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THE EVOLUTION AND STRATEGIES OF MD FOODS OF DENMARK AND THE DANISH DAIRY BOARD—IMPLICATIONS FOR THE U.S. AND WORLD DAIRY INDUSTRIES

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Executive Summary

I. Introduction
• MD Foods and the Danish Dairy Board (DDB) have evolved successfully and have forged distinctive strategies during the past 40 years. Experiences and strategies of the two organizations have implications for U.S. dairy exporters and policymakers.
• Porter's diamond was used as a framework for describing the evolution of MD Foods and the DDB and for analyzing the strengths of, and challenges facing, the two organizations. The analysis focuses mainly on MD Foods. The DDB is evaluated as an important "related and supporting organization" for Danish dairy companies.
• MD Foods has grown from a collection of mostly smaller dairy cooperatives in 1970 to one of the 10 largest dairy companies in the world, with domestic and foreign sales of approximately US $4.0 billion in 1997.
• The DDB, which once had exporting responsibilities, has evolved to become the chief trade association for Denmark's dairy industry.
• Denmark's dairy industry is frequently identified as one of the most efficient in the European Union (EU). However, Denmark's dairy industry is caught in what some European analysts have characterized as the Common Agricultural Policy web. This web limits the milk production of Danish dairy farmers and limits the marketing options available to MD Foods and other Danish dairy firms.

II. Implications of Experiences of MD Foods for U.S. Dairy Exporters and Policymakers
• MD Foods was able to rapidly shift cheese exports from customers outside the EU to customers within the Union when EU cheese export subsidies were reduced under the Uruguay Round GATT agreement. If EU policies change and/or market developments again give MD Foods incentives to expand dairy exports outside of the Union, expect MD Foods to make a nimble response. A nimble response would permit the firm to regain part of the market share lost in the wake of the Uruguay Round GATT agreement.
• If MD Foods and other European dairy exporters respond nimbly to incentives to expand dairy exports outside the Union after current EU policies end, this development will have strategic implications for US dairy exporters. Mainly it suggests that US dairy exporters will have a relatively short "window of opportunity" to expand dairy exports at the expense of EU exporters in the aftermath of conditions created by the Uruguay Round GATT agreement. Thus, US firms could gain "early mover" advantages by expanding dairy exports in third countries sooner rather than later during the next few years.
• MD Foods has applauded the decision by the EU to increase export subsidies for Japan and the Middle East, suggesting that these are highly competitive markets for dairy exporters.

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• Asian sales of MD Foods are vulnerable to impacts of reduced EU export subsidies for certain Asian markets, the Asian financial crisis, and strong competition from the New Zealand Dairy Board and Australian dairy exporters. The harsh Asian sales environment has made the Latin American market—especially Brazil—appear increasingly attractive to the firm.

• MD Foods recently began producing Havarti cheese in the US under a licensing arrangement with White Clover Dairy of Hollandtown, Wisconsin. The move was made partly to circumvent problems caused by reduced EU export subsidies for Danish Havarti cheese.

• While MD Foods is strongly positioned to increase fluid milk sales in the UK retail fluid milk market, it will be costly for the firm to become one of the two or three dominant (and profitable) firms in the UK fluid milk market. Moreover, certain other objectives of the firm will be difficult to achieve as long as the UK fluid milk market continues to be a drain on the firm’s profits.

• The Key Account Management System used by MD Foods for serving large supermarket accounts has worked effectively. The close cooperation of MD Foods with the large supermarkets to satisfy demands of the stores regarding product range, terms of delivery, logistics, and product development has enabled the firm to capture and hold accounts with demanding European supermarkets. More dairy firms in the US and elsewhere in the world will likely find it necessary to adopt similar systems.

• Organic milk and cheese are becoming important parts of the product lines of MD Foods and other Danish dairy firms. The growing preference of Danish consumers for organic dairy products may foreshadow further sales growth for such items elsewhere in the world.

III. Implications of Experiences of the DDB for U.S. Dairy Exporters and Policymakers

• The rich and varied portfolio of functions carried out by the DDB makes it immune from the criticisms Porter levels at many trade associations. Porter argues that, "with nothing else to do, too many trade associations spend all their energy on lobbying."

• The evolution of the DDB from exporter to trade association status has implications for the New Zealand Dairy Board and Ireland’s Dairy Board. As industry concentration and exporting capabilities of individual firms increase, the firms tend to assume greater responsibility for exporting, displacing an exporting board.

• Officials of the Danish Dairy Board have advocated use of a two-tier dairy exporting system to help EU firms retain export market shares in third countries, despite the reduced EU dairy export subsidies (especially for cheese) mandated by the Uruguay Round GATT agreement. The two-tier system advocated is structured to reduce cannibalism of subsidized EU dairy export sales to third countries and limit the chance that the system would depress world dairy product prices in "thin" world dairy product markets.

• The two-tier export subsidy system advocated by the Board does not have widespread support within the EU, partly because of concerns about the GATT/WTO compatibility of such a system. If Canada’s multi-tier dairy export subsidy system survives challenges by the US and New Zealand within the WTO, expect the DDB to renew pushes for use of an EU two-tier export system.

• The Danish Milk Board—which functions as part of the DDB—has developed a milk quota exchange mechanism that eliminates certain inefficiencies associated with quotas. However, it is unlikely that a similar mechanism will be adopted EU-wide or in many additional Union countries. Many EU countries fear that EU-wide use of such a system would shrink their dairy economies.
• Capitalization of milk quota values in Denmark has been relatively modest. Milk quota was exchanged in Denmark in June 1998 at 2.29 Danish Kroner per kilogram (about US $15 per hundredweight).

• An official of the DDB predicted that in the wake of the Uruguay Round GATT agreement, production of bulk dairy products for international markets will gravitate increasingly to New Zealand, Australia, Argentina, and the US, leaving EU dairy industries to produce mostly value added dairy products.

• The DDB and MD Foods have sought to give EU dairy policies a greater market orientation and to prepare EU dairy industries for times when the European industry will find it necessary to sell dairy products at prices that more closely approach world prices. Recently they have sought to obtain commitments from the EU to end milk production quotas after 2006. While the Danish dairy organizations have allies in the EU for ending quotas after 2006 (in Sweden, the UK and Italy), their efforts are likely to be thwarted by certain Southern European interests, in particular those that value the social welfare benefits of current EU dairy policies.

• The DDB faces the challenge of thinking through how its role will change if MD Foods and Klover Maelk (the second largest dairy firm in Denmark) merge and EU dairy policies become more market oriented. A merger of MD Foods and Klover Maelk would shift certain dairy promotion functions from the Board to the merged organization. Moreover, the amount of EU policy analysis needed will fall in a more market oriented environment.
The Evolution and Strategies of MD Foods of Denmark and the Danish Dairy Board—Implications for the U.S. and World Dairy Industries

W. D. Dobson

Introduction

The operations and strategies of MD Foods of Denmark and the Danish Dairy Board (DDB) have evolved during the past 40 years in ways that have implications for dairy exporting and dairy policy that extend beyond Denmark and Europe. MD Foods has grown from a collection of mostly smaller dairy cooperatives in 1970 into one of the 10 largest dairy companies in the world, with domestic and international sales of approximately US $4.0 billion in 1997 [13, p. 16]. Headquartered in Aarhus, MD Foods—a cooperative—is the largest dairy exporting firm in Denmark and contributes heavily to making Denmark’s dairy industry one of the most export-oriented in Europe. The DDB (also headquartered in Aarhus), which prior to 1989 had dairy exporting responsibilities, is now the chief trade association for Denmark’s dairy industry. Thus, the DDB has relinquished exporting responsibilities still held by Ireland’s Dairy Board and New Zealand’s Dairy Board. The evolution of the DDB into trade association status is not surprising in the concentrated Danish dairy industry where exporting capabilities of individual firms—notably MD Foods—have become highly developed.

Denmark’s dairy industry is often held aloft as a model for emulation by other dairy industries in Europe and elsewhere in the world. Along with the dairy industry of the Netherlands, Denmark’s dairy industry has been identified as one of the most efficient in the European Union (EU). Michael Porter, Harvard University’s well-known business strategist, points out that Denmark’s dairy industry is internationally competitive partly because it is supported by a strong cluster of food processing firms and refrigeration equipment manufacturers and has ready access to skilled, scientific personnel [38].

Yet all is not tranquil within the Danish dairy industry. In particular, the Danish dairy industry is caught in what some European analysts have characterized as a Common Agricultural Policy (CAP) web, which limits the milk production of Danish dairy farmers and limits the marketing options available to MD Foods and other Danish dairy firms [36]. The analysts suggest that Danish dairy firms and other European dairy companies will have little incentive or ability to extricate themselves from the web until after current EU dairy policies end [36]. DDB representatives have been persistent critics of EU CAP dairy policies. They have advocated putting an end to milk production quotas and have recommended that a two-tier dairy export subsidy program be adopted. Neither change appears likely to be adopted by the EU soon. However, if such changes were adopted, they would likely have profound impacts on world dairy markets.

This paper describes the evolution, strategies, and prospects of MD Foods and the DDB. The purposes of the inquiry are to:

- Obtain, from the experiences of the two organizations, insights regarding dairy exporting that have implications for US dairy exporters and US dairy policymakers.
- Assess how the actions of these two organizations may influence or foreshadow changes in EU dairy policies.

The two Danish organizations provide a window into the operation of the EU’s dairy policies similar to that provided by the Irish Dairy Board in an earlier Babcock Institute Discussion Paper [10].

The paper reflects perspectives gained by the author from interviews of officials of MD Foods, the Danish Dairy Board, and the US Embassy in Denmark during August 1998.
Framework for Analysis of the Evolution of MD Foods and the DDB

Michael Porter’s diamond, noted in Figure 1, was used as the framework for analysis in the paper. Porter used the diamond, which appeared in his 1990 book entitled, The Competitive Advantage of Nations, to identify clusters of internationally competitive businesses in 10 major trading nations, including Denmark. For reasons indicated below, the diamond—with its interrelated components—provides a useful framework for describing the evolution of MD Foods and the DDB and for analyzing the strengths of, and threats facing, these two prominent organizations in Denmark’s dairy industry. The analysis focuses mainly on MD Foods. The DDB will be discussed as an important “related and supporting organization” for Danish dairy companies. No discussion of the diagram’s chance component is included in the paper.

Figure 1. Porter’s Diamond Framework

* Source: Porter [38].

Why is Porter’s diamond useful as a broad framework for the analysis? Porter summarizes the contributions of the Competitive Advantage of Nations, which made extensive use of the diamond framework, as follows [38, pp. xii and 1]:

In this book, I have set out to make my contribution to understanding the competitive advantage of nations, or the national attributes that foster competitive advantage in particular industries (emphasis supplied) and the implications both for firms and governments . . . . (More narrowly focused the work answers the question:) Why does a nation become the home base for successful international competitors in an industry?

In summarizing his findings regarding international competitiveness, Porter notes that [38, p. xvi]:

. . . . . Strict adherence to antitrust laws, tough health and safety regulations, and heavy investment in training human resources are beneficial. But my evidence seriously questions the wisdom of intervention to resurrect sick industries, regulations that limit competition, most efforts to restrict imports, and policies to tax long-term capital gains.
Porter's work also has been described as part of the positioning school, which has been an important school of thought in the strategy field for nearly two decades [9, p. 7]. Porter's positioning ideas assume that the environment largely determines the firm's freedom to maneuver. As will become apparent, Porter's diamond is useful for assessing how well a firm or organization is positioned to operate profitably in the unfolding international dairy environment.

In this analysis, the national and regional attributes that foster or limit the competitive advantages secured by MD Foods and other Danish dairy firms are issues of concern. The government's role in the diamond, as manifested in EU dairy policies, emerges as an important force influencing the ability of Danish dairy firms to maintain competitive advantage.

**The Diamond: Firm Strategy, Structure, and Rivalry**

Porter describes this three-pronged component of the diamond as follows [38, p. 107]:

(A) . . . determinant of national competitive advantage in an industry is the context in which firms are created, organized and managed as well as the nature of domestic rivalry. The goals, strategies and ways of organizing firms in industries vary widely among nations. National advantage results from a good match between these choices and the sources of competitive advantage in a particular industry. The pattern of rivalry at home also has a profound role to play in the process of innovation and the ultimate prospects for international success.

Strategy, structure, and rivalry are strongly interdependent in Porter’s framework. For our purposes, the context in which firms are created, organized and managed is important to the inquiry. In Porter’s terminology, structure is broadly defined to include the underlying economic and technical characteristics of an industry. The discussion of structure is concerned with how economic characteristics (including market share and concentration figures) and technical characteristics of the Danish dairy industry have shaped the evolution of MD Foods, causing it to emerge as the dominant domestic dairy firm in Denmark. After briefly discussing size and productivity characteristics of the Danish dairy industry to provide background on the environment in which MD Foods operates, structural issues are considered first (because they appear to have shaped strategies of MD Foods) followed by strategy and domestic rivalry issues.

| Table 1. Size and Productivity Characteristics of the Danish Dairy Industry, 1997* |
|----------------|--------------------|----------------|----------------|----------------|
| **Product**   | **Danish Production (1,000 mt)** | **Danish Production as Percent of Production for:** | **EU** | **USA** | **New Zealand** |
| Milk          | 4,633               | 3.8%               | 6.5%               | 40.3%               |
| Cheese        | 290                 | 5.0                 | 8.7                 | 120.8               |
| Butter        | 50                  | 2.9                 | 9.6                 | 15.6                 |
| NDM           | 23                  | 2.0                 | 4.2                 | 10.9                 |
| WMP           | 104                 | 10.0                | 189.1               | 28.4                 |
| Milk Prod/Cow (kg)** | 6,631       | 120.8               | 86.2                | 188.0               |


**The milk production per cow figures were obtained from U.S. Department of Agriculture, "World Dairy Markets and Trade," FD 1-98, January 1998.

MD Foods has its home base in a country with an export-oriented dairy industry where historically about two-thirds of the dairy products have been exported. Total milk production in Denmark is relatively low—equivalent to only 3.8 percent of EU production and 6.5 percent of US production in 1997 (Table 1). As indicated by the relatively large shares of EU production devoted to these items, cheese and whole milk powder production are emphasized in Denmark. Danish cheese production is particularly large relative to that of New Zealand, a competitor in international markets. Milk production per cow in Denmark, an admittedly imperfect productivity measure, is
21 percent higher than the EU average and 88 percent higher than in New Zealand but 14 percentage points lower than in the US.

Structure

Developments in the 1950s, 1960s, and 1970s

MD Foods—a cooperative—traces its origins to actions taken by the DDB beginning in 1958. In that year, the DDB established a committee to promote the structural development of the Danish dairy industry. In 1963, this committee agreed that all milk produced by members of cooperatives should be marketed by a single national company. One argument—which is still heard today—was that this change was needed to avoid the situation where competition between a few regional companies could make the home market the least profitable [8, p. 30].

Denmark’s dairy groups could not agree on how rapidly the mergers should take place and whether to form into one company. In 1970, a group of regional companies responded to this lack of unity by forming Dairy Denmark, forerunner to the present MD Foods [8, p. 30]. Dairy Denmark changed its name to MD Foods in 1988 to reflect the greater international sales of the firm and its steps toward diversification [3, p. 17]. Dairy Denmark and MD Foods influenced the structure of Denmark’s dairy industry substantially and continued the industry’s strong export orientation.

MD Foods and other Danish dairy exporters have witnessed major changes in export markets as a result of evolution of the European Economic Community—later the EU. With the formation of the European Community six in 1958 and the subsequent dairy agreement from the beginning of the 1960s, Denmark’s exporters were effectively barred from exporting opportunities in Germany and Italy in particular. This forced Danish dairy exporters to focus more on exports outside of Europe. The Middle East, in particular, became an important market. In this same period Danish milk production decreased [32, p. 34].

A dramatic change in production and export conditions took place with Denmark’s accession to the European Common Market in 1973. Mortensen, editor of Scandinavian Dairy Information, described the change as follows [32, p. 34]:

Literally from one day to the next, there was access to old, well-known markets and to EU export subsidies as well. This resulted in a significant and steady increase in milk production and exports until the implementation of the milk quota system 11 years later which resulted in a 15 percent reduction in production.

O’Connell et al. report that Denmark did not fare well in maintaining the country’s share of the EU milk quota—particularly in comparison to Ireland—noting that [36, p. 101]:

... In 1984, with the introduction of the quota system, quotas generally were fixed at 1981 national deliveries plus 1 percent. However, Ireland’s quota level was fixed at 1983 deliveries plus 4.6 percent. This favorable treatment continued in consecutive rounds of negotiations through the 1980s when the national quotas were cut. Between 1985 and 1995 the Irish quota was cut by only 6.3 percent. This compares favorably with cutbacks in Denmark (9.7 percent), France (9.5 percent), Netherlands (9.2 percent), “West” Germany (8.7 percent), and the UK (8.5 percent) (emphasis supplied).

O’Connell et al. attribute Ireland’s favorable treatment during the quota cutbacks partly to skillful lobbying by the country’s politicians and trade negotiators. Whether this was the most important cause is unclear. However, it is apparent that Denmark’s accession into the EEC and EU carried mixed impacts.

Developments in the Late 1980s and Early 1990s

From 1986 to 1996, the number of dairy companies in Denmark declined by two-thirds. Mortensen reports that 21 cooperative companies and 31 private dairy companies processed milk in
Denmark in 1996 [32, p. 34]. The Danish dairy industry continued to be dominated by cooperatives throughout this period, accounting for about 92 percent of the milk processed in Denmark in the mid-1990s. The merger of Randers & Viborg Cooperative—previously the third largest milk cooperative in Denmark with MD Foods in September 1996—brought the share of Danish milk processed by MD Foods and Klover Maelk (the second largest cooperative) to about 83 percent [39, p. 6]. MD Foods is by far the largest dairy company in Denmark, processing about five times as much milk as Klover Maelk.

Private dairies processed about eight percent of Danish milk in 1996 but bought considerable volumes of milk from cooperatives. Larger firms processing milk in the country included Nestle, Unilever, and Borden. In 1997, Nestle and Unilever, which together had produced about 75 percent of the ice cream manufactured in Denmark, announced that they planned to stop producing ice cream in Denmark [34, p. 13]. In the future, ice cream sold by the two companies in Denmark will come partly from larger plants in Germany, Sweden, and France. Industry sources suggest that this development signals the continued concentration of ice cream and dairy product production in Europe.

**Production and Marketing Operations**

Production and marketing activities of MD Foods are organized into four divisions [18]:

- Europe Division
- Overseas Division
- Home Market Division
- Transport Division

These divisions were adopted by MD Foods in late 1990s, partially replacing the previous cheese, butter, and food ingredients divisions. The Home Market Division is a carryover from previous organizational arrangements. Jens Bigum, Group Managing Director of MD Foods, said that this change was made partly to transform the firm into a marketing (as opposed to a production-oriented) organization [2].

The company operated 19 subsidiary companies in 1996/97, about two-thirds of which had foreign components [18, p. 32]. Three of the major subsidiary firms were jointly owned by MD Foods and Klover Maelk and three were owned by MD Foods and most of the Danish dairy industry in 1996/97. Subsidiary companies are defined as those in which MD Foods—the parent company—has a direct or indirect share of more than 50 percent of the voting rights or in which decision influence is exercised by the parent company by other means [18, p. 20].

In markets where the MD Foods International Group operates, sales of Danish dairy products are made through International Group dairies. The International Group is the third largest supplier of liquid milk in the UK, where the firm has witnessed an expansion of its share of the retail trade and a decline in "doorstep" sales [18, p. 43]. In addition, MD Foods operates sales companies in the US, Canada, Sweden, Norway, Germany, Italy, Greece, and Japan.

MD Foods operated 35 dairy plants in Denmark in 1995. However, merger and acquisition activity and plant closings probably have, on balance, reduced the current number of plants operated by the firm to a number below the 1995 total.

MD Foods is a major cheese exporter, contributing importantly to Danish exports of 213,000 tons of cheese in 1996 [15, p. 6]. With a total share of approximately 80 percent of the total Danish cheese production and exports, MD Foods is one of the top European suppliers of cheese to the world market. Cheeses made by MD Foods were exported to more than 100 countries in 1994 [28, p. 20].

The firm is Denmark's largest manufacturer of mozzarella cheese. Mortensen describes MD Foods' Rodkjaersbro plant in Central Jutland as one of the most advanced in the world for
producing mozzarella cheese [29, p. 18]. MD Foods is a major producer and exporter of feta cheese. However, the firm’s export sales of feta cheese fell in the mid- and late-1990s as a result of the cessation of exports to Iran, in particular, but have partially recovered as new markets were found for the product in the Middle East and Germany.

MD Foods Ingredients (MDFI) is a major milk manufacturer, processing about 1.2 million tons of milk per year and more than one-quarter of Denmark’s production total [27]. MDFI resulted from the merger of major companies, including Milco International, Cremo Cheese, Danmark Protein and MD Foods’ own protein division. With a total yearly output of approximately 160 thousand tons—mainly of whole milk powder—the firm is one of the major suppliers of preserved milk products for the world market. More than 90 percent of MDFI’s total output has been exported to the following countries in recent years [27]:

- Other EU 45 percent
- Americas 22
- Middle East 16
- Far East 14
- Others 3

**Joint Companies**

MD Foods and Arla, the largest Swedish dairy cooperative (10,000 members, accounting for 64 percent of Sweden’s milk) set up a joint company in the mid-1990s—Scandairy K/S—to develop and market special dairy products (mainly desserts and functional foods) in Europe. This initiative recognized that, particularly for desserts and functional foods, the two companies were too small to serve large European multiples (supermarkets) [17, p. 12]. The European Commission approved the creation of Scandairy K/S, but only on the condition that activities of the new enterprise be limited to developing new functional foods [12, p. 5]. This Commission action limited Scandairy’s scope of activities since the functional foods deal mainly with foods claimed to provide a specific health benefit, such as reducing cholesterol levels.

MD Foods and Klover Maelfk together account for about 90 percent of the country’s fluid milk sales [5, p. 5]. Fluid sales of the two cooperatives reached this level after MD Foods purchased Enigheden dairy of Copenhagen—which had about a five percent share of the national market—from Arla of Sweden in 1995.

After hearing public complaints, officials of Denmark’s Competition Council investigated the impact of the MD Foods/Klover Maelfk joint marketing arrangement on retail fluid milk prices [21, p. 5]. The Competition Council approved the joint marketing arrangement but requested that independent dairies be given greater access to supermarket outlets. Specifically, the Competition Council recommended that agreements should allow milk from other dairies to be sold in shops formerly supplied by MD Foods and Klover Maelfk alone.

**The Restructuring of MD Foods International**

MD Foods International—the overseas unit of MD Foods of Denmark, which sustained losses of US $32 million in 1995/96 and US $27.7 million in 1996/97—became a 100 percent-owned subsidiary of MD Foods in 1998 [19, p.5]. Operating under the name MD Foods International Group (MDIG), the new unit reportedly received a capital injection of about 500 million Danish Kroner (DKK) from the parent company (about US $75 million using a 6.8 DKK= 1 US dollar exchange rate) to enable it to buy all shares and assets previously belonging to MD Foods International and its businesses. MDIG—through its European arm—will continue to operate the unit’s major UK businesses and also assume responsibility for the UK operations of Arla of Sweden beginning in October 1998. Other overseas interests previously operated by MD Foods International—in Saudi Arabia, Korea, Brazil, and Argentina—will be included in the overseas arm of MDIG and managed by MDIG and MD Foods’ overseas division in Copenhagen [20, p.6].
Kim Nielsen, Director of MDI, said that the new structure will strengthen and clarify the ties between MD Foods and its foreign subsidiaries [20, p.6].

**Employment and Management Arrangements**

In 1996/97, MD Foods Group listed its employee total as 13,122 man-years [18, p. 4]. The cooperative is governed by a Supervisory Board consisting of 15 persons, 13 of whom are elected by 8,700 farmer members. Two members of the Supervisory Board are selected from the firm’s employees. Management resides in the hands of a management board consisting of a Group Managing Director and three executive directors. Mr. Jens Bigum was Group Managing Director of MD Foods at the time of the study.

**Strategies**

MD Foods has emerged as the dominant domestic firm in Denmark’s concentrated dairy industry, which is served by a few large firms and a group of smaller, specialized dairy firms. MD Foods is by far the nation’s leading dairy exporter—particularly of cheese and whole milk powder. MD Foods faces competitive challenges, stemming from several sources including: EU dairy policies, actions of the European Commission, Denmark’s Competition Council and competing multinational firms. What major strategies has MD Foods chosen to employ in this environment?

**Key Strategies**

The following statements made by managers of MD Foods or which appear in the firm’s Annual Report describe important strategies of the firm:

- **By changing its name to MD Foods, the company is telling the world that in the future the company will market products in addition to dairy products .... Our basis will continue to be highly processed milk-based products. But besides the latter we will, to an increasing extent, produce new non-dairy natural foods, which, along with the milk-based products, will form part of the future’s changed nutrition pattern.** [Finn A. Christiansen, Director of MD Foods, 1988, 31, p. 21].

- **Our (continued) internationalization will take place within the framework of MDI (now MD Foods International Group). The European market will receive first priority, but our investments in the Middle East, South East Asia, and Latin America show that we take a global view although we may choose to concentrate on a few countries only.** [Jens Bigum, Group Managing Director, MD Foods, 1995, 30, p. 18].

- **Cooperation across national boundaries by so-called strategic alliances with foreign dairies is appealing. .... Arla or other companies having limited exports could make use of MD Foods export network and experience. Such cooperation must take place within the national competition legislation.** [Jens Bigum, Group Managing Director, MD Foods, 1995, 30, p. 18].

- **It is no secret that our goal is to gain a foothold through joint ventures or acquisitions of one or several German companies with established distribution channels. It would seem a natural next step to add a fresh product range to our cheese and butter export ranges.** [Kim Nielsen, Managing Director, MDI—now MD Foods International Group, 1995, 35, p.31].

- **R&D is an important competitive parameter. Consequently, this part of our business is receiving increasing attention. And we will see bigger marketing projects as a result of this development.** [Jens Bigum, Group Managing Director, MD Foods, 1995, 30, p. 19].

- **Faced with the formation of the EU single market, MD Foods chose to redirect its cheese exports to Europe. This meant a new product mix and a new marketing strategy. .... Our objective has been that at least 50 percent of all sales should go to the EU.** [Jens Refslund, Manager Director MD Foods Cheese Division, 1995, 28, p. 20].

- **In all our target countries five or six multiples (supermarkets) are covering 50 to 80 percent of the market, and are cooperating across national borders. That has changed the game
completely. We have decided to act upon that trend and have developed a Key Account Management System to promote close cooperation with a few multiples as to product range, terms of delivery, logistics, product development, etc. This applies in particular to Germany, UK, France, Holland and Sweden but will spread to other countries as well. [Jens Refslund, Managing Director MD Foods Cheese Division, 1995, 28, p. 20].

- With a relatively constant milk pool due to the EU milk quota system and based on today’s customer requirements it is our task to adjust our organization to move away from bulk products and go for growth by added value. . . . Consequently, a larger share of our production will be sold to customers in the industrialized world . . . . [Peter Lauritzen, Managing Director MD Foods Ingredients, 1995, 27, p. 22].

- MD Foods Butter Division has the objective of becoming the category supplier of yellow fats, primarily for the highly fragmented British market. Our famous Lurpak brand will remain the cornerstone of MD Foods’ assortment of yellow fats for a long time ahead . . . . [Jens Majgaard, Managing Director MD Foods Butter Division, 1995, 4, p. 24].

- In 1997, MD Foods gathered all its mould cheese for export under one brand name, Rosenberg (named after Rosenberg Castle completed in 1634). The motive for targeting one brand instead of 15 brands for 15 different products as before is to strengthen MD Foods’ mould cheese profile in world markets. The Rosenberg range, which comprises ten cheeses from the white, soft brie to the classic Danish blue, will be made available to 60 markets across the world [MD Foods 1996/97 Annual Report, 18, p. 11].

Relationship of Strategies to Those of Other Dairy Exporters

Several of these strategies represent familiar, orthodox adjustments to the economic environment faced by the firm. Many refer to strategies developed when the firm was organized along product division lines (cheese, butter and food ingredients). Many are similar to those pursued by firms such as the New Zealand Dairy Board, Ireland’s Dairy Board, the Kerry Group of Ireland. For example, the emphasis on expanding production of value added (differentiated) dairy products is a core strategy of the New Zealand Dairy Board. However, MD Foods claims that it moved farther toward product differentiation than the New Zealanders, pointing to the small exports of commodity skim milk powder by MD Foods to support the contention. The decision to diversify the firm’s product line to include products other than dairy items has been pushed vigorously by the Kerry Group of Ireland. The decision to expand exports to other EU countries—forced by reduced EU dairy export subsidies for shipments to third countries—is a key strategy of Ireland’s Dairy Board. Putting increased emphasis on R&D is an action taken by the New Zealand Dairy Board and the Kerry Group of Ireland, in particular.

Points of Strategic Differentiation

There are points of strategic emphasis that differentiate MD Foods from other dairy processing and exporting firms. By adopting the Key Account Management System MD Foods recognized the need to develop products to specification for the powerful supermarket chains of Europe. MD Foods—for several reasons—appears to have pushed this strategy farther than most dairy exporters. Becoming a category supplier of yellow fats is part of the package involved in serving the European supermarkets. (A category supplier means being able to supply a full range of a certain food category, e.g., yellow fats, so that a supermarket chain needs only one supplier.) Thus, MD Foods produces yellow fats ranging from butter oil and Lurpak butter—containing only milkfat—to margarine products based on 100 percent vegetable oils.

While other dairy processing and exporting firms have diversified their product lines, MD Foods may have gone farther than many dairy processors and exporters in pursuit of this strategy. For instance, the trade literature contains references to production by MD Foods of items such as coffee, fruit juices, cocoa mixes, cappuccino mixes and, as noted above, vegetable-based margarine products. However, MD Foods undoubtedly has not diversified its product line as
much as the Kerry Group of Ireland where dairy products accounted for only about 30 percent of revenues in the mid-1990s [36, p.88].

While it is difficult to assess how well this package of strategies has served MD Foods, one can safely draw useful inferences about how successfully MD Foods has made the strategic adjustment needed to respond to lower EU export subsidies for dairy products (Table 2). Total EU export subsidies for Danish dairy products fell 43 percent, from 2,447 million DKK in 1993 to 1,402 million DKK in 1997 [43]. EU export subsidies for Danish cheese were reduced the most. By product category, the EU export subsidies for mozzarella cheese have been cut by 44 percent, for feta cheese by 32 percent, and by processed cheese by 63 percent from the time when the Uruguay Round GATT agreement went into effect until 1996/97 [18, p. 14].

Table 2. EU Export Subsidies for Danish Cheese, Butter, and Other Dairy Products, 1993-1997 (million DKK)*

<table>
<thead>
<tr>
<th>Year</th>
<th>Cheese</th>
<th>% Change from Year Earlier</th>
<th>Butter</th>
<th>% Change from Year Earlier</th>
<th>Other Products**</th>
<th>% Change from Year Earlier</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>1,253</td>
<td>+ 8.2%</td>
<td>220</td>
<td>- 1.8%</td>
<td>974</td>
<td>- 3.0%</td>
</tr>
<tr>
<td>1994</td>
<td>1,098</td>
<td>- 12.4</td>
<td>218</td>
<td>- 0.9</td>
<td>1,057</td>
<td>+ 8.5</td>
</tr>
<tr>
<td>1995</td>
<td>920</td>
<td>- 16.2</td>
<td>301</td>
<td>+38.1</td>
<td>924</td>
<td>- 12.6</td>
</tr>
<tr>
<td>1996</td>
<td>577</td>
<td>- 37.3</td>
<td>218</td>
<td>- 27.6</td>
<td>702</td>
<td>- 24.0</td>
</tr>
<tr>
<td>1997</td>
<td>326</td>
<td>- 43.5</td>
<td>469</td>
<td>+115.1</td>
<td>607</td>
<td>- 13.5</td>
</tr>
</tbody>
</table>

**The Other Products category in Table 2 includes milk powders.

Recognize that the figures in Table 2 reflect both the effects of strategies of Danish firms that changed the destination of exports, and actual reductions in available EU export subsidies. For example, the sharp reduction in EU export subsidies for Danish cheese exports (74 percent reduction from 1993 to 1997) shown in Table 2 reflects decisions made by MD Foods and other Danish exporters to expand cheese exports to countries within the EU (where no export subsidies apply) and actual reductions in EU export subsidies for Danish cheese exports to countries outside the EU. Both developments shaped the export subsidy figures for Danish cheese, particularly for the more recent years in Table 2. Because MD Foods is the dominant domestic dairy firm in Denmark (e.g., accounting for at least 80 percent of national cheese production and at least 80 percent of cheese exports), it is feasible to draw useful inferences about how fully the company has adjusted to changes in EU dairy export subsidies using figures for the country. Danish exports of whole milk powder to EU countries (intra EU exports) and other exports of whole milk powder changed little from 1993 to 1998 (Table 3). Danish cheese exports understandably reveal a different pattern of change because, as noted above, provisions of the Uruguay Round GATT agreement relating to export subsidies had their primary impact on this product. Exports of cheese from Denmark to other EU countries were forecast by the USDA to increase by about 75 percent from 1993 to 1998, while Danish cheese exports to third countries were forecast to fall by 57 percent during this same period.

Jens Bigum, Group Managing Director of MD Foods, in a 1994 comment forecasting the probable impact of the Uruguay Round GATT agreement on his firm, said, "... before the year 2000, MD Foods must switch exports of 32,000 tons of cheese from markets outside the EU to those within the EU [11, p.6]." Assuming that MD Foods accounts for about 80 percent of Denmark's cheese exports, it appears that MD Foods will increase intra-EU cheese exports by 55 thousand metric tons between 1994 and 1998, substantially at the expense of the firm's cheese exports to third countries. If these figures are approximately correct, the shift has been massive and rapid, allowing MD Foods to reach the target spoken of by Bigum ahead of schedule.
Jens Refslund, Managing Director of MD Foods' Cheese Division, in 1995 spoke of the need to sell at least 50 percent of the firm's cheese to other EU countries. Again assuming that MD Foods accounts for 80 percent of Denmark's cheese exports, figures for 1997 suggest that nearly two-thirds of the firm's cheese was exported to other EU countries in that year.

Questions are raised by the decision of MD Foods and others in the Danish dairy industry to shift cheese exports to the EU and away from third countries. Partly as a result of this shift by the Danes, Germany became No.1, France became No.2, and the Netherlands became the No. 3 exporter of cheese to third countries in 1997, pushing Denmark to the No. 4 position among EU exporters of cheese to third countries in that year [46]. Germany gained the No. 1 position partly by increasing cheese exports to Russia. Presumably the decision by MD Foods and others in the Danish dairy industry to emphasize exports of cheese to other EU countries was made in response to strong incentives. Some analysts indicate that EU cheese markets will be more profitable to serve than those in Eastern Europe and Russia, particularly for firms that specialize in selling differentiated cheese products.

### Table 3. Danish Exports of Cheese and Whole Milk Powder, 1993-1998*

<table>
<thead>
<tr>
<th>Product and Year</th>
<th>Intra-EU Exports</th>
<th>Other Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,000 mt</td>
<td></td>
</tr>
<tr>
<td>Cheese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>97</td>
<td>163</td>
</tr>
<tr>
<td>1994</td>
<td>101</td>
<td>135</td>
</tr>
<tr>
<td>1995</td>
<td>122</td>
<td>115</td>
</tr>
<tr>
<td>1996</td>
<td>128</td>
<td>85</td>
</tr>
<tr>
<td>1997 (preliminary)</td>
<td>165</td>
<td>85</td>
</tr>
<tr>
<td>1998 (forecast)</td>
<td>170</td>
<td>70</td>
</tr>
<tr>
<td>Whole Milk Powder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>11</td>
<td>84</td>
</tr>
<tr>
<td>1994</td>
<td>13</td>
<td>93</td>
</tr>
<tr>
<td>1995</td>
<td>3</td>
<td>90</td>
</tr>
<tr>
<td>1996</td>
<td>4</td>
<td>82</td>
</tr>
<tr>
<td>1997 (preliminary)</td>
<td>5</td>
<td>85</td>
</tr>
<tr>
<td>1998 (forecast)</td>
<td>5</td>
<td>89</td>
</tr>
</tbody>
</table>


An implicit strategy of the firm is to be a highly efficient processor. The firm appears to have achieved this objective. The European dairy industry literature frequently identifies the Danish industry (and by implication MD Foods) as having some of the largest and most efficient dairy processing plants in Europe. In addition, MD Foods is regarded as being efficient in logistics—being able to supply supermarkets and other customers on short notice with superior reliability.

MD Foods has been able to only partially implement certain strategies—e.g., that of becoming a food company that markets substantial quantities of non-dairy natural foods. Fully implementing such ambitious strategies may have to await resolution of the firm's problems in the UK fluid milk market. Over capacity exists in the UK fluid milk market that will have to be reduced by buyouts or attrition before this profit constraining drain on MD Foods will be eliminated. Currently, five dairy companies control a large segment of the UK fluid milk market. Jens Bigum estimates that only two to three major firms can consistently make profits in the UK fluid milk market [2].
Rivalry

MD Foods has few strong rivals in the Danish dairy industry. MD Foods has either acquired or merged with former rivals in a number of instances. Klover Maelk is apparently both a cooperator, in the case of joint processing of fluid milk and joint manufacturing of cheese, powdered milk, milk proteins, butter and other yellow fats, and a rival in marketing activities in the domestic market. The latter is a matter of concern to Danish farmer groups. Peter Gaemelke, President of Denmark’s Agricultural Council and Chairman of the Danish National Farmers’ Union, and Peter Thomsen, Deputy Council President and Chairman of the Smallholders’ Association, have both called for a merger of MD Foods and Klover Maelk [22, p. N/1]. These farm group leaders were critical of the “infighting” associated with the price war in the Danish market over yellow fat products. Fierce competition in the domestic market appears to extend to products in addition to yellow fats. MD Foods and Klover Maelk have discussed a merger, but it was unclear at the time of the study when or if a full merger would occur.

Porter would not characterize internal competition as counter productive “infighting.” He argues that domestic rivalry is more important than international competition, especially when it puts pressure on domestic firms to improve and innovate in ways that upgrade their competitive advantage. However, Porter does concede that the benefits accruing from domestic competition may be obtained in international markets, noting that [38, p. 146]:

In small nations, missing domestic rivalry may sometimes be offset by openness to international competition and global strategies in which the nation’s firms meet foreign rivals in many countries.

MD Foods officials—pointing out that the EU has many characteristics of a single market—would likely argue that competition facing the firm in the larger EU market provides all the rivalry needed to give the firm incentives to upgrade.

The Diamond: Related and Supporting Industries

The DDB is an important and visible related and supporting organization for MD Foods and other Danish dairy companies. As noted earlier, the DDB is a trade association. Both cooperative and private dairies are members of the DDB and almost all Danish milk is processed by members of the Board. The DDB had about 240 employees in 1998.

The Executive Committee, which is charged with the overall management of activities of the DDB and the administration of its funds, consists of representatives allocated as follows among the organizations identified below [6, p. 3]:

- Seven members represent MD Foods.
- Two members represent Klover Maelk.
- One member represents other cooperative dairies.
- One member represents private dairies.
- One member represents the preserved milk producers.

The objective of the Danish Dairy Board is to “safeguard the common interests of the dairy industry in Denmark and abroad and the common interests in relation to export of dairy products [6, p. 2].”

Amby, a Board employee, described how the DDB seeks to achieve its broad objectives as follows in a 1992 article[1, p. 40]:

... (The DDB’s broad objectives are sought by) exercising negotiation and hearing rights in relation to public authorities and through contact with all important national and international authorities and organizations related to the dairy industry. Furthermore, the
Board administers public law matters and protects the trade political interests in relation to the Community.

In addition to the tasks described above, the DDB works to protect the quality of dairy products, deals with dairy product legislation, carries out programs to protect the health of cattle herds, publishes trade statistics, offers seminars, supports product promotion, develops and tests dairy recipes, and supports research and education activities relating to the dairy industry [1, p. 41 and 6].

While the DDB once exported Danish dairy products, the remaining vestige of this activity is described by the Board as follows, “for the export of dairy products, the Danish Dairy Board functions as a common coordinating and market regulatory body outside the EU [6, p. 5].”

The DDB does not take possession of dairy products and physically export the products in the way that these activities are carried out by the New Zealand Dairy Board and Ireland’s Dairy Board.

DDB activities will change in other ways as the Danish dairy industry becomes more concentrated. In particular, if MD Foods and Klover Maalæk merge, certain milk promotion campaign funds handled by the DDB will likely be handed over to the merged organization.

The Board’s rich and varied portfolio of tasks appears to make it immune from the criticism Porter levels at some trade associations. Porter argues that, “with nothing else to do, too many trade associations spend all their energy on lobbying [38, p.664].”

Among the noteworthy tasks of the Board are those relating to EU dairy policies, especially those relating to dairy export subsidies and administration of producer milk quotas. (Actual administration of producer quotas is carried out by the Danish Milk Board, an organization closely related to the DDB which was established in 1984 when EU milk quotas came into existence.) The board of the Danish Milk Board is identical to that of the DDB and it is domiciled in Aarhus at the head office of the DDB [40, p. 13].

A Two-Tier Export Subsidy Program

Preben Mikkelsen, Executive Director of the DDB and an important spokesman for the Danish dairy industry, is a frequent critic of EU dairy policies. In a 1994 statement anticipating impacts of the reduced EU cheese export subsidies that would be produced by the Uruguay Round GATT agreement, Mikkelsen called for the EU to employ a two-tier (B quota) dairy export subsidy arrangement [24, p. 52]. Under this system, certain over-quota dairy products (EU dairy products produced with over-quota B milk) manufactured in EU countries would be exported without subsidy, while internal subsidies and export subsidies would be retained for other milk and certain other dairy products. Mikkelsen recommended that the B quota export system reflect the following points:

• B milk is intended for export to the most profitable markets without export subsidies, e.g., the US, EFTA countries, and Japan.
• Only limited amounts of B milk products would be exported.
• The two-tier system should be operated so that B milk does not affect the price of A milk exports.
• Production of B milk would be voluntary for producers.

The two-tier system Mikkelsen advocated is structured to reduce cannibalism of subsidized EU dairy exports of A products to third countries and to limit the amount that the system would depress world dairy product prices in “thin” world dairy product markets.

The EU has chosen not to adopt a two-tier system out of concern over the administrative complexity of the system, questions about whether the system was GATT/WTO compatible, fears
that B milk product exports would depress dairy product prices in “thin” international markets, and opposition from within other EU countries based on other considerations.

Mikkelsen still maintained in 1997 that a two-price export subsidy system was relevant, arguing that it would be a useful way to “create a gradual transition to a more market-oriented system, which in the longer term seems to be the only viable way for the EU” (emphasis supplied). [26, pp. 22-23]. Mikkelsen also recommended that the so-called zero refund (zero export subsidy) policy, which the EU has implemented by removing refunds for minor markets, should be extended to the US as well. This action was apparently advocated in the belief that Danish exporters could sell cheese in the US market competitively without export subsidies. Moreover, avoiding use of export subsidies for the US market would free remaining subsidies for use in other markets where Danish and other EU exporters are less competitive without subsidies and avoid prompting the EU into further general export subsidy cuts.

Allocation of Producer Quotas

The question of how producer milk quotas should be exchanged was a subject of heated debate in Denmark’s dairy industry for years. The Danish Dairy Board, Danish Family Farmers’ Association, and the Federation of Farmers’ Unions were heavily involved in the debate. A supply-demand quota exchange system was finally agreed upon although farmer groups had concerns that the system would hurt smaller milk producers and enhance the trend toward fewer, larger dairy farms.

**Figure 2. Function of the Quota Exchange**

Under the old system—which operated from 1989 to 1996/97—quota was exchanged mostly with the sale or lease of dairy properties. Farmers sold or leased quota under the old system at politically determined prices to either other farmers or the Danish Milk Board. Under the old system, quota sold or leased by one farmer to another could be transferred a maximum of 10 km (six miles). This tended to limit quota sales or leases to farmers who planned to expand milk production by purchasing or leasing a neighboring farm. This system also limited the extent to which milk production could expand in low cost producing areas of the country. The Danish Milk Board sold quota that it acquired to young farmers, producers of organic milk and others.
Under the new quota exchange system, which will apply beginning in 1997/98 for five years and which is administered by the Danish Milk Board, all milk producers can generally buy or sell quota each year under a supply-demand system, which works as follows [41, pp. 20-21]:

- Producers wanting to sell make an offer to the Danish Milk Board stating the volume of milk they want to sell and the minimum price they will accept.
- Producers wanting to buy make an offer to the Danish Milk Board stating the volume they want to buy and the maximum price they will pay.

As shown in Figure 2, producers who have stated that they want to sell at a price that is lower or equal to the equilibrium price will sell at the equilibrium price. Producers who have stated that they want to buy at a price which is higher or equal to the equilibrium price will buy at the equilibrium price. Offers to buy or sell (located to the right of the intersection in Figure 2) are rejected.

Certain provisions are included in the rules governing quota exchange to discourage direct sales of milk quota from one farmer to another. In particular, one-third of the quota quantity transferred directly from one farmer to another is seized by authority of the government and placed in the national reserve. This penalty presumably will greatly reduce direct transfers of quota that circumvent the Danish Milk Board quota exchange.

Provisions are included to limit the amount of quota that can be purchased by a single farmer to the following [41, p. 21]:

- Maximum purchase per year is 150 tons.
- Maximum purchase over five years is 300 tons.
- Certain producers with more than 800 tons of quota in 1997/98 may increase quota holdings by a maximum of two percent per year.

Special provisions are included for newly established farmers. These farmers would acquire from the Danish Milk Board an amount of quota equivalent to 560 tons (80 cows) at zero cost for one-third of the quota and at the market price for the remaining two-thirds of the quota.

The Danish Milk Board used the new procedure for redistributing Danish milk quota successfully in June 1998, when 178 million kilograms of quota was sold for an equilibrium price of 2.29 Danish Kroner per kilogram of quota. This was a relatively low price—at least in comparison to prices at which limited quota exchanges have occurred elsewhere in the EU—which is equivalent to about US $15 per hundredweight. The price at which Danish quota was exchanged in Denmark suggests that the amount of capitalization of quota values in Denmark has been relatively limited. Quota will be exchanged twice yearly in June and December under the new system.

While the new Danish quota system will limit expansion by larger—and presumably generally more efficient—producers, the new system will permit efficiencies to be gained in Denmark’s dairy industry. Of course quota systems—even those that permit quota exchange—still exhibit widely recognized rigidities and produce economic inefficiencies. Nonetheless, the inefficiencies caused by EU milk quotas likely would be reduced if quota exchange systems similar to Denmark’s were used EU-wide and intercountry exchange of quota was permitted. However, intercountry exchange of quota is unlikely to be sanctioned by the EU because certain EU countries fear that such an arrangement would cause the dairy industries of their countries to shrink while the dairy industries of Ireland, the UK, Denmark, the Netherlands and perhaps others would increase in size.

**Other Supporting Industries and Organizations**

There are of course supporting industries and organizations for Denmark’s dairy industry in addition to the DDB. Porter, as noted earlier, indicates that the sophisticated Danish food
processing equipment manufacturers and refrigeration equipment manufacturers support Denmark's dairy industry [38, p. 150]. In addition, 11 Danish agricultural colleges provide educated personnel for MD Foods and other Danish dairy firms. Porter points out that Denmark’s dairy industry is a source of skilled workers for that country’s insulin and enzyme producers. Presumably, the latter two industries also are actual or potential sources of trained personnel for the R&D work of MD Foods and other Danish dairy companies.

The Diamond: Demand Conditions

The demand function facing MD Foods consists of domestic demand and export demand segments. Much can be inferred about the domestic demand for dairy products produced by MD Foods from dairy consumption figures for Denmark. Statistics noted earlier, USDA/FAS reports, trade publications, and anecdotal information provide a partial description of the export demand for the firm’s products.

Domestic Demand

Aggregate information about Danish demand for certain dairy products is provided by Table 4. Fluid milk consumption per capita in Denmark was not greatly different from that for the EU or the US during 1993-1998. Cheese consumption per capita in Denmark was apparently about one-third higher than in the EU and about 45 percent higher than in the US during the mid-1990s (Table 4). However, the average per capita cheese consumption figures in Table 4 may overstate Danish consumption of this item because there is a large (unexplained and doubtless partly in error) increase in cheese consumption in Denmark from 1994 to 1995. Butter consumption per capita averaged about 18 percent higher in Denmark than for the EU as a whole and was more than double the comparable figure for the US during 1993-1998.

As is often the case, the aggregate figures conceal nearly as much as they reveal. Familiar trends are concealed in the flat fluid milk consumption figures. Danish consumption of low fat (0.5 percent butterfat) fluid milk is increasing, approximately offsetting the decline in consumption of whole milk containing 3.5 percent butterfat. According to USDA/FAS attaché reports, consumption of the low fat fluid milk product increased by about four percent from 1996 to 1997 [43, p. 4]. While this development had little impact on overall per capita consumption of fluid milk, it made more butterfat available in Denmark for use in cheese, butter, and whole milk powder.

Consumption of organic milk is increasing rapidly in Denmark. During 1996/97, organic milk production and consumption increased by 150 percent from year-earlier levels to about 100 million liters—equivalent to over 15 percent of fresh milk sales in the nation. L. Worm of the US Embassy in Copenhagen described the conditions under which organic milk is produced [47]:

Animals (and animal products) produced according to organic practices must be fed with feed from organic farms. If necessary, the feed can be supplemented with 15 percent to 25 percent conventional feeds for ruminants and non-ruminants, respectively. Growth promoters, antibiotics, colorings, and other additives must not be present in the feed. The animals must have free access to roughage, and they must not be tied for prolonged periods. During the summer, the animals must graze outdoors.

A small organic cheese business also has emerged in Denmark.

Figures in Table 4 showing the apparent downturn in per capita butter consumption in Denmark are misleading. In particular, the statistics fail to reflect the consumers' substitution of the new mixtures containing 25 percent vegetable fat and 75 percent butterfat for the conventional 82 percent butterfat product. The new mixture is not counted as butter. Aggregate consumption of the traditional butter plus the new mixtures is approximately constant.
Table 4. Danish Consumption Per Capita of Fluid Milk, Cheese and Butter, 1993-98*

<table>
<thead>
<tr>
<th>Product and Year</th>
<th>Danish Consumption per Capita</th>
<th>Danish Consumption as Percent of Per Capita Consumption for:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Kilograms)</td>
<td>EU</td>
</tr>
<tr>
<td>Fluid Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>110.13</td>
<td>98.1%</td>
</tr>
<tr>
<td>1994</td>
<td>108.72</td>
<td>99.0</td>
</tr>
<tr>
<td>1995</td>
<td>109.43</td>
<td>100.2</td>
</tr>
<tr>
<td>1996</td>
<td>109.39</td>
<td>100.0</td>
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<td>1997 (Preliminary)</td>
<td>108.77</td>
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</tr>
<tr>
<td>1998 (Forecast)</td>
<td>108.92</td>
<td>101.0</td>
</tr>
<tr>
<td>Average</td>
<td>109.23</td>
<td>99.8</td>
</tr>
<tr>
<td>Cheese</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>15.46</td>
<td>122.1</td>
</tr>
<tr>
<td>1994</td>
<td>14.84</td>
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<td>19.81</td>
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<td>1996</td>
<td>20.92</td>
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<tr>
<td>Average</td>
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<td>135.5</td>
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<tr>
<td>Butter</td>
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<tr>
<td>1993</td>
<td>5.80</td>
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<tr>
<td>1998 (Forecast)</td>
<td>3.82</td>
<td>101.1</td>
</tr>
<tr>
<td>Average</td>
<td>4.71</td>
<td>117.7</td>
</tr>
</tbody>
</table>


MD Foods uses the Danish home market as a development base and launch pad for exports. In this connection, one important new product is the new "butter" mixture or Lurpak Spreadable. On the Danish market Lurpak Spreadable is known under the name "Kaergarden." Launched in the Danish market in 1990 by MD Foods, the product has been described as one of the greatest successes within the Danish provisions trade. Hougaard of the DDB reported in 1997 that two to three packets of Kaergarden were sold for each packet of Lurpak butter in Denmark [14, p. 21]. As noted later, the new butter mixture has proven to be popular in export markets—especially the UK—where the product is marketed under the Lurpak brand.

Kjer, an employee of the Information Department of MD Foods, reported in 1995 the following points describing how the firm meets domestic and export demand for nutraceuticals [16, p. 23]:

To meet the demands of the Danish consumers for variety, the Home Market Division each year launches a large number of new products on the market. Last year DKK 70 million were spent on product development. One of the products receiving most attention is the cultured product, Gaio, now being launched in the British and Korean markets. Another
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very popular dual function product is Cultura, which relieves stomach trouble. With products like these MD Foods has moved into the borderland between food and drugs, the so-called functional foods or nutraceuticals.

The DKK 70 million (approximately US $11.0 million) figure would not represent the total R&D expenditures of MD Foods for 1994. If MD Foods carries out R&D work comparable to major competing dairy and food exporting companies, the R&D expenditures would be US $25 to 40 million per year.

Certain products manufactured in Denmark are produced almost exclusively for the export market. One such product is whole milk powder. There is no Danish tradition for using dry whole milk powder but small amounts are used in the food industry, especially as a breast milk substitute. Domestic consumption is expected to remain at its present level—approximately 15 thousand tons per year. As in other dairy exporting countries—especially New Zealand, Danish whole milk powder exports provide an outlet for butterfat that cannot be readily sold domestically or exported in other products.

Porter argues that demanding consumers in the home market give a company strong incentives to develop superior products that often become important export items. Denmark’s consumers—like those throughout much of Europe—are sophisticated and demanding. In serving those consumers, MD Foods has developed products that find a home in export markets, much as Porter predicts.

**Export Demand**

As noted earlier in Table 3, Danish exports of cheese to EU countries—about 80 percent of which were accounted for by MD Foods—were forecast to increase by about 75 percent from 1993 to 1998, while Danish exports of cheese to other markets were forecast to decline by about 57 percent during this same period. Intra-EU exports of Danish whole milk powder—another important export item for MD Foods—on the other hand were forecast to change little from 1993 to 1998.

Much of the shift in Danish cheese exports away from third country markets to the EU occurred because of reduced EU export subsidies for cheese shipments to countries outside the Union. The pattern of Danish cheese exports that existed in 1994 immediately prior to the change in GATT/WTO rules regarding exporting subsidies and in 1997 appears in Table 5. The destinations for the expanded Danish cheese exports within the EU were Germany, the UK, Sweden and Greece. Danish exports of cheese to the US were about 20 percent lower in 1997 than in 1994.

Danish whole milk powder exports exhibited a generally declining pattern during 1994 to 1997 and recorded a large reduction for Venezuela.

What does the trade literature and anecdotal information reveal about the export demand for Danish dairy products? The following points excerpted mainly from USDA/FAS attaché reports provide partial answers to this question and, by implication, give insights relating to export demand conditions facing MD Foods:

- MD Foods has established working relationships with large supermarket chains in Central Europe and Sweden. The company has successfully introduced Danish soft cheeses in these markets [12/08/95, 42, p. 10].
- With decreasing restitution, Danish cheese exports are suffering from competition from New Zealand, Australia, and the US on the South Asian markets, especially Japan [10/20/97, 43, p. 3].
Table 5. Danish Cheese and Whole Milk Powder Exports to Selected Countries, 1994 and 1997*

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cheese</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S.</td>
<td>13,925</td>
<td>11,130</td>
<td>-20.1%</td>
</tr>
<tr>
<td>Germany</td>
<td>55,385</td>
<td>83,066</td>
<td>50.0%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>22,387</td>
<td>19,756</td>
<td>-11.8%</td>
</tr>
<tr>
<td>UK</td>
<td>10,242</td>
<td>14,740</td>
<td>43.9%</td>
</tr>
<tr>
<td>Sweden</td>
<td>7,827</td>
<td>13,528</td>
<td>72.8%</td>
</tr>
<tr>
<td>Japan</td>
<td>14,014</td>
<td>12,467</td>
<td>-11.0%</td>
</tr>
<tr>
<td>Greece</td>
<td>10,758</td>
<td>11,788</td>
<td>9.6%</td>
</tr>
<tr>
<td>Spain</td>
<td>NLS</td>
<td>8,701</td>
<td>--</td>
</tr>
<tr>
<td>Netherlands</td>
<td>NLS</td>
<td>7,245</td>
<td>--</td>
</tr>
<tr>
<td>Russia</td>
<td>NLS</td>
<td>7,318</td>
<td>--</td>
</tr>
<tr>
<td>Italy</td>
<td>7,502</td>
<td>6,830</td>
<td>-9.0%</td>
</tr>
<tr>
<td>Iran</td>
<td>28,235</td>
<td>NLS</td>
<td>--</td>
</tr>
<tr>
<td>Egypt</td>
<td>11,063</td>
<td>NLS</td>
<td>--</td>
</tr>
<tr>
<td>Other</td>
<td>55,435</td>
<td>53,898</td>
<td>-2.8%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>236,773</td>
<td>250,467</td>
<td>5.6%</td>
</tr>
<tr>
<td><strong>Whole Milk Powder</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>NLS</td>
<td>13,179</td>
<td>--</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>11,656</td>
<td>10,824</td>
<td>-7.1%</td>
</tr>
<tr>
<td>Venezuela</td>
<td>15,086</td>
<td>5,850</td>
<td>-61.2%</td>
</tr>
<tr>
<td>Yemen</td>
<td>5,168</td>
<td>4,507</td>
<td>-12.8%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>5,130</td>
<td>4,449</td>
<td>-13.3%</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>8,364</td>
<td>4,044</td>
<td>-51.6%</td>
</tr>
<tr>
<td>Brazil</td>
<td>NLS</td>
<td>4,533</td>
<td>--</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>3,633</td>
<td>3,703</td>
<td>1.9%</td>
</tr>
<tr>
<td>Egypt</td>
<td>4,181</td>
<td>3,386</td>
<td>-19.0%</td>
</tr>
<tr>
<td>Lebanon</td>
<td>NLS</td>
<td>3,078</td>
<td>--</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>3,154</td>
<td>NLS</td>
<td>--</td>
</tr>
<tr>
<td>Belgium</td>
<td>2,108</td>
<td>NLS</td>
<td>--</td>
</tr>
<tr>
<td>Netherlands</td>
<td>NLS</td>
<td>NLS</td>
<td>--</td>
</tr>
<tr>
<td>Others</td>
<td>45,059</td>
<td>32,092</td>
<td>-28.8%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>105,312</td>
<td>86,645</td>
<td>-14.9%</td>
</tr>
</tbody>
</table>


NLS = Not Listed Separately for the country in the USDA/FAS figures.

- Danish dairy exports to Asia are mainly concentrated in Hong Kong and Singapore. Competition from Australia and New Zealand decreased exports to these regions by a third from 1996 to 1997. MD Foods may counter this development by exporting the successful Lurpak Spreadable product to Hong Kong and Singapore [5/15/98, 45, p.8].
Denmark successfully introduced Lurpak Spreadable to the UK market in 1997. Export figures are not published, but total Lurpak exports to the UK are reported to have increased by more than 15 percent in 1997 [10/20/97, 43, p.3].

MD Foods launched a successful organic butter export program for the UK market beginning in July 1997 [5/15/98, 45, p.8]. UK sales of the organic butter are now equivalent to more than half of Danish domestic consumption of the product.

After several years of decline, Danish butter exports appear to be on the upswing. Although butter exports to EU countries continue to decrease, exports of the product to third countries increased by 50 percent over year earlier levels in 1997 [10/20/97, 43, p. 10].

Since 1995, promotion of butter (Lurpak Brand) is the only export promotion activity of the DDB. The UK, Germany, and the Middle East take 85 percent of total butter exports. Promotion activities are consequently directed toward these markets [10/20/97, 43, p. 11].

Butterfat consumption for cheese production did not decrease in 1996 compared to 1995. This is evidence of a move toward exports of higher fat content cheeses to counter the impacts of EU export subsidy restrictions [5/15/98, 45, p.5].

In 1997, Danish exports of feta cheese to the two traditional major markets, Iran and Egypt, completely disappeared, falling from 75,000 tons in the early 1990s. However, other markets have developed and feta cheese exports in 1997 totaled 37,000 tons. Saudi Arabia was the major outlet, purchasing 10,700 tons, and the United Arab Emirates and Yemen both imported 2,500 tons. Germany was another major market, taking 7,100 tons [5/15/98, 45, p. 6].

Danish cheese exports to the US decreased by 15 percent in 1997. According to the Danish export counselor in New York, the decline reflects lower EU export subsidies and a lack of massive Danish advertising [5/15/98, 45, p. 6].

Feta cheese has presented challenges for MD Foods and others in the Danish dairy industry. Exports of this product, which accounted for about half of Danish cheese exports in the early 1990s, declined sharply in the mid-1990s when Iran, in particular, stopped purchasing the product. In the mid-1990s, Danish processors began shifting cheese production away from feta and other bulk cheeses toward value-added cheeses less affected by GATT/WTO reform measures and other policy influences. This was doubtless a good strategy. However, the need for a rapid shift was reduced by the recovery of Danish feta cheese exports to about 37 thousand tons in 1997 through development of alternative markets for the product in Saudi Arabia, United Arab Emirates, Yemen, and Germany.

Responding to complaints from Greece, the EU commission has determined that the name feta cheese should be restricted to only Greek-produced cheese [44, pp. 8-9]. Denmark and other non-Greek EU countries will have five years to find another name for products now using the feta name. However, Danish firms and other non-Greek EU firms can continue to use the name feta for cheese sales in third countries outside the EU. Under pressure from the Danish Dairy Federation, the Danish government has launched a court challenge, demanding a cancellation of the Commission decision. It is unclear what the outcome of this challenge will be.

The discussion of demand reveals important things about MD Foods. First, the firm appears able to adjust rapidly to changing market conditions—whether those changes originate with the EU dairy policy or loss of traditional export market outlets for feta cheese. Second, the firm's Lurpak Spreadable product is successful both domestically and in export markets. Third, the firm's Asian dairy exports appear vulnerable to impacts of reduced EU export subsidies, the Asian financial crisis, and strong competition from Australia and New Zealand. The third point, of course, describes a vulnerability that other dairy exporters face in Asia.