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WORLD MILK PRODUCTION AND DAIRY EXPORTS
IN THE POST GATT ERA

By

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WORLD MILK PRODUCTION AND DAIRY EXPORTS IN THE POST GATT ERA

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I am pleased to have the opportunity to speak at the VI Pan American Dairy Congress on world milk production and dairy exports in the post Uruguay Round GATT agreement era. Clearly, the world dairy industry is headed for exciting and turbulent times that will present opportunities for those well positioned to take advantage of the opportunities.

In my remarks, I will present a Short-Run Scenario for 1997-2000 and a Longer-Run Scenario for 2001-2005 relating to world milk production and dairy exports. My comments will be divided into the following sections:

- 1) Background developments in world dairy markets that will influence dairy exports, including views of leading dairy exporting firms on the market environment for dairy exports.
- 2) The Short-Run Scenario for 1997-2000, including a description of developments that support this scenario.
- 3) The Longer-Run Scenario for 2001-2005, including a description of developments that support this scenario.
- 4) Viable strategies for dairy exporters under the Short-Run and Longer-Run Scenarios.

Background on Developments in World Dairy Markets

A host of intertwined developments will shape the dairy production and trade environment during the short-run and longer-run periods that are being considered in these remarks. The GATT, NAFTA, and MERCOSUR trade agreements have emerged to complement market and macroeconomic developments that enhance prospects for additional trade in dairy products.

The Uruguay Round GATT Agreement as a First Step Toward Freer Dairy Trade. Certainly the Uruguay Round GATT agreement will influence world dairy markets during 1997 to 2005. As is well known to this group, the main components of the agreement, which was implemented in mid-1995 and runs for six years until mid-2001, include the following:

- Countries are required to convert all non-tariff barriers (quotas, import licenses, etc.) to tariffs and reduce those tariffs by an average of 36% over six years with a minimum reduction for individual products of at least 15% from 1986-88 base levels.
- Where current access to a country's market is less than 3% for a product (based on estimated consumption during a 1986-90 base period), the country must open its market to a minimum access of at least 3%. This minimum access is to be increased to 5% by 2000.
- The amount of agricultural products exported with subsidy and budget outlays for export subsidies must be reduced by 21% and 36%, respectively, from 1986-90 base period amounts.

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Many point out that there is less to the Uruguay Round GATT agreement than meets the eye. Professor Sheehy of University College Dublin in Ireland commented as follows in 1997 on this point [18]:

"...most countries, including the EU, have contrived formulae in calculating these sums to minimize the impact at farm level. As a consequence, now in the second year of the agreement, EU farmers are scarcely aware of its existence."

Sheehy's comments appear less negative when qualified by his earlier remarks which stated [17]:

"While the (Uruguay Round GATT agreement) will not have major short-term effects, its real significance is that it has put in place a foundation which will be built upon in the next trade round. In order words, it is the first step toward free trade."

While the agreement is just a start, we should not underestimate the actual impact of the Uruguay Round GATT agreement on world dairy markets. For example, while it is true that the agreement will have little impact on European Union (EU) butter and nonfat dry milk (NDM) powder exports in the near term, the agreement will:

- Require the EU to reduce subsidized exports of cheese by about 16% from 1997 to 2000.
- Prevent the U.S. from making large subsidized exports of NDM under the Dairy Export Incentive Program (DEIP). For example, DEIP exports of NDM averaged 116 thousand mt (25% of U.S. production of NDM) during 1992-94. In 2000, subsidized DEIP exports of NDM will be limited by the GATT agreement to a maximum of 68 thousand mt (59% of the 1992-94 average DEIP exports of NDM).

Moreover, the contribution of the GATT agreement to creating the foundation for further liberalization of the dairy trade during the World Trade Organization negotiations that begin in 1999 may be particularly important. Many farmers in New Zealand and Australia regard the first steps taken under the GATT agreement toward freer markets as significant since they have expanded milk production substantially in response to the agreement. Farmer organizations in these countries claim that the production increases are being made in anticipation of additional opportunities for expanded dairy exports in the latter stages of the GATT agreement and under the WTO agreement. In addition, the Uruguay Round GATT agreement coincided with other developments (e.g., elimination of price controls and improvements in macroeconomic policies) that will contribute to expanded milk production and expanded dairy exports in a few other countries.

Countries where milk production increased rapidly during 1992-97 appear in Table 1. In addition to Australasia (Australia and New Zealand), several countries in the "Southern Cone" of South America appear in this list, namely; Argentina, Brazil, Uruguay, and Chile. A host of developments account for the expansion in milk production in these four countries, including the possibility of additional dairy exports as a result of the GATT and MERCOSUR agreements and an improved economic environment. Developments in Argentina are among the most favorable for milk production. USDA analysts describe the situation there as follows [24, p. 5]:

"A stable economy, a free dairy sector, and increased domestic consumption in the past five years have made the sector one of the most profitable at both the farm and processor levels. The rapid growth is attracting large investment in the sector, mainly from local companies already in the

business, but also from new foreign companies. The dairy industry which currently highest per cow yields in South America, is expected to become even more efficient as increases."

Table 1. Classification of Major Milk Producing Countries Based on Average Yearly Changes in Cow's Milk Production, 1992-97.

Milk Production Category	Countries in Category
Rapidly Expanding ^{a/} (>5% per year)	Argentina, Brazil, Chile, Uruguay, New Zealand, Australia, and
Moderate Growth ^{b/} (2% to 5% per year)	India
Slow Growth ^{c/} (0 to 1.99% per year)	United States, Canada, Mexico.
No Growth ^{d/} (Quota effect)	European Union
"Turn Around" Country ^{e/} (-to+ growth per year)	Poland
Contracting Countries ^{f/} (0 to -7% per year)	Russia, Ukraine

Source: U.S. Department of Agriculture, "Dairy: World Markets and Trade," FD 1-97, January and Scandinavian Dairy Information, 2/96.

^{a/} Countries where average year-to-year changes in milk production exceeded 5% during 1992-97.

^{b/} Countries where year-to-year changes in milk production averaged between 2% and 5% during 1992-97.

^{c/} Countries where average year-to-year changes in milk production averaged between zero and 1.99% during 1992-97.

^{d/} Countries with almost no change in year-to-year milk production during 1992-97 (Product quota effect).

^{e/} Countries where average year-to-year changes in milk production shifted from negative to positive during 1992-97.

^{f/} Countries where average year-to-year changes in milk production averaged between zero and -7% during 1992-97.

The Emergence of Four Exporting Blocks. The background information suggests that significant dairy exporting blocks have or soon will emerge. These are the EU, the U.S., Australia, and the Southern Cone countries of South America.

- While EU export market shares will decline, the Union clearly will remain an important exporter of dairy products at least for the next several years partly because of its

dominance and the experience of EU exporters. The Uruguay Round GATT agreement will limit subsidized exports of EU cheese but will not have significant effects on subsidized butter and NDM exports until about 2000 at the earliest.

- As noted below, the U.S. is likely to become a major dairy exporting country but it is unclear when. The slow growth of U.S. milk production may give U.S. firms incentives to continue to concentrate on serving the domestic market.
- Australasia is rapidly expanding dairy exports. Production capacity constraints will limit New Zealand's expansion but those constraints have not yet begun to "bite."
- The Southern Cone countries are the newcomers to this trading group. If developments in these countries continue to unfold as they have in recent years, they seem likely to continue to expand dairy exports.

Table 2 extrapolates the rate of change in milk production in the four exporting blocks during 1992 to 1997 to 2000. It is assumed that the EU will be required to reduce milk production under the quota system by two thousand mt to satisfy Uruguay Round GATT requirements relating to subsidized exports of dairy products by 2000. The 1997 figures are U.S.D.A. forecasts.

Table 2. Milk Production in Four Exporting Blocks, 1997 and 2000.

Exporting Block	Milk Production			
	1997 (1,000 mt)	% of EU	2000 (1,000 mt)	% of EU
1) EU	120,536	100.0%	118,536	100.0%
2) U.S.	70,675	58.6	72,062	60.8
3) Australasia	20,352	16.9	23,980	20.2
4) Southern Cone of S.A. (Argentina, Brazil, Chile & Uruguay)	34,437	28.6	41,611	35.1
5) U.S., Australasia & Southern Cone of S.A.	125,464	104.1	137,653	116.1

Source: U.S. Department of Agriculture, "Dairy: World Markets and Trade," FD 1-97, January 1997 and Scandinavian Dairy Information, 2/96.

We will assess more fully the strength of these exporting blocks in discussions of the scenarios.

The U.S. as a Major Dairy Exporter. U.S. firms are expected to become significant exporters of dairy products when U.S.D.A. dairy price supports end after 1999. A number of U.S. companies are gearing up to expand exports of bulk and differentiated dairy products in the next few years. To date much of their preparation has consisted of market research and creation of exporting infrastructure. However, it is frankly unclear how soon U.S. companies will become major exporters of dairy products since the U.S. dairy industry is domestically oriented. U.S. firms exported only 3.2% of national butter

production and 0.9% of national cheese production in 1996. U.S. exports of NDM were only a little larger (7.1% of national production) in 1996 (Table 3). It will take much time and effort for U.S. dairy firms to become export oriented. How rapidly they will become important dairy exporters depends on the strength of the incentives they will have to do so. More on this point later.

The Seeds of Continued Market Volatility. World dairy markets are thin--only the equivalent of about 5% of world milk production enters international dairy export markets. Dairy exports as a percentage of world production may increase modestly during the next few years. However, the concentration of dairy exports in the hands of a few exporting blocks carries with it the prospect of continued and perhaps increased price variability. This development creates a situation where poor crops, droughts or similar developments in a major exporting block can curtail sharply supplies of dairy products for export, producing predictable effects on prices. Moreover, in the U.S. the Commodity Credit Corporation will no longer carry any substantial inventories of dairy products that could be placed on international markets during periods of world production shortfalls. Smaller EU dairy product inventories will accentuate the impact of lower U.S. dairy product inventories on world prices. Finally, any one of the dairy exporting blocks could expand output enough to sharply depress prices in the thin international markets.

Table 3. Country Exports of Major Dairy Products for 1996 and Change in Exports Forecasted by the USDA for 1997.

Product	Country	Exports, 1996		Forecasted Change in Exports 1996 to 1997
		Mt (1000)	% of Prodn.	
<u>Butter</u>	New Zealand	238	83.5	+ 3%
	Australia	75	49.0	+ 27
	Canada	19	19.0	- 21
	Argentina	5	9.1	+ 400
	European Union	158	9.0	0
	Poland	14	8.5	0
	United States	17	3.2	- 29
	Russia	5	1.4	0
<u>Cheese</u>	New Zealand	173	73.3	+ 30
	Australia	116	43.3	+ 12
	Poland	13	10.0	+ 8
	European Union	549	9.7	- 4
	Canada	12	4.4	0
	Argentina	12	3.2	+ 108
	United States	30	0.9	+ 10
	<u>Nonfat Dry Milk</u>	New Zealand	150	76.5
Australia		167	72.9	+ 14
Canada		50	66.7	- 14
Poland		80	66.1	+ 25
Argentina		26	61.9	+ 42
European Union		260	21.6	+ 5
Russia		25	13.9	- 20
India		10	9.5	+ 20
United States		34	7.1	+ 91

Source: U.S. Department of Agriculture, "Dairy World Markets and Trade," FD 1-97, January 1997.

Buyer concentration in world dairy import markets is lower than producer concentration in exporting. However, for certain products concentration among importing countries is not trivial (Table 4). Major purchasing countries for butter, cheese, and NDM in terms of percentage of domestic consumption imported or absolute quantities of the products include the following:

- Butter: Egypt, Russia, the EU, and Mexico.
- Cheese: Japan, Switzerland, U.S, the EU, and Russia.
- Nonfat Dry Milk: Algeria, Mexico, Brazil, EU, and Japan.

Exporters' ability to diversity sales across a relatively large number of importing countries should add stability to export markets. However, the benefits exporters gain from this diversity should not be overstated. Within the 5% of the world dairy products that enter export markets further restrictions are imposed through centralized state purchasing, which makes only about 3% of world market volume freely

accessible to exporters [4, p. 5]. This factor limits the sales diversification possibilities, especially for smaller exporters who may be ill equipped to deal with centralized state importing agencies such as CONASUPO in Mexico.

Table 4. Country Imports of Major Dairy Products and Change in Imports Forecasted by the USDA for 1997

Product	Country	Product Imports, 1996		Forecasted % Change in Imports 1996 to 1997
		Metric Tons (1,000)	% of Consumption	
<u>Butter</u>	Egypt	50	87.7%	0%
	Russia	235	38.8	+ 4
	Mexico	9	29.0	+ 11
	Brazil	12	14.6	- 17
	Australia	6	10.0	- 33
	European Union	79	4.8	- 1
<u>Cheese</u>	Japan	160	84.2%	+3%
	Switzerland	30	28.3	+ 33
	Russia	78	27.9	+ 3
	Australia	33	18.6	0
	Brazil	35	8.2	- 14
	Canada	21	7.3	0
	Egypt	17	5.1	- 12
	Mexico	20	4.7	+ 25
	United States	152	4.5	+ 2
	European Union	114	2.2	- 4
<u>Nonfat Dry Milk</u>	Algeria	120	100.0%	+4%
	Mexico	160	82.1	0
	Peru	4	80.0	+ 50
	Venezuela	10	76.9	- 10
	Chile	10	66.7	0

Source: U.S. Department of Agriculture, "Dairy: World Markets and Trade," FD 1-97, January 1997.

How do Major Exporting Firms View the Exporting Environment? A few comments by leading dairy exporters and firms involved in foreign direct investment in the dairy business sheds light on this question. We can also see how they have adjusted to the perceived market environment.

1. Nestle. Nestle, a Vevey, Switzerland based company with sales of US\$ 43 billion in 1994, has characterized both the U.S. and European food markets as being "flat and fiercely competitive [21]." This consideration is one which led Nestle to concentrate expansion of dairy and other food product sales in the growth markets of Asia and Latin America.

Nestle has long balanced sales between low risk but low growth countries of the developed world and high risk and potentially high growth markets of Asia and Latin America [22]. Thus, the company's

decision is not surprising.

In developing countries in Asia and elsewhere, Nestle has employed a strategy of first establishing sales channels by making basic mass-produced foodstuffs that the locals can afford. Then as consumers grow richer, the company pumps higher-valued products through these same channels. [7, p. 67]

2. The New Zealand Dairy Board (NZDB). The Wellington, New Zealand-based NZDB, which is the world's largest private dairy exporting firm with sales US\$ 3.8 billion in 1995/96, has long recognized the risks associated with selling into thin international dairy markets [16]. The organization, which has monopoly exporting privileges but no other government support, argues that these risks stem in part from "(EU and U.S.) subsidies competing with subsidies," producing an environment where prices and trade have a limited relationship to the underlying economics of milk and dairy product production [14, p. 24]. The NZDB points out that in nonquota markets prices for bulk dairy products tend to equal the EU internal price minus the EU export subsidies.

In addition, there is risk associated with commodity exporting, as noted in the following comment made by P.V. Lough, a former NZDB executive [11]:

"Supplying bulk natural cheddar cheese to a processor in Australia is not secure business--we can be dropped at a moment's notice. But having an equivalent quantity marketed under the Mainland brand in Australia not only returns to the industry a higher price for the cheese, but we have more security of selling that volume of cheese in the years to come."

The problems created for the firm by EU and U.S. export subsidies and risks problems associated with marketing bulk commodities have led the NZDB to adopt a strategy aimed at lifting the 30% to 40% of milk which is sold as value-added (differentiated or partially differentiated) products to as close to 100% as the Board can get as soon as possible [20].

Risk exposure for the NZDB is less for differentiated products. However, it has not been simple for the NZDB to progress toward achieving the objective of expanding the percentage of its exports sold as differentiated products in the New Zealand environment where sharp increases in milk production have been triggered by the Uruguay Round GATT agreement and other developments. The NZDB apparently can export as differentiated or partially differentiated products flowing from milk production increases as large as 4% to 5% per year. However, larger increases often must be marketed as bulk product.

New Zealand dairy processors and the NZDB have embarked on a "Growth Funds Growth" strategy whereby producers entering dairy farming or expanding production must finance the expansion of processing and exporting capabilities. This has taken the form of assessment on new or expanding producers of NZ\$ 1 to NZ\$ 2 per liter payable to the processing cooperative and an additional NZ\$ 1 per liter payable to the NZDB. This "Growth Funds Growth" strategy also has reduced the rate of increase in farmland values in New Zealand.

Recently the NZDB has striven to be first-entrant in business segments targeted by the Board. The NZDB claims that initial entrants gain a 15% advantage over second entrants and larger advantages (third entrants break even and fourth entrants lose money) over later entrants. While it is unclear whether sequence of entry into a foreign market has such a close relationship to profits, there are undoubtedly early mover advantages. This point seems to have obvious, significant implications for firms planning to enter the gradually opening world dairy markets.

3. Ireland's Dairy Board (IDB). The IDB, a Dublin, Ireland-based firm with export sales of US\$ 1.9 billion in 1995, believes that it will encounter stronger competition in world markets from Australasian firms, U.S. firms, and others as a result of the Uruguay Round GATT agreement which will require reductions in EU export subsidies for dairy products [10]. Accordingly, the IDB plans to expand dairy product exports to the internal EU market where it will face little or no disadvantage in terms of raw product cost. Since the Uruguay Round GATT agreement will reduce EU subsidies on exports of cheese more than on butter and nonfat dry milk, presumably the IDB will have incentives to expand cheese sales within the EU relatively more than sales of butter and milk powder in the short run.

Reflecting a widespread consensus in Ireland's dairy industry that food ingredients represent a profitable growth area, the IDB plans to expand exports of dairy-based food ingredients.

4. The Kerry Group. Once a relatively small dairy cooperative, the Kerry Group headquartered in Tralee, Ireland has grown rapidly to become a large specialized exporter of differentiated dairy and other food products during the past 25 years. The organization claims that larger, more efficient dairy farms, milk processing plants, and marketing organizations will rapidly become the norm around the world.

D. Brosnan, CEO of the Kerry Group, said that the challenge facing many dairy exporting organizations is to "diversify or merge." Brosnan, whose firm has emphasized diversification and product differentiation, explained the recommendation as follows [3]:

"The Kerry type of organization succeeds because it has many different businesses depending on different raw materials and different customers in various countries of the world. When one area turns down there is always something else to compensate....The alternative is for merged entities to have their own strong sales and marketing arm. The world marketplace is calling for size and world marketers....The ultimate solution is to be a global marketer...Only global marketers will be noticed in a few decades from now."

5. M.E. Franks. M.E. Franks, a St. Davids, Pennsylvania U.S.- based firm owned by Ecoval of Belgium, has long recognized that developments in the rest of the world are more and more likely to have an impact on the future of the U.S. dairy industry. In addition, officers of the firm pointed out in 1990 that "there are forces at work which will narrow the gap between returns on the domestic and international markets [9]." The firm has long exhorted the U.S. dairy industry to prepare for these developments.

M.E. Franks has been the largest exporter of dairy products under the DEIP program, concentrating on large customers such as the government importing agencies of Mexico and Algeria. The company's actions suggest that it believes that its competitive advantage lies in being the lowest cost exporter of commodities.

Short-Run Scenario 1997-2000

The previous background information provides a rationale for many elements of this scenario. Under the scenario, world milk production and dairy product exports exhibit familiar trends until at least the year 2000 (short-run). During 1997-2000, EU producers and exporters collectively continue to be important milk producers and exporters of most bulk dairy products but their export market shares erode.

For example, U.S.D.A. analysts indicate that the EU, U.S. and Australasian export market shares for NDM will have changed approximately as follows from 1990 to 1997 [24]:

<u>Country</u>	<u>NDM Export Market Share</u>	
	<u>1990</u>	<u>1997</u>
EU	58%	39%
U.S.	2	9
Australasia	40	52

The EU's export subsidies and the ability of EU traders to deliver product to buyer's specification account for the Union's ability to acquire market share in dairy export markets. Moreover, the EU's fixed export subsidies are apparently popular with exporters because they reduce the price risks borne by the exporter. However, export subsidies that remain fixed for up to four months for cheese and five months for butter and milk powders become well known to foreign competitors and invite price undercutting by competing dairy exporters in other countries wishing to gain market share. U.S.D.A. analysts described the impact of EU export subsidies for NDM sold in Asia, as follows [24, p. 16]:

"Based on estimated prices it appears that the Oceania countries marketed their product at well below EU prices in order to capture the Asian markets. This is evident since Oceania prices were at their most aggressive during the August and September (1996) period when they traditionally market the bulk of their initial and anticipated production. Since the EU export prices are dependent on the fixed level of restitutions they are fairly transparent and predictable and thus easily undercut."

This development is reminiscent of what happened to the U.S. in the grain trade during the 1980s. The U.S. once used announced production subsidies in grain markets (high fixed nonrecourse loan rates that became de facto market prices) which invited undercutting by foreign competitors and loss of export market shares.

Under the short-run scenario, EU firms will face expanded competition and witness continued gradual erosion of their export market shares because of the following developments:

- 1) Milk production in New Zealand and Australia increases by an average of 5% to 6% per year during 1997-2000. Most of this milk enters export markets in the form of manufactured dairy products.
- 2) New Zealand and Australian dairy exporters expand cheese exports by about as much as EU firms reduce subsidized cheese exports to comply with the GATT agreement during 1997-2000.
- 3) U.S. firms begin to expand exports of bulk butter and NDM without subsidy when U.S.D.A. dairy price supports end in the U.S. after 1999.
- 4) Milk production in Argentina, Uruguay, Brazil, and Chile expands at about the same rate as in New Zealand and Australia during 1997-2000. Argentina expands dairy exports substantially.

Each element of the scenario will be considered briefly.

Point 1: The projected increase in milk production for New Zealand and Australia represents an extrapolation of recent increases of the size noted in Table 1. Milk production in New Zealand was

running 8% to 10% over year earlier levels in late 1996 and early 1997, partly because of warm weather and generally abundant rainfall. While 8% to 10% increases undoubtedly are not sustainable over the entire 1997-2000 period, these figures suggest that average yearly increases in milk production in the 5% to 6% range are feasible for New Zealand at least. Australian producers appear to have the ability to expand milk production at 5% to 6% per year at least for the duration of the short-run scenario.

New Zealand producers will encounter land constraints that will limit milk production at some point but probably not before 2000. New Zealand farmers can convert additional beef and sheep land to dairying--especially on the South Island--for the next several years in amounts that will permit the 5% to 6% per year expansion in milk production in the short-run.

Droughts are the "wild card" in production forecasts for both Australia and New Zealand where dairying is pasture based.

Point 2: Projecting to 2000 reductions in the amount of subsidized cheese exports that the EU will be required to make under the Uruguay Round GATT agreement shows that this change will approximately match increases in cheese exports from New Zealand and Australia during 1997-2000, leaving world cheese supplies largely unchanged. Expected increases in Argentine cheese exports would tip the balance to cause cheese exports from the three countries to expand by more than the reduction in EU exports. This development does not mean that world cheese prices will remain flat or fall during this period. But it does suggest that strength in cheese prices must come from general demand expansion, new product development, market promotion, or other developments not closely linked to the Uruguay Round GATT agreement.

Point 3: Probably the greatest uncertainty in this scenario relates to the extent to which the U.S. will expand exports of cheese, butter and nonfat dry milk. For several reasons, U.S. cheddar cheese exports will remain small during the next few years. However, U.S. exporters may expand exports of mozzarella cheese to Korea where they currently hold about a one-third share.

Little expansion of butter and NDM exports will occur in 2000. As suggested by Table 1, the domestic supply-demand balance in the U.S. dairy industry has been quite tight in recent years, reflecting contraction in milk production in Wisconsin, poor crops at times, a slow rate of adoption of Bovine Somatotropin, and other developments which curtail milk production. Strong demand for cheese has contributed to market tightness from the demand side.

Partly because of tight supplies and strong domestic prices, U.S. firms have had limited incentives to export in dairy products in recent years. The following schedule shows the number of months during 1990-1996 when U.S. market prices have been (a) less than 5% above the U.S. support price for cheddar cheese, NDM, and butter, and (b) less than 5% higher than the world price (measured as the midpoint of high and low prices f.o.b. Northern European Ports) for these products. (These figures are extracted from Appendix Tables 1,2 and 3). The 5% figures were used as proxies for situations when U.S. market prices

fell to levels near the support level (indicating the existence of domestic surpluses) or near world prices, creating incentives for exporting.

Number of Months During 1990-96 When U.S. Market Prices Were < 5% Higher Than:

	<u>Support Price</u>	<u>World Market Price</u>
Cheddar Cheese	11	0
NDM	33	0
Butter	40	17

Among U.S. dairy product market prices, those for cheddar cheese have remained the highest compared to the domestic support prices and world prices. U.S. market prices for cheddar cheese fell to levels less than 5% above the support level in only 11 of the 84 months in the 1990-96 period. Moreover, there have been no months when U.S. market prices for cheddar cheese have fallen to within 5% of the support price since January 1993.

U.S. NDM market prices fell to levels less than 5% higher than the support price in 33 of the 84 months in the 1990-96 period. This occurred most recently in April 1996.

U.S. market prices for butter clearly have plumbed the lowest levels relative to support prices and world prices. In 40 of the 84 months during 1990-96 U.S. market prices for butter fell to levels less than 5% above the support price. Moreover, in 17 of the months--notably in all of 1995 and early 1996--U.S. butter prices were at levels less than 5% above world price threshold. Reflecting these price developments, U.S. butter was exported without subsidies in 1995.

Hence, incentives appear to be greatest for U.S. butter exports to be made at unsubsidized prices in 2000 and later years. The next most likely candidate for exporting unsubsidized prices is NDM.

Mexico's dairy markets have been referred to by some U.S. firms as "low hanging fruit." USDA analysts point out that the Mexican market for imported cheese has grown rapidly in recent years, from 3% to 8% of the total domestic cheese market and over 30% of the market for hard and semi-hard cheeses. Another sharp increase in cheese imports is expected for 1997. Barriers to cheese imports are declining under the NAFTA agreement and by 2003, U.S. cheese will enter Mexico duty free as compared to a tariff of 40% for cheese imported from Europe or Oceania [24, p. 12]. Under the NAFTA, Mexico's tariffs on imports of NDM from the U.S. will decline to zero in 2008.

Mexico's farmers have import substitution strategies in mind for limiting dairy imports. According to the Asociacion Nacional de Ganaderos Lecheros (Mexico's national association of dairy farmers), the Mexican dairy industry plans to invest about US\$ 600 million to expand its production capacity over the next five years and to replace about 70% of its imports with domestic production by 2000. By 2005, the organization claims, the 200 thousand mt of milk powder now imported annually (valued at US\$ 500 million) should come from domestic production. This announcement was triggered in part by Mexico's recent announcements that additional deregulation of Mexican dairy product prices would occur in 1998. Mexico is phasing out price controls on milk with the aim of allowing prices to be market determined in 1998, although no specific date has been set for the change [2, p. 16, 13].

If these import substitution plans materialize, this would reduce U.S. dairy exports to Mexico substantially in both the short run and longer-run. However, the impact of such developments would be

partially offset by expanded cattle and dairy technology exports to Mexico.

It is noteworthy that U.S. milk production is increasing most rapidly in the Western and Southwestern states (California, Texas, Arizona, and Washington) which are locations from which exports destined for Latin America or Asia could most readily originate.

Point 4: The projection of continued rapid expansion of milk production in the Southern Cone countries of South America seems reasonable in view of the investments in dairy farming and milk processing that are occurring in these countries. Nestle--which is not inclined to make bad investments--has expanded investments in the firm's dairy businesses in Argentina and Brazil, as noted in the following announcements [2, p. 32]:

"Nestle recently announced plans to invest US\$ 100 million in plant modernization in Argentina to provide a base for exporting. Felipe Rafael Silva, who is responsible for company relations with MERCOSUR, said that the US\$ 100 million has been allocated to the Argentine dairy market because Argentina's dairy industry is very aggressive and able to compete with New Zealand because of its quality."

Brazil also has been included prominently in Nestle's investment plans for Latin America. Silva explained that the advantage possessed by Brazil lies in the quality of its cereals and milk, and it therefore will receive US\$ 400 million. He pointed out that although the investment in Brazil is greater, the amount set aside for Argentina is proportionally more important, given the size of the markets.

To date much of Argentina's dairy exports have been destined for the Brazilian market. Presumably Brazil will continue to be a major destination. However, Mexico would appear to be a prime target for Argentine exports--especially if Mexico's import substitution plans fail.

Longer-Run Scenario, 2001-2005

It is clearly difficult to sketch the longer-run scenario in a meaningful fashion because of uncertainties that exist with regard to the EU dairy industry, in particular. Indeed, I am less certain that the EU dairy industry will change dramatically during 2001-2005 than I was as recently as a year ago.

As is well known, two camps are emerging in the EU regarding future dairy policy [8]. The first asserts that radical reform is necessary--indeed inevitable. Radical reform would include phase out of EU milk production quotas. The second camp--which appears to be gaining support--argues that there is no great need to change the principles built into the present system. If the second position prevails, little change will occur in EU dairy policy during 2001-20005 other than a four or five million mt reduction in EU milk production under the quotas in about 2001 to stay within the Uruguay Round GATT agreement export limits--particularly on the expenditure limits [8].

There is little point in discussing the position of the second camp except to note that if this position prevails it will reduce EU plant throughput, further reduce the efficiency of the European dairy processing industry, reduce EU dairy export market shares, and foster additional foreign direct investment by EU firms seeking to avoid effects of the milk production quotas.

The more likely longer-run scenario is for substantial change in EU dairy policies--perhaps rather late in the 2001-2005 period. EU budget pressures and changes negotiated in the WTO round scheduled to begin in 1999 are likely to force rationalizations of the European dairy industry. This will reduce the

importance of EU firms in world dairy markets but not as much as the "minimal change" strategy favored by the second camp. Under this scenario, the following changes materialize:

- 1) EU milk production quotas are scheduled for phase out late in the 2001 to 2005 period. EU firms expand exports of differentiated dairy products but overall EU dairy exports decline.
- 2) EU export subsidies and EU exporters become less important in establishing prices in international dairy markets.
- 3) New Zealand and Australian firms become more dominant as exporters of bulk and partially differentiated dairy products in Asia.
- 4) Exporters in a number of countries expand exports of dairy-based food ingredients and other differentiated dairy products.
- 5) Latin America becomes a "battleground" for dairy exporters from New Zealand, the U.S. and the Southern Cone of South America.

Points 1 and 2. There is little point in forecasting a precise date for the phase out of EU milk production quotas. Phase out represents a sensitive political decision that has not yet been made. Quotas might be phased out beginning early in the 2001 to 2005 period if, as claimed by Sheehy, lower cost foreign dairy products begin to enter the EU as early as 2000 during periods of low world prices as a result of tariff reductions negotiated under the Uruguay Round GATT agreement [17]. Moreover, the longer EU policy makers delay such a decision the greater the loss of export market share that will occur and the greater the loss of efficiency suffered by EU dairy processors. Hence, incentives exist for the quotas to be eliminated soon rather than later. However, recognize that the "forecasting record" is littered with forecasts that contained premature obituaries for costly EU agricultural policies.

Following world-wide trends, EU firms will expand exports of differentiated dairy products to reduce risk and enhance returns. The EU Commission already has made adjustments in export subsidies for specialty and other cheeses, apparently in the belief that certain differentiated or partially differentiated cheeses can be exported with reduced subsidies or without subsidies. Simms describes the adjustments as follows [19]:

"...traders also had to contend with: (a) a reduction in length of validity of prefixations, from four months down to two months in the case of cheese; (b) zero refunds to certain non-EU European destinations; and (c) application of a 13% reduction coefficient to certain cheeses in the final month of GATT Year One...More recently the Commission has reduced refunds for cheese exports to central and eastern Europe and also to the United States. Processed cheese in particular has been the subject of a series of suspensions and refund cuts."

As noted earlier, world prices for bulk dairy products in nonquota markets tend to equal the internal EU price less the EU export subsidies. As the quantity of subsidized EU dairy products entering world markets declines further during 2001-2005, expect world dairy product prices to be shaped to a greater extent by supply and demand rather than EU export subsidies. Varying export levels from the other dairy exporting blocks (Australasia, U.S., and Southern Cone of South America) will have a greater impact than at present on world dairy product prices.

Point 3. New Zealand and Australia have important proximity and early mover advantages for serving Asia. The NZDB and Australian dairy exporters appear to be targeting Asian markets. About a third of the value of the NZDB's export sales are represented by sales made in Asia. Exporters from both Australia and New Zealand countries are expanding cheese sales to Japan. The share of Japanese cheese imports accounted for by Australia and New Zealand rose from about 46% in 1992 to about 60% in 1996.

New Zealand's share of the Japanese cheese market expanded most--the expansion coming partly at the expense of Danish cheese exports to Japan. Strategies of firms in the region--which include the undercutting prices of EU exporters noted earlier--underscore the importance of the region to these firm. The NZDB also has been highly critical of U.S. initiatives to expand DEIP exports to Asia, underscoring the importance of the region to the Board.

It is perhaps surprising that Latin America is second only to Asia as a market for NZDB dairy products. Latin America accounted for 20% of NZDB sales in 1996 [16].

The Asian market where U.S. dairy exporters have competed successfully with the Australasians is the mozzarella cheese market in Korea [12].

Point 4. Dairy-based food ingredients have been identified as an export growth item by firms in many countries. Exporters from the four dairy exporting blocks will be prominently represented among those expanding export sales of these items. Ireland's Dairy Board, the Kerry Group of Ireland, Avonmore Foods in Ireland, the NZDB, Foremost Farms, U.S.A., and Grande Cheese Company in the U.S. are a few firms which are expanding export sales of these items.

U.S. firms in the Upper Midwest plan to expand exports of dried whey products and whey protein concentrates. These U.S. items are presently price competitive in world markets. However, problems with quality and uniformity of the products must be satisfactorily addressed before this initiative will be a success story for U.S. firms.

For reasons noted earlier, differentiated dairy products (dried whey products, whey protein concentrate, lactose, specialty cheeses, milkfat fractions, dairy based pharmaceuticals, etc.) will be targeted as growth items by firms in many areas of the world. The NZDB summarized its emphasis on expanding exports of differentiated products as follows [16, p. 7]:

"Commodity markets are declining in absolute size and are quite incapable of absorbing the industry's increasing milk production. This inescapable dynamic underlies the need for the industry to continue pressing forward with its value-added strategies."

Point 5: Latin America emerges as a "battleground" for dairy exporters for a number of reasons. First, two of the major exporting blocks--the U.S. and the Southern Cone of South America--have proximity advantages for serving this area. Secondly, Latin America contains growth markets that will be an increasingly attractive as a market for dairy exports. Third, the expansion of milk production in the Southern Cone of South America and in the U.S. probably will give firms in these countries incentives to export. Finally, while my Department's econometric models are far from perfect, they do point to Mexico as a prominent market for U.S. dairy exports.

Among the Latin American countries, Mexico is likely to be a prominent part of the battle ground. One can envision situations where Mexico's import substitution strategy will be only partially successful and demand for imported dairy products continues to expand. Both developments will make Mexico an attractive market. Partly because of these considerations the U.S. Dairy Export Council is carrying out market research and building infrastructure that will permit U.S. firms to compete more effectively for Mexico dairy sales.

Viable Strategies for Dairy Exporters under the Short-Run and Longer-Run Scenarios

How should the export market environment for dairy products that has emerged in the Post GATT agreement era be characterized? TEAGASC (an Irish national farm advisory and research organization) assumes that circa 2000 world consumption of dairy products will be increasing at a rate of 2% to 5% per year while world milk supplies will be growing at about 2% per year. TEAGASC's assumptions, which appear consistent with findings noted earlier in this talk, suggest that there is potential for upside movement in international dairy product prices in the Post Uruguay Round era--because demand for dairy products will increase more rapidly than supply. In addition, a noteworthy change in prospect is the emergence of the U.S. and the Southern Cone of South America as important new dairy exporting blocks. However, many uncertainties exist that dairy exporters will need to address. The environment will feature:

- The continued price volatility associated with thin markets.
- An absence in the U.S. of a firm price floor for dairy products of the type provided by the U.S.D.A.'s price support program. The price floor will be absent because a surge of dairy exports by any of the four exporting blocks could cause the world prices to decline sharply for certain dairy products.
- Relatively strong international cheese prices which exhibit strength because of demand expansion. While subsidized exports of EU cheeses will decline in the short-run, this decline will be more than offset by expanded cheese exports from Australasia and Argentina.
- Strong demand for dairy-based food ingredients and other differentiated dairy products.
- Uncertainties regarding (a) the strength of the price incentives that the U.S. firms will have to export dairy products immediately after phase out of domestic price supports for dairy products in the U.S., (b) EU dairy policies in the 2001 to 2005 period, (c) how long New Zealand can continue to rapidly expand milk production, and (d) how successful Mexico's import substitution strategies will be.

Viable strategies for operating in this environment will include the following:

- Gear up to emphasize exports of differentiated dairy products. Differentiated products return a higher price and provide greater market security than bulk, commodity products.
- When feasible, superimpose a product differentiation strategy upon a strategy of being supplied by low cost milk producers--the payoffs from the two strategies are additive. Milk producers employing pasture-based systems can readily employ this two-pronged strategy.
- Be prepared to make relatively large R&D expenditures if you emphasize exports of differentiated products. Practices of successful product differentiators suggest that the necessary R&D expenditures could exceed 1% of gross sales.
- Be an early mover into new markets for differentiated dairy products. The importance that the NZDB attaches to being an early mover is useful evidence in support of this point.
- Be a low cost producer-processor-exporter if you plan to export bulk, nondifferentiated dairy products.

- Develop sophisticated policy intelligence capabilities. To avoid expensive, damaging surprises, exporters will need early warnings of the impacts of developments regarding the uncertainties noted above for the EU, U.S., New Zealand, and Mexican dairy markets to name a few.
- Recognize that carefully developed plans will be needed to acquire additional market shares in the growing Latin American dairy markets. While U.S. and Southern Cone dairy exporters will have proximity advantages for serving the Latin American markets, it is evident that the NZDB will not relinquish its substantial foothold in this market without a struggle.

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APPENDIX TABLE 1. PERCENTAGE BY WHICH U.S. MARKET PRICES FOR CHEDDAR CHEESE EXCEEDED GOVERNMENT SUPPORT PRICES AND WORLD PRICES FOR CHEESE, 1990 - 1996

YEAR	ANNUAL AVERAGE DIFFERENCE	MONTHLY DIFFERENCES		MONTHS WHEN DIFFERENCE < 5%
		<u>LARGEST</u>	<u>SMALLEST</u>	
<u>MARKET PRICES VS. SUPPORT PRICES</u>				
1990	22.7%	37.2%	0.9%	OCT, NOV, DEC (3)
1991	11.0	25.1	0.4	JAN, FEB, MAR, APRIL, MAY (5)
1992	13.9	23.0	4.0	MAR, APRIL (2)
1993	17.2	28.4	4.9	JANUARY (1)
1994	17.1	28.9	6.3	NONE
1995	17.8	30.2	8.3	NONE
1996	29.3	52.5	12.0	NONE
<u>MARKET PRICES VS. WORLD PRICES</u>				
1990	71.4	96.0	44.1	NONE
1991	56.8	81.3	42.4	NONE
1992	41.6	55.8	32.9	NONE
1993	60.3	77.1	42.4	NONE
1994	56.0	86.0	29.6	NONE
1995	29.4	39.5	18.9	NONE
1996	33.8	55.7	19.0	NONE

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, "DAIRY: WORLD MARKETS AND TRADE," VARIOUS ISSUES, 1991-1997.

APPENDIX TABLE 2. PERCENTAGE BY WHICH U.S. MARKET PRICES FOR BUTTER EXCEEDED GOVERNMENT SUPPORT PRICES AND WORLD PRICES FOR BUTTER, 1990 - 1996

YEAR	ANNUAL AVERAGE DIFFERENCE	MONTHLY DIFFERENCES <u>LARGEST</u>	<u>SMALLEST</u>	MONTHS WHEN DIFFERENCE < 5%
<u>MARKET PRICES VS. SUPPORT PRICES</u>				
1990	0.2%	2.0%	- 2.1%	ALL MONTHS (12)
1991	3.7	11.4	- 1.0	JAN THRU JUNE (6)
1992	2.2	9.2	- 1.2	FEB, MAR, APR, JUNE, JULY, AUG, SEP, DEC (8)
1993	4.6	14.6	- 1.2	JAN, FEB, MAR, APR, MAY, JUNE, JULY, DEC (8)
1994	8.0	16.4	- 0.4	JAN, FEB, MAY, JUNE, DEC (5)
1995	23.1	53.7	0.0	JAN (1)
1996	52.4	135.9	10.8	NONE
<u>MARKET PRICES VS. WORLD PRICES</u>				
1990	58.3	68.4	41.1	NONE
1991	59.5	76.2	45.7	NONE
1992	20.5	37.3	7.3	NONE
1993	21.1	30.0	8.1	NONE
1994	20.2	28.8	- 7.4	DEC (1)
1995	- 18.0	- 5.2	- 28.9	ALL MONTHS (12)
1996	42.6	125.7	- 23.4	JAN, FEB, MAR, APR (4)

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, "DAIRY: WORLD MARKETS AND TRADE," VARIOUS ISSUES, 1991-1997.

APPENDIX TABLE 3. PERCENTAGE BY WHICH U.S. MARKET PRICES FOR NONFAT DRY MILK EXCEEDED GOVERNMENT SUPPORT PRICES AND WORLD PRICES FOR NONFAT DRY MILK, 1990 - 1996

YEAR	ANNUAL AVERAGE DIFFERENCE	MONTHLY DIFFERENCES		MONTHS WHEN DIFFERENCE < 5%
		<u>LARGEST</u>	<u>SMALLEST</u>	
<u>MARKET PRICES VS. SUPPORT PRICES</u>				
1990	21.0%	52.0%	1.4%	FEB, OCT, NOV, DEC (4)
1991	10.9	38.2	0.2	JAN THRU JUNE (6)
1992	11.8	19.8	4.5	JAN, FEB (2)
1993	11.5	18.6	5.3	NONE
1994	4.4	7.5	3.1	MAY THRU DEC (8)
1995	4.8	14.1	3.1	JAN THRU OCT (10)
1996	14.6	24.3	3.2	FEB, MAR, APR (3)
<u>MARKET PRICES VS. WORLD PRICES</u>				
1990	53.1	87.1	7.7	NONE
1991	51.8	69.8	37.8	NONE
1992	39.2	51.2	24.5	NONE
1993	60.7	86.2	40.0	NONE
1994	55.9	76.9	34.6	NONE
1995	13.6	29.0	6.8	NONE
1996	39.4	56.8	14.7	NONE

SOURCE: U.S. DEPARTMENT OF AGRICULTURE, "DAIRY: WORLD MARKETS AND TRADE," VARIOUS ISSUES, 1991 - 1997.

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