive. New Zealand and Australia are better equipped to cater to the Asian markets, but the EU will continue to play an important role in Asia, the Middle East and North Africa. EU processors have in the past been able to build up some strong brands in the end consumer segment of these markets.

New Zealand, or more precisely Fonterra since they dominate the New Zealand dairy industry, makes no secret of the fact that it wants to build activities in value added products, without neglecting the importance of commodities. In the words of Fonterra's new CEO Andrew Ferrier: "Commodities and value added products need to sit side by side in Fonterra's future." Opportunities to extend the company's role of ingredient supplier to a more active role in marketing and branding will be seized through joint ventures with current trading partners. Fonterra's recent initiatives with Britannia in India, Dairy Partners Americas with Nestlé and possibly Sanlu in China are clear examples of this. On the commodity side of the business Fonterra has been on the lookout for opportunities to diversify their sourcing base in recent years. Fonterra's use of non-New Zealand milk in its global ingredients business has grown from none four years ago to 300,000 tonnes per annum now, and will continue to grow. The company actively markets milk from its supply partners Euroserum in France, Bonlac in Australia and Dairy Farmers of America in the US. Fonterra currently manages about 40 percent of the world's dairy commodities trade and its main strategy is to coordinate product supply with international demand, neither building up huge stocks nor moving prices dramatically up or down.

Australia, has the best opportunities to supply the growing requirements for dairy ingredients. It has the land, the necessary feed grain supplies to curb the seasonal fluctuation of milk production and the proximity of the main importing region. Nevertheless, the last 18 months have also shown the vulnerability of Australia's dairy chain: the drought has brought milk production back to the level of two years ago. The impact on traded volumes in the 2002-2003 season remained limited because existing obligations could be dealt with by reducing stocks. This year, however, with stock levels close to zero, the total export volume will be 10% to 15% lower. Australia's dependence on the weather remains the only real handicap in its expansion ambitions in dairy commodity trade. The current low milk prices are prompting producers to consider their options and not simply increase their production as they have in the past.

Through their involvement with Bonlac, Fonterra's role in the Australian dairy trade has become more important. Opinions differ on whether this may be beneficial to the Australian dairy industry, but the fact is that this creates a powerful commodity trade unit.

Although figure 2.2 reveals that the main export destinations for Australia and New Zealand are to be found in Asia, this does not mean that these are also the most attractive markets in terms of trading margins. Japan and South Korea are indeed attractive markets, but the relatively closed markets of EU and the US are also very high on the wish list of Australian and New Zealand traders. Future ambitions of the big exporters from Australia and New Zealand will be strongly focused on making use of every additional bit of market access offered in the EU and the US.

2.5.Outlook for global markets

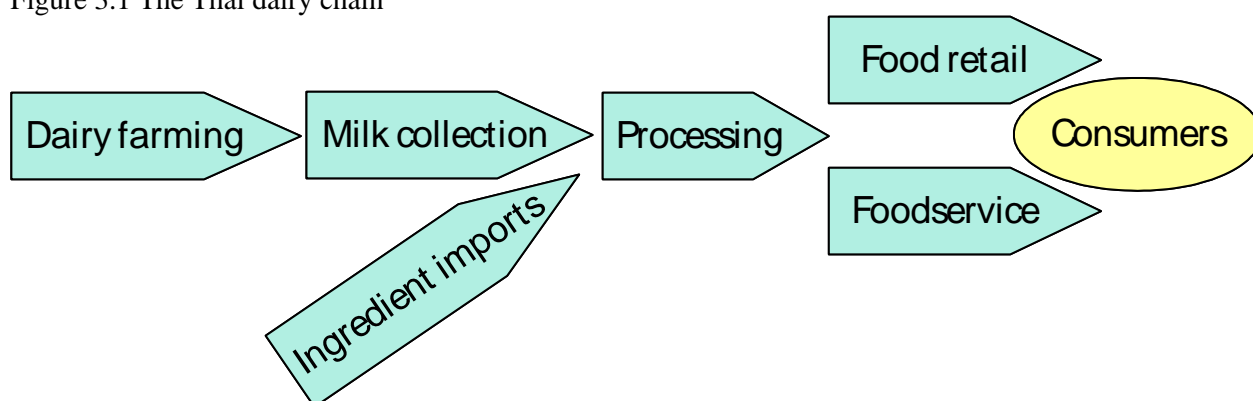
The current trading environment is characterised by strong demand and a tight supply situation. This is expected to continue in the medium term as Australian supplies are likely to remain below potential and EU supplies to decrease. Some market analysts suggest that with the diminishing impact of the EU on the world market, world commodity prices will be more stable in the future. However, the flip side of the diminishing role of the EU in global trade is greater reliance on the weather-dependent supplies from Australia and New Zealand. In other words, the supply side of the global market will to a certain extent change from 'policy influenced' to 'weather influenced'. We seriously doubt whether this indeed will lead to more stable commodity prices in the world market.

Another question is whether the general movement of dairy commodity prices will be upward or downward in the near future. The crucial question in this is whether the growing import demands that we expect from importing countries can be met by milk production growth in Australia and New Zealand. Although there still is some room for production growth, we doubt whether production can rise fast enough to satisfy increasing import requirements. Land availability is the limiting factor for expansion in New Zealand and the past 18 months have shown that the weather and water dependency is the bottleneck to expansion in Australia. Therefore, we expect that under normal economic growth conditions in the main importing regions, there will be moderate upward pressure on global dairy commodity prices in the next decade. In the past five years milk powders have on average traded within the range of USD 1,600 – 1,800. We expect the average trading range to move up moderately to USD 1,800 – 2,000 in the medium to long term. Any higher prices would attract new volumes of additional supply from countries like Argentina, Uruguay, Ukraine and possibly the US and India, which would subsequently reduce world market prices again.

3 The Thai dairy sector

3.1. Structure of the Thai dairy chain

Figure 3.1 The Thai dairy chain



Source: Rabobank, 2004

The structure of the Thai dairy chain does not deviate to a great extent from any dairy chain around the world, with the exception of the large volume of imported dairy ingredients to supplement local milk production. This is a feature that Thailand has in common with many other Asian nations. However, Thailand is also special in the way that it has been able to build a significant dairy industry through the dedication of the Thai government, exemplified by an impressive budget for dairy development. The unfavourable climatic conditions make it difficult for Thailand to reach a 100% level of dairy self-sufficiency. The majority of locally produced milk is collected by milk collection co-operatives and subsequently sold to processors. Very few milk collection co-operatives also have processing activities. Dairy processors use both local raw milk and imported dairy ingredients as inputs in their manufacturing process. Their products are sold to retail and foodservice customers before they reach the end consumer. The School Milk programme is a very important part of the foodservice market.

3.1.1. Dairy farming

Dairy farming involves more than 22,000 families in Thailand. Milk production has been increasing steadily and is currently estimated to be around 750,000 tonnes produced by some 400,000 dairy cows including calves. Assuming a replacement rate of 10%, the average annual milk yield per cow would be around 2,100 kg, which is relatively low compared to international standards (6,200 kg in the EU, 8,400 in the US and 3,300 in New Zealand). To a certain extent this can be explained by the tropical weather, the use of local grass, which is low in nutrition, the practice of keeping cows years after their peak milk-production period has passed and the large number of subsistence farmers with less productive management methods. On specialised dairy farms with 20 cows or more, average annual milk yield per cow can be up to 4,000 kg or more, but an estimated 70% of all Thai dairy farms have less than 10 dairy cows. Improved breeding, better farm management and better feed are boosting overall productivity per cow in Thailand by some 4% per year.

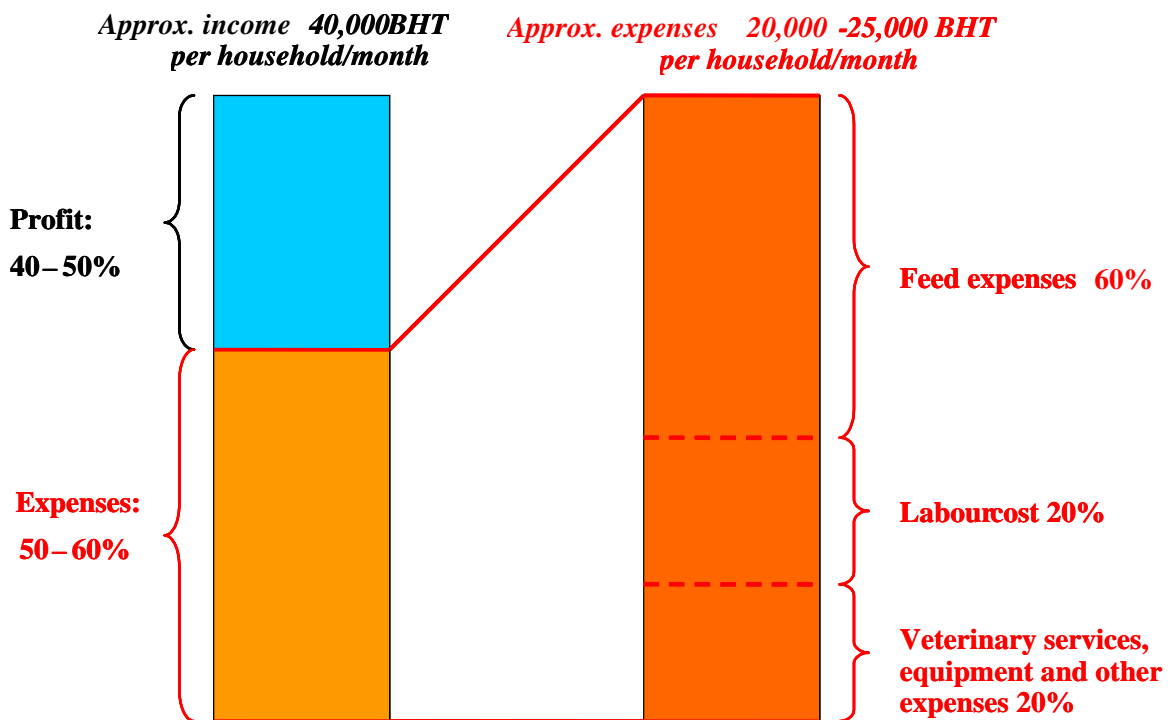
Cow productivity differs around the country. For instance, the farms visited in the Muak Lek region had higher yield than the farms in the Nong Pho and Ban Bueng areas. Still, the entire

central region is considered to be more productive than the other major dairy region in the north-east.

Most Thai dairy farmers run small to medium-sized operations of between 11 and 20 cows, most of which are cross-bred between Holstein-Friesian and native cattle, with the percentage of Holstein-Friesian ranging from 70% to 80%. The daily feed ration is composed of two-thirds roughage and one-third concentrate feed. Relative volumes of the ingredients in the composition of the concentrate feed depend on local availability and price.

The graph below illustrates income and cost structures of a medium-sized dairy farm with about 20 dairy cows. As shown here, the main cost component is feed followed by labour, veterinary care, equipment and other expenses. About 40% to 50% of total revenues can be considered “profit including management returns”. In cost comparison exercises the factor labour cost is often difficult to assess since the farmers’ own family labour has to be added into the equation. In this example we added the equivalent of two full time workers with a minimum wage of THB 170 per day as labour cost. Since this does not take into account the return for management, we consider the 40 to 50%-profit inclusive management returns.

Figure 3.2 Cost and revenue structure on a 20-cow Thai dairy farm



Source: Rabobank, 2004

It is possible for dairy farming to enjoy cost benefits from economies of scale. Since most of the larger dairy farms in the country are still relatively small or medium- sized by international standards, scaling up definitely offers scope for higher cost efficiency. Size strongly impacts the costs of concentrate feed. On the farms visited for this project the cost of concentrate feed per kilogram of milk ranged from BHT 5.2 on farms with around 10 cows, to BHT 3.2 on farms with over 40 cows. Small farms spend much more on concentrate feed compared with the larger farms because they do not own machines for blending their own concentrate feed and so have to buy much more expensive ready-made feed. The same is also true for the relative costs of

roughage since their operations are too small for growing their own materials or buying it in bulk.

3.1.2. Milk collection

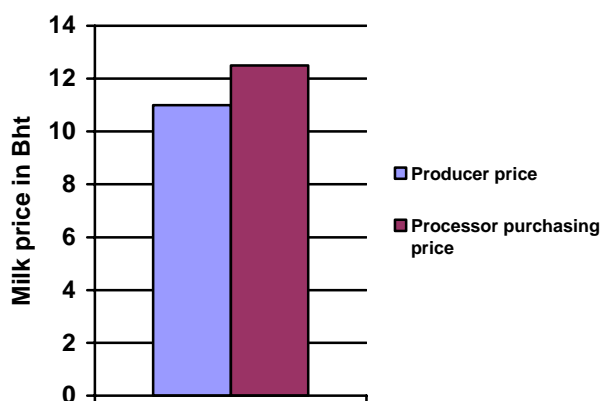
Milk collection points form the key node in the chain that connects farmers to buyers of raw milk. Most of the collection points are operated as co-operatives, but private companies are active in milk collection as well. An estimated 80% is collected by co-operatives, with the remaining 20% collected by private milk collectors.

For this report the following co-operatives were visited: Ban Bueng, Muak Lek, Nong Pho, Pak Chong, Phi Mai and Wang Nam Yen. Although it is debatable whether these co-operatives are representative for the total milk collection sector, they are among the biggest of Thai co-operatives. Our opinion on the milk collection part of the dairy chain is based on these visits.

Most milk collection co-operatives have other activities besides collecting and selling the milk for their farmers. Most of these activities concern input services for their farmers like veterinary, financial and feed services ranging from straightforward centralised purchasing to making premixes and prepared roughage. A few co-ops, like Nong Pho and Wang Nam Yen, have their own processing facilities .

Most co-operatives receive at least the government dictated price of THB 12.5 per kg for their milk. The co-operatives pay their farmers a price of between THB 10.5 and THB 11.5 per kg, depending on the quality of the milk but also on the cost level of the co-operative. Most of the differences for prices paid can be explained by the level of the co-operative's service. When all veterinary services are provided by the co-operative, for instance, this raises the cost level for the co-operative and subsequently reduces the price paid to the farmers. Most co-operatives also pay a dividend to their farmers.

Figure 3.3 Average producer price and processor purchasing price



Source: Rabobank, 2004

Across the world agreements between milk suppliers and processors are based on contracts. In Thailand, however, agreements between the milk collection co-operatives and milk processors are based on Memoranda of Understanding (MoU). This situation is not very transparent since it does not provide much security for the co-operatives. Every now and then, especially during school breaks when demand for milk drops, co-operatives are occasionally confronted by a lack

of demand from their customers who do not accept milk above the volume agreed in the MoU. On the other hand, the government determines the volumes of local milk processors need to accept. In brief: the Thai milk purchasing practice is not based on clear business economics, but on business culture and moral obligations. At a price of THB 12.5, the Thai government has to exert a certain amount of pressure to get processors to revert to local milk. The situation is frequently described as an “uneasy understanding between government and processors”.

Our view on the milk collection part of the Thai dairy chain is to a certain extent biased. The milk collection co-operatives visited are the biggest and most efficient ones. We may assume that not all co-operatives are able to pay their farmers a price of BHT 10.5 or higher. During the project references were made to producer prices paid in other parts of the country which were significantly lower. If we look at the facts we may assume that for the whole country milk collection is quite fragmented. A number of 110 milk collection co-operatives on a total milk volume of 750,000 tonnes means an average 6,800 tonnes per co-op per year.

3.1.3. Processing

Thailand’s milk processing industry is a mixture of local players like Dutch Mill, Thai Dairy Industry (TDI), Nong Pho, DPO, the joint venture CP Meiji and multinationals like Foremost, Nestlé, Dumex and Yakult. According to estimates Nestlé tops the list, but the company’s strength is more in dried products than in the ready-to-drink part of the market. Figure 3.4 gives a more detailed overview of Thai processors.

Figure 3.4 Major dairy manufacturers

<i>Company</i>	<i>Turnover 2002 (USD million)</i>	<i>Main products</i>
Nestlé	150 ¹⁾	Sterilised milk, milk powder, UHT milk, pasteurised milk, cup yoghurt, condensed milk
Foremost Friesland (Thailand)	139	UHT milk, pasteurised milk, drinking yoghurt, cup yoghurt, condensed milk
Dutch mill	132 ²⁾	Drinking yoghurt, cup yoghurt, pasteurised milk, UHT milk
TDI	93	UHT milk, condensed milk, milk powder
Dumex	61	Milk powder, UHT milk
Nong Pho	53	UHT milk, drinking yoghurt
DPO	51	UHT milk, pasteurised milk, drinking yoghurt
CP Meiji	51	Pasteurised milk, UHT milk, drinking yoghurt, cultured milk, milk powder
Mead Johnson	50	Milk powder, UHT milk

¹⁾ Estimate

²⁾ 2003

Source: Annual reports, Industry sources

Multinationals are driving the industry in terms of product differentiation and innovation. The environment is very competitive and innovation plays a very important role in the fight for market share. Health benefits form the main research area for processors to look for opportunities to innovate.

Government intervention on the processing side is still very strong. Despite the abolition of the local content regulation, the government still determines to a large extent the volumes of local raw milk to be purchased by processors. The retail price for milk is fixed by the government, just as for all staple foods, at THB 25 per litre.

3.1.4. Retail and foodservice

Dairy products reach the consumer either through retail or foodservice, i.e. restaurants and catering. The Thai retail market is currently equally divided between traditional trade and modern trade. Each of the categories accounts for approximately 50% of the overall sales volume. Wet markets and the so-called mom & pop grocery stores are categorised as traditional trade and modern trade comprises supermarkets, convenience stores, cash & carry stores, department stores and specialty stores. Sales through the modern trade category are growing at the expense of the traditional trade category. Still, for certain products like Yakult's cultured drinks, the traditional pop & mom grocery stores are still very important.

Foodservice comprises a category that is very important for dairy consumption in Thailand, the School Milk Programme initiated in 1989 by the National Milk Drinking Campaign Board and providing children from kindergarten up to and including grade 4 with a ration of free milk. The Thai government's budget for 2004 includes THB 6.9 billion for the programme. Currently, 230 days a year over six million children are allocated 200 ml of milk daily.

The importance of the school milk programme is twofold. Firstly, it creates a familiarity with dairy products at a very young age. It is generally considered that the School Milk Programme has played a very important role in the increase of per capita dairy consumption in Thailand over the last decade. Secondly, processors supplying the School Milk Programme are only allowed to use local raw milk for the pasteurised and UHT milk they supply to the programme. Therefore, the School Milk Programme is an essential outlet for local raw milk, absorbing a volume of 275,000 tonnes according to official government figures, or over 40% of local milk production. An increase of the number of days for free milk allocation from 230 to 260 days, which the government currently considers as an option, would bring the volume up to 310,000 tonnes or more than 45% of local milk production. Industry representatives have indicated that the present volume of local milk allocated to the School Milk Programme is already significantly more than 300,000 tonnes.

A negative side effect of the dependence of the local industry on the School Milk Programme is that it tends to create a temporary over supply situation during school breaks when demand for school milk comes to a halt. This has recently caused industry and government representatives to call for a powder factory to take care of these temporary over supply situations. This solution, however, seems like a clear case of dealing with the symptom instead of addressing the cause which is lack of competitive strength of locally produced milk.

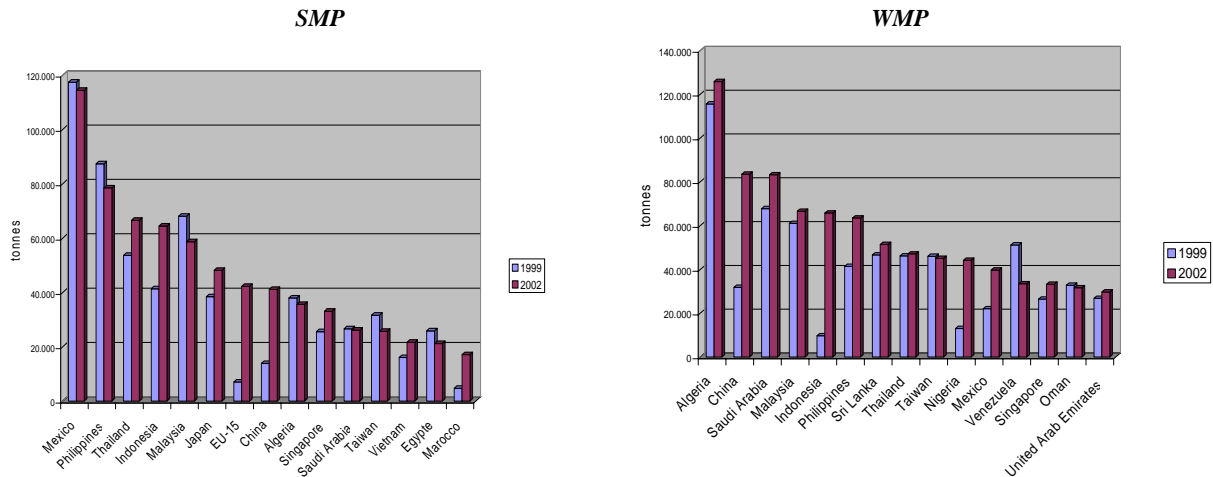
3.2. Dependence on imports

The previous paragraph described the importance of the School Milk Programme as an outlet for local milk production. The remainder of local milk is mainly sold to processors supplying the commercial Ready-To-Drink (RTD) market, comprising all milk (ambient and chilled), yoghurt and yoghurt products. In the process of making yoghurts and other cultured dairy products, however, raw milk is rarely used because the prevalence of high levels of antibiotics in Thai raw milk hampers the fermentation process. Other product outlets using milk compounds like dry milk products, infant food, ice cream, confectionery, bakery and other processed foods are mainly supplied through imports of dairy ingredients.

The RTD market (commercial and school milk) is estimated to be between 1.2 to 1.5 million tonnes in volume, which means that local production is able to supply only 40 to 50% of the volume required for ready-to-drink products alone. As a consequence, an additional volume of at least 750,000 tonnes of milk equivalents is needed. Requirements for the other industries mentioned above further increase the total Thai import demand for dairy ingredients.

Thailand ranks amongst the biggest importers of SMP and WMP worldwide.

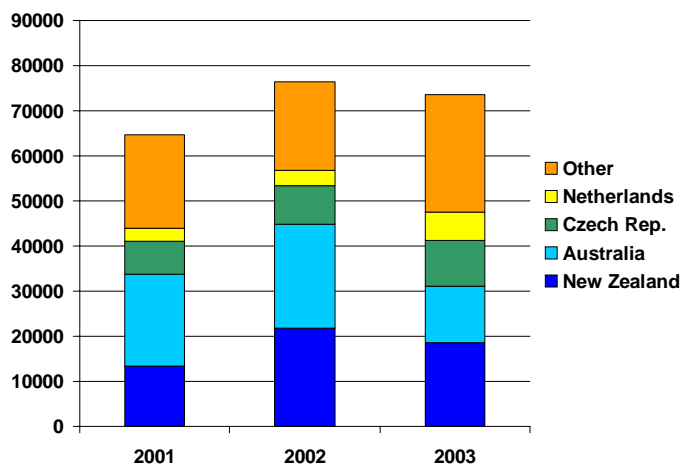
Figure 3.5 Top-15 importing countries of SMP and WMP



Source: Dutch Dairy Board, Rabobank, 2004

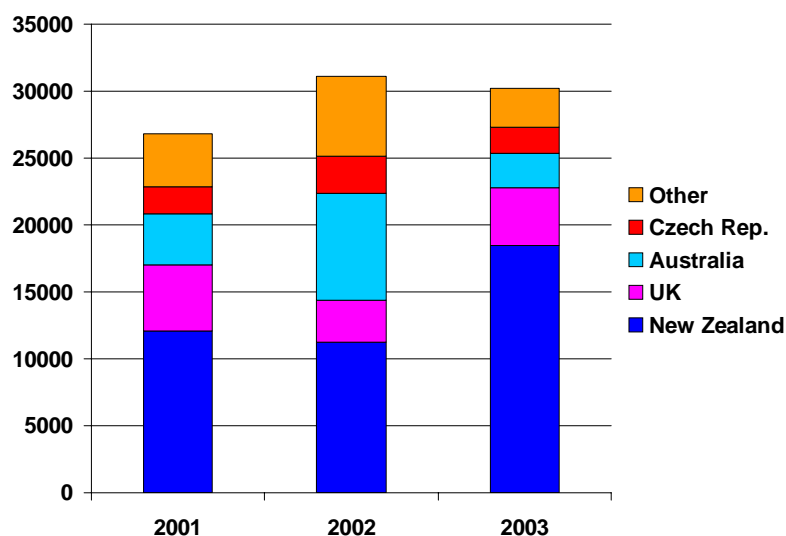
The figures below indicate that for both SMP and WMP New Zealand is the main exporter to Thailand. The “other”-category in the case of SMP consists for approximately 50% of other EU countries. Especially in 2003, the EU countries made use of the fact that Australia’s export potential was significantly reduced due to the drought.

Figure 3.6 Main countries of origin for Thai imports of SMP (tons)



Source: Thai Customs, Rabobank, 2004

Figure 3.7 Main countries of origin for Thai imports of WMP (tonnes)



Source: Thai Customs, Rabobank, 2004

3.3. Competitive strength in the upstream part of the Thai dairy chain

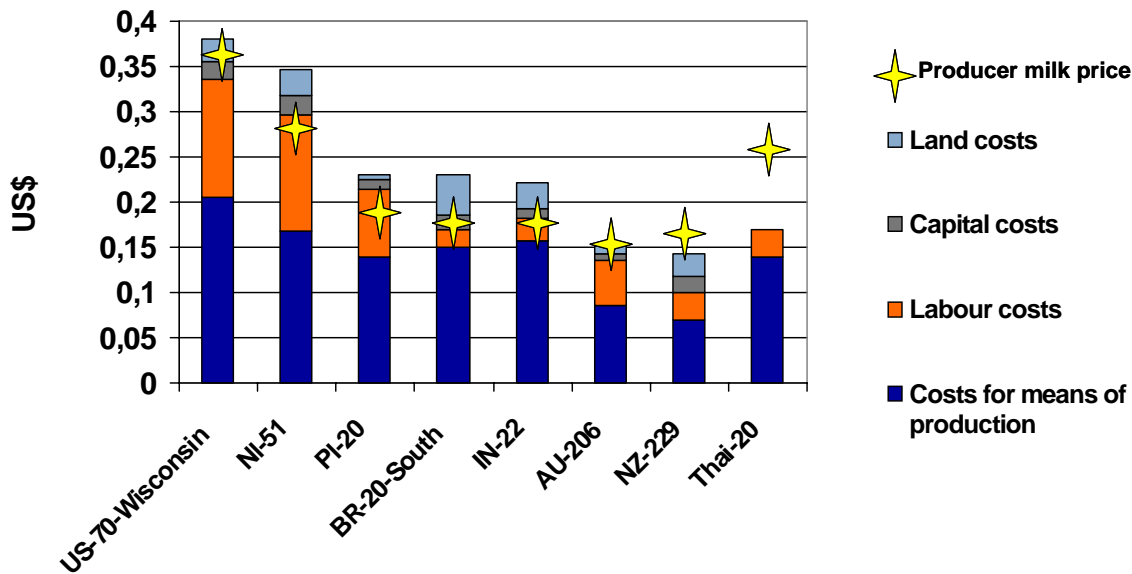
3.3.1. Competitive strength of dairy farming

Total production costs of milk are largely determined by the cost of feed. Other costs are relatively low in Thailand, especially labour. Therefore cost efficiency on the average Thai dairy farm is to a large extent determined by the strategic decisions regarding feed. One problem applies to almost every individual farm across the country. Roughage is scarce and its quality is usually inadequate. As a result farmers have to rely on the more expensive concentrate feed in order to keep the cows' diet balanced. Raising the share of feed concentrate in the daily feed ration translates directly into a higher cost price.

Figure 3.10 compares milk production costs around the world. For all farms data have been used of the International Farm Comparison Network (IFCN), except for the Thai data which have been taken from our own research. IFCN uses so-called "typical farm"-data compiled by a group of farmers from a certain region. Our figure comprises data of a US farm in Wisconsin with 70 cows, a Dutch farm with 51 cows, a Polish farm with 20 cows, a farm in the South of Brazil with 20 cows an Indian farm with 22 cows, an Australian farms with 206 cows, a New Zealand farm with 229 cows and our own "typical" Thai farm with 20 cows. Contrary to all the other examples, the Thai dairy farm does not have data for land costs and capital costs, but even if we would include the average of the other farms for these items into the picture, the Thai farm is the only case where revenues exceed total costs by far. In the case of most farms around the world the inclusion of all calculated labour costs including all family labour and management returns, raises production costs above the producer price for milk. In Thailand this is not the case. The figure also shows that Australia and New Zealand's status as low cost production region is mainly based on low costs for means of production, which is to a large extent feed costs. The level of costs for feed in Thailand is more or less in line with the rest of the world.

Overall we can draw the conclusion that Thailand's comparative disadvantage in milk production may well be less significant than expected.

Figure 3.8 International comparison of costs of milk production (2002)



Source: IFCN 2003, Rabobank 2004

3.3.2. Competitive strength of milk collection co-operatives

Milk collection co-operatives mainly compete amongst each other in terms of quality and scale. The price they get for their farmers' milk is more or less fixed at THB 12.5 allowing for minor changes based on quality criteria. Comparing the milk price paid to the farmers, or to put it more broadly, comparing the strength and efficiency of various co-operatives is quite difficult because the cost picture is obscured by differences in the services provided to the farmers. Still, the high level of fragmentation suggests that significant efficiency gains can be achieved in milk collection. In our opinion a restructuring of this part of the chain resulting in a substantial reduction of the number of milk collection co-operatives would significantly raise the overall returns to the dairy farming sector.

Only a few dairy co-operatives set up their own processing activities. The argument in the case of Wang Nam Yen to do this was to have an alternative option in case customers did not need their milk, as occasionally occurs during school vacations. Most co-operatives stick to their role of collecting and selling the milk.

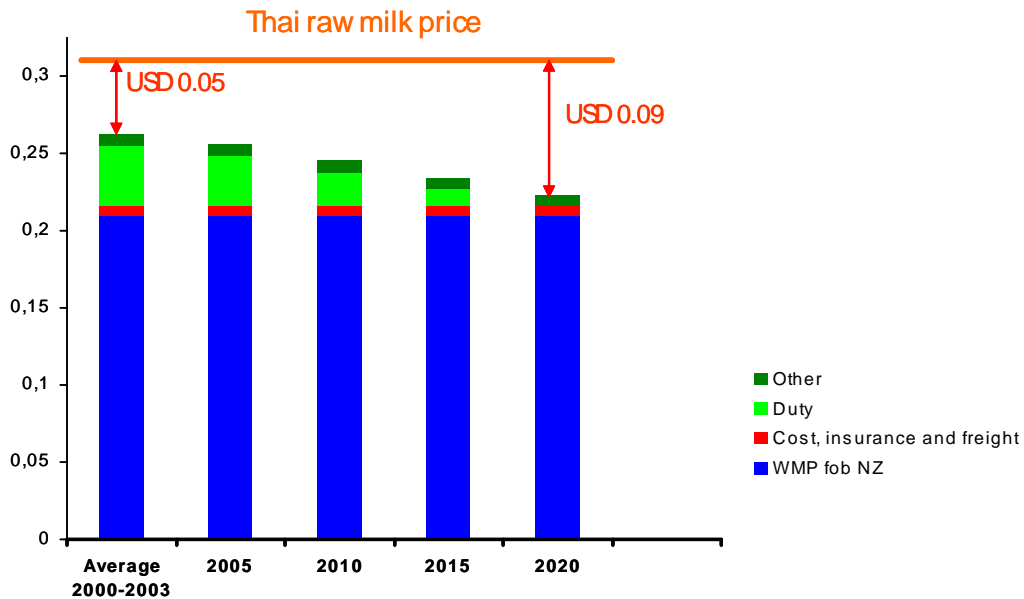
4 Impacts of a liberalised trade environment on the Thai dairy industry

It is clear that the upstream part of the chain will be most strongly affected by freer access of dairy ingredients. At average world market conditions, a price for local raw milk of THB 12.5 and under the current circumstances in the Thai dairy chain, imported milk powder is an attractive alternative input. Furthermore, milk powders offer processors advantages in terms of quality and convenience. In theory, a liberalised trade environment could result in a significant substitution of locally produced milk by imported “milk”. Chapter 5 will address the options to mitigate the impacts of a liberalised trade environment, but in this chapter we will address the potential negative impacts if things remain the way they currently are.

4.1. Competition between raw milk and imported dairy ingredients

Price is often quoted as one of the main arguments for processors to choose recombined imported ingredients instead of using local raw milk as their basic material. In this paragraph we will make an estimate of the price gap between the two. Although there are many ways to recombine ingredients into “milk”, using WMP or using SMP with butteroil or even with a proportion of vegetable fats and oils, we will make it as simple as possible by using WMP which only needs water to reconstitute whole milk.

Figure 4.1 Comparison of prices of local milk with recombined milk



Assumptions: 1kg of WMP makes 8.5 kg of whole “milk”
USD/THB =40

Source: Rabobank, 2004

Figure 4.1 indicates that against the average 2000-2003 world market price for WMP of USD 1,750/tonne, a processor has a cost advantage USD 0.05/kg, or THB 2.0 if he uses imported WMP instead of local raw milk. In the figure we have assumed that the tariff structure for the Thai/New Zealand FTA will similar to the tariff structure of the Thai/Australia FTA. Under this structure and assuming that the world market price of WMP will remain at a level of USD 1,750/tonne the cost advantage will grow to USD 0.09 or THB 3.6 by 2020.

However, the current world market price of WMP is around USD 2,250/tonne. At this price there is actually a cost disadvantage of USD 0.02 or THB 0.8 turning into a cost advantage of USD 0.03 or THB 1.2 by 2020. This clearly indicates that there is not always by definition a cost advantage when using imported “milk”. World market conditions play an important role, and the volatility of world market prices will keep processors from fully relying on imported ingredients.

4.2.Processor arguments in choosing between local sourcing and imports

In Thailand processors use imported dairy ingredients because they are price-competitive , convenient and consistent in quality. In the current high-priced global dairy commodity market, the arguments of quality and convenience are probably even more important than the argument of price. Still, all around the world processors tend to use locally produced milk in the process of manufacturing milk products, yoghurts and cheeses, mainly because “made from fresh milk” gives the product a positive and natural image. In the marketing of dairy products, this plays a very important role. In Europe many cheeses even have a protected regional denomination status, claiming that these cheeses can only be made in a particular region. The main argument usually is that soil conditions and the natural environment in that area give the raw milk and the cheese made from that milk its particular characteristic. This “marketability” of local fresh milk seems to be absent in the Thai environment and, therefore, processors just need the basic compounds of milk, protein and fat. Whether it is in the shape of raw milk or dried imported ingredients is less relevant.

Another and even more simple explanation as to why processors in the international environment use mainly raw milk as an input lies in the fact that about 60% of the global dairy market is supplied by co-operatives. The main purpose of a dairy co-operative is to collect and add value to their member/farmers’ milk. Using large volumes of dairy ingredients instead of their members’ milk goes entirely against the interests of the members, who also happen to own the co-operative. In Thailand co-operatives play a minor role in processing. The paradox of the Thai situation is that the relatively high price the cooperatives pay to their farmers probably keeps them from engaging in processing. Their natural obligation to only use their farmers’ milk puts them in an unfavourable competitive position compared to processors who also use ingredients as inputs.

Still, it is unrealistic to expect that imports can fully substitute for locally produced milk since they always contain a certain risk, be it in price or in availability. In previous chapters we have argued that the volatility of world markets sometimes results in prices for imported “milk” being quite close to or even higher than local raw milk prices.

There are also arguments that go beyond plain business economics. Most multinational processors feel a moral obligation to take part in the local economy and support the local rural area. It is part of the business culture and it also creates goodwill for the company that, in the case of the big multinationals, is a very important asset. Besides, in most countries around the world the phrase “made from fresh local milk” is actually quite marketable.

4.3. Quantitative assessment of the impact of liberalised trade conditions

In the previous paragraphs we addressed the main determinants of the impact of a liberalised trade environment in Thailand. Calculating the exact impact in terms of changes in import volumes is a challenging exercise since it involves a great number of uncertainties, both in the Thai and in the global environment. Still, the advantage of creating a sense of quantity outweighs the disadvantage of having to incorporate a lot of assumptions.

Summarizing, and to a certain extent simplifying, all what was previously stated in the report, the impact of a liberalized trade environment on the competitive playing field of local milk versus imported “milk” is determined by:

- the development of the Thai dairy market and the resulting demand for raw material, eg local raw milk or imported powders. Dairy market growth will be mainly determined by overall economic growth.
- the development of the competitive strength of local milk in terms of price and quality
- developments on the global market, in terms world market price levels, growth of import demand in other regions and WTO developments

We have distinguished three scenarios, each with different assumptions for the three determinants mentioned above:

	Market growth	World market	Competitive strength local milk
I – “Deterioration”	1% year-on-year	Stagnation, WTO failure, low world market prices	Price gap with imported milk grows, no quality improvements
II – “Stability”	3% year-on-year	Stable world market	Price gap with imported milk decreases, some quality improvements
III – “Improvement”	5% year-on-year	Buoyant world market, high world market prices, WTO opens up many opportunities for exporters	Price of local milk falls below price of imported milk, significant quality improvements

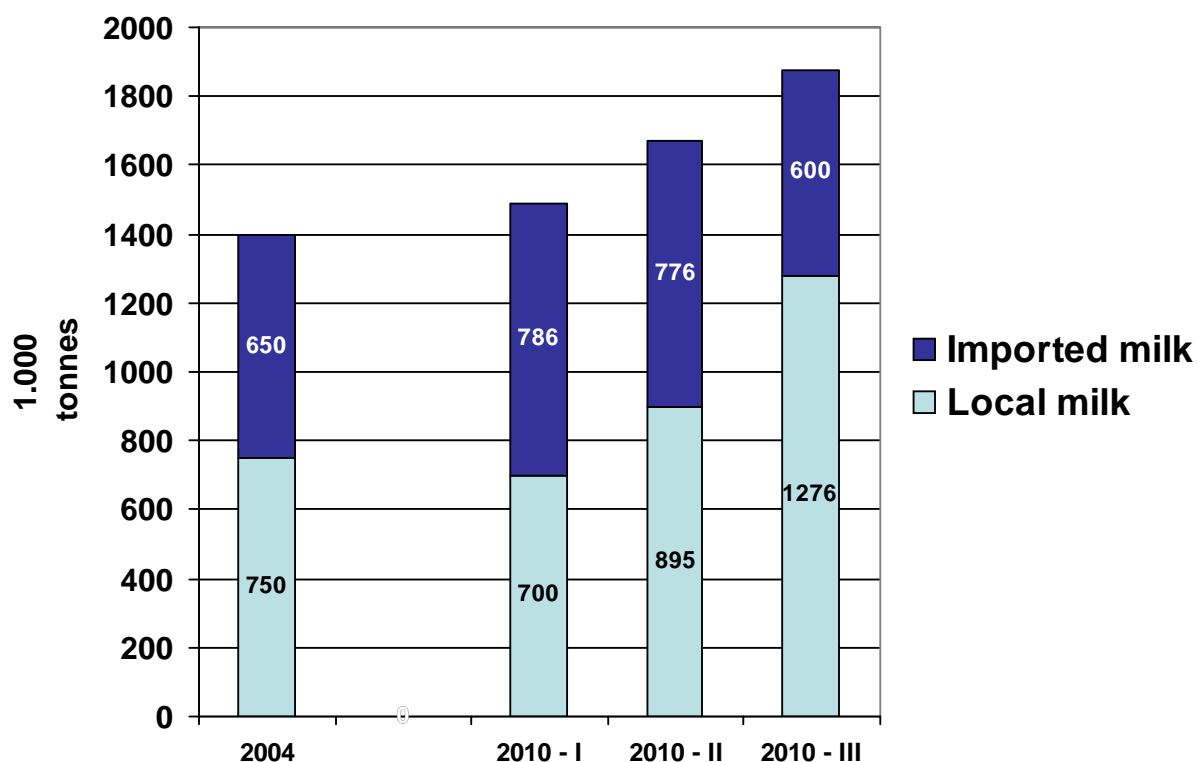
Scenario I –deterioration, could be considered the worst-case scenario. It assumes deteriorating economic conditions resulting in a modest 1% annual growth rate for the Thai dairy market. On the world market the scenario assumes failure for the WTO negotiations resulting in limited opportunities for exporting countries making them focus strongly on the opportunities offered by FTAs. Stagnating import demand results in low world market prices for dairy commodities. Scenario 1 assumes no change in the domestic situation, so the price gap between local milk and imported milk grows as a result of declining import duties.

Scenario II- stability, could be considered a continuation of current trends with moderate improvement of the competitive strength of local milk. Both local milk and imported milk benefit in equal terms from the 3% annual market growth.

Scenario III – improvement, describes the maximum window of opportunity for the Thai dairy sector. Strong economic growth results in a 5% annual growth rate for the Thai dairy market. Global market liberalisation results in abundant opportunities for dairy exporters, less focus on FTAs and high world market prices. The relative competitive strength of local milk improves significantly as a result of higher world market prices and improvement of the local production conditions.

Translating this into quantitative impacts results in the following figure.

Figure 4.2 Scenario analysis of the impacts of trade liberalisation



Source: Rabobank, 2004

Scenario I would result in a shrinking Thai dairy sector. The School Milk Programme will continue to provide a basis under local supply of raw milk and processors will continue to process local raw milk to a certain extent, but in terms of competitive strength the position of local milk weakens and imported dairy ingredients will become more attractive for processors. The sector will need continued government support in order to survive.

Scenario III, on the other hand will result in a situation where processors would naturally turn to local milk first. Imported milk will only be used to close the gap between local supply and local demand. The volume of local milk used by processors will basically be determined by the ability of Thai milk production to grow. In this analysis we have assumed a maximum annual growth rate of local milk production of 10%.

The overall impact of trade liberalisation on the Thai dairy sector will be determined by a combination of factors, of which some can be influenced by the sector itself and some are out of their hands. We strongly feel that in a situation where the industry manages to improve its overall competitive strength in terms of production efficiency and qualitative standards, a future scenario between scenario II and III is definitely achievable. The next chapter addresses the conditions that have to be met in order to turn such a future scenario into reality.

5 Options to mitigate the negative impacts of liberalisation

In an effort to develop Thai dairy farming and boost local milk production some kind of support is understandable. At a certain point, however, it makes life very comfortable for farmers and diminishes the incentive to raise productivity, achieve higher cost efficiency and improve quality. This poses a serious risk in times when the local industry becomes more strongly subject to international competition, as will be the case one way or another. Under the timelines presented in the FTA with Australia and most certainly under the expected timelines for trade liberalisation under the WTO, we feel there is sufficient time for the more vulnerable parts of the Thai dairy chain to prepare for more competition. This chapter addresses the options to achieve this goal.

5.1. Opportunities to improve the competitive position of Thai dairy

5.1.1. Options for improvement in dairy farming

There is definitely room for cost improvement on Thai dairy farms though the high producer prices discourage cost efficiency. In a more liberal trade environment, however, farmers will have to reduce costs to keep their family income at the same level.

Increase in scale of operation is usually the best way to reduce per unit cost levels. Especially per unit feed costs are considerably reduced when farms grow bigger. When it proves difficult to simply put farms together, cost efficiency gains can sometimes also be achieved through co-operation. To reduce feed costs, a growing number of dairy farmers have taken the step of converting some locally available products into suitable ingredients for feed. In the central region of the country several co-operatives are currently storing corn in silos with a view to meeting their cows' need for roughage. Corn silage of a fairly consistent quality can be produced all year round. It is rich in protein and it reduces farmers' feed expenses considerably.

The dairy farm provides the starting point for quality management and hygiene standards of raw milk. Improving quality management in milk collection is an important issue as well, but if the quality of the milk that leaves the farm is already below standard, there is nothing that the milk collection part of the chain can do about it. Therefore the dairy farming part of the dairy chain should explore every opportunity to improve quality and hygiene management on the farm

An efficient dairy farm is all about finding the ideal combination of available land, scale (in terms of herd size), labour and milking capacity. This is different for each individual farm, but education can play a role in finding the ideal farm efficiency.

Across the world standards in breeding, individual cow monitoring and disease treatment are continuously being raised. These issues are also an important challenge in Thai dairy.

In Thailand it is still common practice to hold on to individual cows long after they've reached their peak in productivity. This reduces the overall productivity of the herd and raises the overall cost level of the farm.

Opportunities should be explored to increase the level of specialisation, for instance by delegating the raising of calves. This is a completely different discipline that in the US, for instance, is completely left to specialists. Dairy farmers buy heifers to replace cows or expand the herd and do not raise calves themselves.

5.1.2. Options for improvement in milk collection

Looking at the historical development of dairy co-operatives around the world, most of them started as milk collection co-operatives similar to most Thai dairy co-operatives. Over time, however, most made the decision to become engaged in processing in order to create more value for their farmers.

We definitely think this could well be an option for Thai collection co-operatives as well. However, under the current market circumstances, a milk collection co-operative that would naturally restrict itself to raw milk as an input would be disadvantaged compared to a processor that combines raw milk with milk powders as inputs. A more competitive price for raw milk would significantly lower the threshold for collection co-operatives to explore processing activities.

The milk collection co-operatives could play a more active role in educating farmers on ways to implement new technology in the field of feeding, breeding and milk quality in day-to-day farm management practice. They should also explore opportunities to link their payment system to market requirements. Across the world, for instance, seasonality in demand is generally directly translated into the milk price paid, through seasonality bonuses in times of undersupply and levies in times of oversupply. In this way co-operatives can get their farmers to adapt their herd's breeding cycle to the seasonality in demand.

5.2. Options for government guidance to mitigate effects

As much as the THB 12.5 purchasing price for raw milk provides income support for the Thai dairy farmer, it equally provides a strong incentive for processors to look for cheaper inputs. Maintaining a high producer price while, at the same, opening up the borders for lower priced dairy ingredients is asking for trouble. With these price differences the only way processors will accept local milk as input is through continued government influence. We would very much favour more business economics and less government intervention. Government involvement should target setting the preconditions for a more liberal business environment and a smooth transition towards that goal.

In recent years, the government-mandated high milk price has provided the incentive for milk production to grow beyond what processors under normal business circumstances would be willing to accept because as the proportion of local milk versus imported ingredients increases in the final product, so do the average processing costs. Furthermore, the high milk price is also reflected in the high consumer price for milk and dairy products. This works against the government objective to grow Thai dairy consumption. A lower producer price for milk would, in our opinion, favour everyone in the Thai dairy sector, since it would grow overall demand for dairy products and it would increase processors willingness to process local raw milk.

Through the price support policy the Thai dairy farming sector has been given the opportunity to build itself up over recent decades. However, in order to be able to stand on its own feet in a more open economy, the sector needs to take a few steps forward in terms of efficiency and quality. In the present comfortable environment, this is not likely to happen. The only way to achieve this is to lower the price guarantees and encourage farmers to keep their income at par by taking measures to reduce costs. We feel the Thai dairy farming sector is capable of surviving such a transition period because their point of departure is good. The government should consider the following measures to make this a smooth transition process:

- the school milk program is a very important pillar under the overall demand for local raw milk. In the transition period we feel the dairy farming sector cannot do without

this pillar. However, through the process of decentralisation in recent years the direct link between local raw milk and sales through the School Milk Programme seems to have become a bit obscured and can be less easily controlled. Moreover, the practice of bidding processes for school milk contracts in the local districts encourages fraud. Against the low prices that result from the bidding process, it is difficult to make a profit on a THB 12.5 procurement price for raw milk.

- focus government efforts on measures to improve raw milk quality, involving milk collection co-operatives. We feel the role of the milk co-operatives could be much more explored. They provide the gateway to the farmers.
- promote generic dairy consumption and improve the image of local fresh milk. The long-term aim should be to put these challenges in the hands of the processors themselves, but given the present situation (strong involvement of the government and lack of solidarity amongst the processors) this could be too big a step right now;
- contracts instead of MoUs provide a more transparent and stable situation for milk collection co-operatives and ultimately the farmers.

Table 5.1 Summary table of key points for improvement of competitive strength

	Cost efficiency	Quality	Other
Dairy farmers	<ul style="list-style-type: none"> • explore opportunities to reduce variable costs, i.e. more local roughage instead of concentrate feed • exploit economies of scale • explore opportunities to increase the level of specialisation, for instance, by delegating the raising of calves • better monitor the productivity of individual cows 	<ul style="list-style-type: none"> • explore every opportunity to improve quality and hygiene management on the farm 	<ul style="list-style-type: none"> • “pool” buying and processing of feed supplements
Collection co-operatives	<ul style="list-style-type: none"> • the number of milk collection cooperatives should be significantly reduced in order to create scale efficiencies • additional services supplied by cooperatives should be opened to a competitive bidding process, with more transparency around costs of services provided 	<ul style="list-style-type: none"> • create a stronger quality awareness amongst farmers through a wider spread of milk price based on quality criteria • play a stronger role in translating fundamental research on milk quality, feed and genetics to everyday farm management practice 	<ul style="list-style-type: none"> • explore opportunities to engage in processing activities
Government	<ul style="list-style-type: none"> • gradually reform price policy in dairy, allowing for lower producer prices and (possibly) income compensation measures 	<ul style="list-style-type: none"> • provide a platform for fundamental research on milk quality, feed and genetics 	<ul style="list-style-type: none"> • education of consumers on the benefits of local fresh milk (provided the quality standards of raw milk are met)

Source: Rabobank, 2004

5.3. Opportunities for new business

A freer trade environment can also bring opportunities. An efficiently organised sustainable domestic dairy industry, which can only be achieved by eliminating high fixed milk prices, inefficiencies in the co-operative system and letting market forces determine prices at farm and retail levels will create a sustainable dairy industry. Such an industry would be more competitive and thus would have more attraction as a place for capital investment into processing than is currently the case.

Despite the fact that Thailand is far from self-sufficient in dairy, the country has a major export position in condensed milk. Better access to ingredients used in the manufacturing process of condensed milk provides opportunities. Nestlé has chosen Thailand as its manufacturing hub for condensed milk for the Asian region. Better access to ingredients would further improve Thailand's competitive position for recombining and re-packing activities.

6 Conclusions and recommendations

THE MAIN OBJECTIVE of this report was the analysis of the likely impacts of an FTA between Thailand and New Zealand. Nevertheless, for the title of this report we used the phrase “The Thai dairy sector under liberalised trade conditions” because, with or without FTAs, the Thai sector will become subject to growing international competition.

THE WORLD-WIDE TREND, initiated in the GATT/Uruguay Round and further promoted in the current WTO/Doha Round, is towards global trade liberalisation. The main difference between the process driven by WTO and FTAs is one of timing. While the time horizon of the WTO process is more uncertain, FTAs are likely to bring down barriers to trade a lot quicker. This means that the Thai dairy sector should begin to bring their competitive standards into line with international competitive standards sooner rather than later. Further increases in expensive milk production will only make it more difficult later on for the dairy industry to adjust to a more liberal trade environment. Fortunately, when we compare the costs of milk production on a typical Thai dairy farm with international standards, the point of departure for the Thai dairy sector is relatively good.

THE THAI DAIRY MARKET is not the most attractive market in terms of margins and administrative handling procedures. However, it is expected that Australian and New Zealand exporters will use the improved accessibility of the Thai market when better trade opportunities elsewhere are absent.

Technology allows dairy ingredients to be used as an alternative to raw milk in almost every dairy product marketed on the Thai dairy market, especially milk and milk drinks. In many applications processors prefer dry ingredients because it is consistent in quality, is cost efficient and convenient. Therefore, the competitive strength of local milk in terms of cost and quality needs to be improved.

THE RAW MILK PURCHASING PRICE of BHT 12.5 is not sustainable. Firstly, it creates a cost-price disadvantage for processors which encourages them to look for less expensive sourcing alternatives; secondly, it discourages farmers from striving for higher cost efficiency; and thirdly, it causes milk production to grow beyond what the local market wants to absorb at the current price level.

While a BHT 12.5 price creates a comfortable income situation for individual dairy farmers in the meantime, in the long run it is against the interests of anyone active in the dairy chain because it will limit the sustainable growth of the Thai dairy industry, and thus dairy farmers. In a liberalised trade environment, a more competitive raw milk price and milk of a higher quality are the best guarantees to mitigate the possible negative impacts from lower priced imports.

TO BOOST THE COMPETITIVE POSITION OF THE THAI DAIRY INDUSTRY efforts should focus at three levels: dairy farms, co-operatives, and the government. Milk price and quality play the dominant role. However, other areas may increase demand and thus support the development of a sustainable dairy industry also.

1. The dairy farming sector is capable of compensating lower prices for milk through improvements in the following areas:
 - ▶ Significant cost reductions for feed can be achieved, by:
 - better use of locally available roughage; and
 - scale efficiencies that can substantially reduce the cost of concentrate feed.

- ▶ Milk quality improvements can be achieved by:
 - improved on-farm hygiene standards; and
 - a well organised collaborative effort from farmers, collection co-operatives and the knowledge providers in breeding, disease prevention and hygiene programmes.

SUMMARY: Given that Thai dairy farmers already operate efficiently by world standards, improvements in these areas are likely to make local milk cost competitive in a liberalised trade environment and of a quality that makes its application more versatile and hence more attractive to processors. The combination of the two may put the dairy industry in a much better position to attract investment to absorb increasing volumes of local raw milk.

2. Given the fragmentation of milk collection, significant cost reductions can be achieved by increasing the scale of co-operatives:
 - a. by moving towards more large-scale milk collection co-operatives, the liaison function between the government and farmers on issues like improvement of farm management practices and improvement of milk quality will be enhanced;
 - b. a more efficient scale of operation will also enable more co-operatives to eventually take the step to become engaged in processing; and
 - c. the provision of services to Thai dairy farmers are likely to become more cost competitive as the scale of co-operatives increases.

SUMMARY: Given the fragmented nature of the milk collection co-operatives, any scale increases (i.e. reduction in the number of co-operatives) is likely to lead to cost efficiencies and higher quality milk.

3. The government's role in the dairy chain should change from fully determining the market conditions and setting the prices to a more remote role whereby the government provides the conditions for fair competition and the incentives for better quality and cost efficiency:
 - a. Reconsider the fixed purchasing price for raw milk to increase uptake of local milk by processors; drive dairy farmers to become more cost competitive and stimulate demand
 - b. The government should play an initiating role in setting up an efficient structure for fundamental research on farm management, milk quality and cost efficiency. We see an important role for the leading milk collection co-operatives in translating fundamental research into day-to-day farm practice.
 - c. The School Milk Programme and its direct link with local raw milk provide an important foundation under the Thai dairy farming sector. The government's dedication to the programme should remain strong. It provides both an important and steady outlet for local milk and a basis for future market growth as it creates familiarity with dairy products at a young age. However, the decentralisation of the administration of the programme in recent years has created a number of negative side effects, which calls for a reconsideration.
4. An additional handicap for the industry comes with the absence of a positive consumer perception towards local raw milk. Around the world fresh dairy products, like pasteurised milk and yoghurts, are by definition made from fresh local milk, mainly because the phrase "made from fresh milk" has a positive connotation and can be used in marketing the product. This opportunity is as yet absent in the Thai dairy market. Although in general this could be considered a challenge for the processors and marketers of dairy products, we feel the government could also play an instrumental role in promoting generic dairy and the image of local milk.

The Thai dairy industry at both farm and co-operative levels has considerable scope to improve efficiencies, lower production costs and improve milk quality, thereby creating the conditions for more local raw milk demand from processors and consumers. The government can make a considerable contribution to this process and, in doing so, create a more favourable investment climate in the dairy sector.