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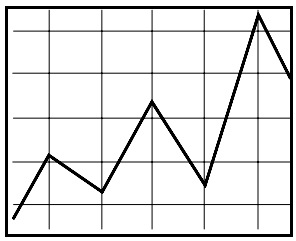

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RETHINKING DAIRYLAND:
BACKGROUND FOR DECISIONS ABOUT WISCONSIN'S DAIRY INDUSTRY

Growing Wisconsin Dairying:
Is Liberalized International Dairy Trade the Answer?

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Abstract:

The Uruguay Round World Trade Organization (URWTO) agreement and the North American Free Trade Agreement (NAFTA) created both benefits and costs for dairy farmers. The URWTO agreement benefits include border protection that helped to keep U.S. prices for cheddar cheese, butter, and nonfat dry milk 40 percent, 78 percent and 36 percent, respectively, higher than world prices during 1995-2001. Wisconsin's dairy industry benefited from expansion of dry whey and lactose exports under the URWTO agreement. Costs under the complex agreement included an unanticipated increase in milk protein concentrate (MPC) imports. Benefits under the NAFTA include the scheduled elimination of Mexico's tariffs on major imports of U.S. dairy products by 2003.

Over the longer-run, the more important benefits and costs produced by trade agreements may be those related to changes in the business environment for the U.S. and Wisconsin dairy industries. The URWTO agreement has encouraged U.S. dairy exporters to focus on (a) products not priced out of international markets by border protection and the USDA's dairy price support program and (b) highly differentiated products. Because the changed environment provides incentives for expanded exports of dry whey, lactose, and specialty cheeses, it should generate benefits for Wisconsin's dairy industry.

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Much as predicted by proponents of free trade, the NAFTA has made Mexico's dairy companies stronger competitors. This will limit gains in dairy product market share by U.S. firms. However, this development will create opportunities for U.S. and Wisconsin companies to supply genetics, dairy equipment, and technical services for Mexico's dairy industry.

Is Trade Good? It Depends.

Benjamin Franklin spoke cautiously about the benefits of international trade, arguing that "No nation was ever ruined by trade [13]." Many economists and business analysts speak more positively about the benefits from free trade. Using techniques ranging from simple comparative advantage notions to sophisticated econometric models, economists have shown potential gains from trade. Economic studies frequently find that the cost of saving domestic jobs by erecting barriers to imports runs high--sometimes as much as $1 million per job [11, p. 60]. To jog policymakers' memories about dangers of protectionism, economic historians point out that the Smoot-Hawley legislation of 1930, which raised U.S. tariffs sharply, helped to push the U.S. economy into the Great Depression. Economic studies also show that consumers in most countries and producers in low-cost producing countries are frequently big beneficiaries from free trade. Business analysts point out that subjecting domestic firms to foreign competition will--over the longer-run--produce stronger, more competitive firms.

Testimonials lauding the benefits of trade, however, do little to reduce the contentiousness of trade issues. It is not surprising that controversies have arisen in the U.S. over how to ensure that the diverse interests of agriculture, nonagricultural businesses, labor, and environmentalists are satisfied in trade pacts developed under the World Trade Organization (WTO). But controversies also have emerged in connection with actions taken under Section 201 of the Trade Reform Act of 1975. The Bush Administration's decision to raise steel tariffs temporarily in March 2002 as part of a Section 201 action provides an example.

While the Bush Administration's Section 201 steel decision attracted widespread criticism because it was regarded by many as protectionist and politically motivated, similar actions frequently receive less attention. This happens, in part, because the benefits of trade protection are usually concentrated and the costs are diffuse. In other cases, trade policy decisions attract little notice because the complexity of the actions makes the impacts difficult to foresee. Indeed, the complexity of trade policy actions is sometimes described in the clichéd term, "the devil is in the details." This is certainly true of trade agreements affecting the U.S. dairy industry. So it is no surprise that the most prominent of the recent agreements, the URWTO agreement and the NAFTA, have produced both benefits and costs for the U.S. and Wisconsin dairy industries.

Measuring the Effects of Dairy Trade Agreements

This paper analyzes benefits and costs for the U.S. and Wisconsin dairy industries stemming from international trade in dairy products. The focus is on the URWTO agreement and the NAFTA, and on benefits and costs as commonly perceived by dairy industry participants – not on broader economic efficiency and welfare impacts. This more narrow focus provides a suitable time frame for the analysis and also shows how the URWTO agreement and NAFTA have had an important influence on the economic environment in which the U.S. and Wisconsin dairy industries operate.

Trade agreement provisions that have larger or different effects on Wisconsin's dairy industry than on the U.S. industry as a whole are noted in the paper. However, there are few instances where Wisconsin's dairy industry fares differently from the U.S. dairy industry as a whole under a trade agreement. The adage, "A rising (falling) tide lifts (lowers) all boats," applies generally to the impacts of dairy trade agreements on individual dairy states. Hence, the emphasis is on the impacts of international dairy trade on the U.S. as a whole.

International trade provisions (e.g., tariffs, quotas, and non-tariff barriers) affecting U.S. dairy trade have a long history. Many of those provisions – in forms reflecting their current evolution – can be found in the URWTO agreement and the NAFTA. Key provisions of these agreements are outlined to provide background for the analysis.

The Uruguay Round World Trade Organization Agreement

Prior to the 1995 URWTO agreement, U.S. dairy markets were protected by Section 22 of the Agricultural Adjustment Act of 1933, as amended. Among other things, the border protection provided by the Section 22 quotas made the USDA's dairy price support program workable. In the absence of the quotas or other border measures, the U.S. would have been placed in the untenable position of supporting world prices of nonfat dry milk (NFDM), butter and cheese.

The URWTO agreement included the following provisions that affect the U.S. dairy industry, Wisconsin's dairy industry, and world agriculture [20]:

- Countries were required to reduce internal support for agriculture (selected price supports, selected input subsidies, etc.) by 20 percent from 1986-88 base levels.

- All non-tariff barriers (quotas, import licenses, etc.) were converted to tariffs and scheduled to be reduced by an average of 36 percent over six years with a minimum reduction for individual products of at least 15 percent from 1986-88 base levels.

- Countries were required to ensure that current access opportunities were maintained, and they were instructed to enlarge minimum access opportunities in cases where there has been little or no trade. Where current access was less than 3 percent for a product (based on estimated consumption during a 1986-90 base period), countries were required to open up the market to a minimum amount of access.

- The amounts of agricultural products exported with subsidy and budget outlays for export subsidies were scheduled to be reduced by 21 percent and 36 percent, respectively, from base period (1986-90) amounts.

- Sanitary measures were revised to ensure that they are imposed only to the extent necessary to protect human, animal or plant health, according to scientific criteria.

- A new dispute settlement mechanism was adopted to expedite the settlement of trade disputes.

Provisions Affecting Dairy Imports

The tariff rate quotas (TRQs) established under the URWTO agreement for dairy products are two-tiered tariffs that establish one duty for imports within the quota and a higher duty for over-quota imports. Within quota tariffs are frequently low enough to encourage commercial imports for the quota amount. The higher tariffs for over-quota imports were expected to produce border protection for over-quota imports approximately comparable to that provided under the Section 22 quotas. The over-quota TRQs established in the URWTO agreement for U.S. imports of NFDM, butter, and cheese are as follows [20]:

Product	Over-Quota Tariff, 1995	Over-Quota Tariff, 2000
NFDM	46.2 cents/lb.	39.2 cents/lb.
Butter	82.2 cents/lb.	69.9 cents/lb.
Cheese	65.4 cents/lb	55.6 cents/lb.

The over-quota tariffs for 2000 will remain in effect until any new tariffs are established in the Doha, Qatar Round of WTO negotiations.

Benefit: The TRQs under the URWTO agreement provided substantial border protection and helped the U.S. to maintain domestic dairy product prices higher than world prices (Table 1). Of course some of the difference between U.S. domestic prices and world dairy product prices must be attributed to the USDA's dairy price support program and differences between U.S. and international supply-demand conditions. But in several periods in the URWTO agreement era (1995-2001), U.S. price support purchases of dairy products were small or nonexistent. Therefore, at such times only a limited amount of

the price differences can be attributed to effects of the dairy price support program. It is no exaggeration to conclude that the TRQs were instrumental in keeping U.S. bulk dairy product prices from falling to levels that, at times, would approximate New Zealand prices (or Australia or Argentina prices) plus freight and handling charges for shipping dairy products to the U.S.

Table 1. Percentages by Which U.S. Central Market Prices for Cheddar Cheese, Butter and Nonfat Dry Milk Exceeded World Prices, 1990-2001.*

Year	Percent by Which U.S. Central Market Prices Exceeded World Prices		
	Cheddar Cheese	Butter	Nonfat Dry Milk
Pre-URWTO Agreement			
1990	71.4%	58.3%	53.1%
1991	56.8	59.5	51.8
1992	41.6	20.5	39.2
1993	60.3	21.1	60.7
1994	56.0	20.2	55.9
1990-1994 Avg.	57.2%	35.9%	52.1%
Post-URWTO Agreement			
1995	29.4	-18.0	13.6
1996	33.8	42.6	39.4
1997	18.9	48.3	38.1
1998	55.4	111.0	61.2
1999	61.7	89.6	75.8
2000	36.2	97.2	19.3
2001	45.6	174.7	7.8
1995-2001 Avg.	40.1%	77.9%	36.50%

*Source: USDA, "Dairy: World Markets and Trade," various issues 1991-2002 [19]. World prices are represented by the mid-point of high and low prices fob Northern European ports.

How much the border protection provided by the URWTO agreement, non-tariff barriers to trade, and other developments limited access to U.S. cheese and butter markets is suggested by Table 2. U.S. cheese imports changed relatively little as a percentage of consumption from the pre-URWTO agreement period to the URWTO agreement. However, the average annual tonnage of cheese imports increased by 21 percent from 1990-1994 to 1995-2001. Butter imports stayed relatively small as a percentage of consumption through 1997. After that year, U.S. butter imports became larger – especially during 1998 and 2001 when U.S. domestic butter prices were high. At times in those years, butter was imported into the U.S. profitably despite the relatively high over-quota tariffs of the URWTO agreement. Tillison points out that in recent years U.S.

firms have tended to import butter when the U.S. butter prices exceeded the world prices by $.80 per pound or more [14]. This suggests that U.S. firms had incentives to import butter from 1998 through 2001.

Figures for NFDM are not included in Table 2 because NFDM imports remained small during 1990 to 2001--ranging from 0.0 percent to 1.4 percent of U.S. annual consumption during this period.

Table 2. U.S. Cheese and Butter Imports, 1990 to 2001.*

Year	Cheese Imports		Butter Imports	
	1,000 mt	% of Consumption	1,000 mt	% of Consumption
Pre-URWTO Agreement				
1990	135	4.8%	2	0.4%
1991	135	4.7	2	0.4
1992	129	4.2	2	0.4
1993	145	4.7	2	0.4
1994	151	4.7	1	0.2
1990-1994 Average	139	4.6%	1.8	0.4%
URWTO Agreement Period				
1995	153	4.7	2	0.4%
1996	152	4.5	5	1.0
1997	141	4.1	5	1.0
1998	156	4.5	30	5.4
1999	195	5.3	18	3.0
2000	186	4.8	15	2.6
2001 (P)	198	5.1	34	5.8
1995-2001 Average	169	4.7	15.6	2.7

*Source: USDA: Dairy: World Markets and Trade, Various Issues, 1995-2002 [19].
P= Preliminary.

An Unanticipated Cost: An unanticipated cost mostly borne to date by the U.S. government and to a lesser extent by producers and milk processors has arisen in connection with expanded imports of MPCs under the URWTO agreement. When the URWTO agreement was negotiated, it was widely thought that U.S. MPC imports would be small and posed little threat to the domestic dairy industry. Accordingly, a small tariff ($.0017 per pound) was set and no quotas on MPC were established. However, in the late 1990s, MPCs became increasingly attractive to food processors as a way to source cheaper milk solids (and often increased functionality) from off-shore sources [8, p.3].

Reflecting these developments, U.S. imports of MPCs rose from 7,288 metric tons in 1995 to 44,878 metric tons in 1999 [22, p.4]. Imports of the product nearly doubled between 1998 and 1999 [22, p.4]. The National Milk Producers Federation (NMPF) presented USDA, Commerce, Treasury and U.S. International Trade Commission figures showing that U.S. MPC imports increased by over 600 percent from 1995 to 2000 [10, p.14].

Complaints lodged by the NMPF claim that imported MPCs displace domestically produced NFDM (and exacerbate the structural surplus of the product) and displace domestic ingredients used for cheese production. (Imported MPCs can be used in non-standardized cheeses – such as pizza cheese – for which no standards of identity are specified by the Food and Drug Administration.) Claims also have been made that MPCs enter the U.S. in the form of mixtures containing NFDM, whey powder, and other dairy products that should be subject to tariffs applicable to NFDM or other products carrying higher tariffs.

The appropriate tariff treatment for the product has become contentious partly because of uncertainties relating to the nature of the imported product, uses made of the imported product, and how much domestic output the product displaces. Bailey, for example, points out that data are lacking on the protein content of MPC imports and on how MPC imports have been used in the U.S. dairy industry [5]. Given this state of knowledge, it is difficult to make a case for higher protection for a particular industry segment since it is not fully clear whether and how much the industry segment is harmed by imports.

Bailey, the U.S. General Accounting Office (GAO), and the NMPF have estimated the relative size of the MPC imports (Table 3) to give general figures on displacement. But drawing unambiguous implications from the figures in Table 3 is impossible.

It is evident that imported MPCs displace some substantial amount of domestically-produced NFDM and increase USDA price support purchases of domestically-produced NFDM. The costs of additional NFDM price support purchases have been borne largely by the U.S. government. However, Tillison argues that MPC imports and the resultant expanded NFDM purchases by the government caused the USDA to lower the U.S. support price for NFDM in June 2001 [15]. If this reasoning is correct, producers have borne part of the cost of additional MPC imports via lower milk prices. The use of imported MPC also increases domestic cheese production and depresses U.S. cheese prices and U.S. farm milk prices by some unknown amount.

The NMPF is concerned about the impacts of MPC imports and has proposed to levy higher tariffs on the product. Many processors oppose such initiatives, saying that the functionality of some imported MPCs differs from that of the domestically produced MPCs. Thus, it is argued, the larger tariffs would penalize firms importing products that are not close substitutes for U.S. products.

Table 3. Estimates of the Relative Size of U.S. MPC Imports.

Source	Relative Size of U.S. MPC Imports
Bailey [5]	MPC imports in 2000 were equivalent to 3.7 percent to 4.4 percent of the casein contained in U.S. cheese production for 2000. MPC imports in 2000 were equivalent to 18 percent to 21 percent of the casein contained in U.S. NFDM production for 2000.
GAO [22]	MPC imports in 1999 were equivalent to 0.8 percent to 1.8 percent of U.S. milk protein production in 1999.
NMPF [10]	MPC imports in 2000 were equivalent to 210 million pounds to 370 million pounds of U.S.-produced NFDM in terms of milk protein content.

Opting for a different strategy, Dairy Farmers of America (DFA) has de-emphasized lobbying for higher tariffs in favor of import substitution. Allied with Fonterra of New Zealand, the 25 thousand-member DFA cooperative has launched plans to produce high-end MPC products in a Portales, New Mexico plant to compete with imports.

How the unanticipated costs associated with larger MPC imports will be dealt with is uncertain. Processors will argue that the different functionality of imported MPCs warrants continuing the minimal tariff on the product. They also can be counted upon to argue that the USDA's dairy price support program has driven production of MPCs offshore by making NFDM more profitable to produce than MPCs. According to this argument, it would be inappropriate to levy a larger tariff on imports of the product forced offshore. A related argument is that the U.S. does not normally raise tariffs on products for which there is no competing domestic industry. Processors and other opponents of the higher tariff also may argue that compensation would be due exporters if a higher tariff were imposed on imported MPCs.

Whether processors and other opponents of a higher tariff for MPCs will prevail using these arguments is unclear. They have succeeded in preventing quotas or tariffs from being applied to casein imports. However, producers will correctly point out that EU exporters, in particular, frequently receive export subsidies for shipments of MPCs and casein to the U.S.--in essence forcing the U.S. industry to bear part of the cost of EU dairy product surplus disposal.

Provisions Affecting U.S. Dairy Exports

How did the URWTO agreement affect U.S. dairy exports? The answer can be inferred, in part, from information in Table 1 on U.S. domestic prices for bulk cheese, butter, and NFDM. U.S. exports of bulk cheese, butter, and NFDM normally remain at low levels because these items typically are priced out of international markets. Moreover, as discussed later, the constraints on export subsidies under the URWTO agreement sharply limit the use of USDA Dairy Export Incentive Program (DEIP) subsidies to pump up exports of these products. However, U.S. NFDM periodically can be exported without subsidies.

Most action regarding U.S. exports of cheese, butter, and NFDM in the pre-URWTO agreement period and the URWTO agreement era occurred in the butter and NFDM categories (Table 4). U.S. cheese exports did increase from an annual average of 17 thousand metric tons during 1990-94 to 39 thousand metric tons in 1995-2001. However, this represented an increase from 0.5 percent of production during 1990-94 to 1.1 percent of production in 1995-2001.

Table 4. U.S. Exports of Butter and NFDM, 1990-2001.*

Year	Butter Exports		NFDM Exports	
	1,000 mt.	% of Production	1,000 mt	% of Production
Pre-URWTO Agreement				
1990	31	5.2%	10	2.5%
1991	49	8.1	68	17.1
1992	139	22.5	118	29.8
1993	145	24.3	138	31.9
1994	94	16.0	123	22.0
Average 1990-94	92	15.2	91	20.7
URWTO Agreement Period				
1995	64	11.2	170	30.4
1996	19	3.6	32	6.6
1997	18	3.4	117	21.2
1998	3	0.6	104	20.2
1999	2	0.4	217	35.2
2000	4	0.7	142	21.6
2001 (P)	0	0.0	96	15.0
Average 1995-2001	16	2.8	125	21.5

*Source: USDA, Dairy: World Markets and Trade, Various Issues, 1995-2002 [19].
P=Preliminary

A Dearth of Short-Term Benefits. It appears that the URWTO agreement did little to increase U.S. dairy exports in the short-run. There is, of course, some anecdotal evidence of expanded U.S. cheese exports resulting from increases in other countries' minimum access commitments and associated lower within-quota tariffs. For example, Vermont-based Cabot Creamery developed cheddar cheese exports to the UK with the benefit of the low 10.5 cent per pound within quota tariff that applied to the first 7,800 metric tons of cheese sold in the UK or other EU countries under the URWTO agreement. However, Cabot officials noted that the licenses that grant the importer access to the lower tariffs were "extremely difficult to acquire [6. p. 22]." It also can be argued that the agreement created an economic environment in the U.S. that favored expanded exports of differentiated (value-added) dairy products such as specialty cheeses and premium ice cream. In the longer-run, the latter development may contribute to larger revenues from U.S. dairy exports.

Positive Impacts on Wisconsin's Dairy Industry. Much as in the rest of the U.S. dairy industry, bulk butter, cheese, and NFDM products produced in Wisconsin have not been competitive in international markets in the URWTO agreement era. However, a positive impact on Wisconsin's dairy industry stemmed from developments affecting dry whey and lactose. U.S. exports of dry whey (a product not priced out of international market by U.S. border protection or price supports) have grown substantially in recent years, making the U.S. a leading world dry whey exporter. U.S. dry whey exports increased in value from $60 million in 1992 to 171 million in 2000 or 185 percent. Since about 85 percent of Wisconsin's milk goes into cheese production – generating large amounts of dry whey and lactose as byproducts – the state's dairy industry has differentially benefited from the development of foreign markets and expansion of exports of these products that has occurred under the URWTO agreement.

The importance of dry whey and lactose exports for Wisconsin's dairy industry is suggested by figures in Table 5. If Wisconsin firms' share of U.S. exports of these products is similar to their share of production, they account for about a quarter of U.S. exports of these items.

Wisconsin's specialty cheese exporters may have gained an edge over the average U.S. cheese exporter as a result of impediments to bulk cheese exports that persisted under the URWTO agreement. This is because portions of the differentiated, specialty cheese produced in the state likely can be exported competitively despite raw product costs that are higher than in Oceania and Argentina. However, collectively neither U.S. nor Wisconsin firms have become big exporters of cheese under the URWTO agreement. Thus, URWTO agreement-induced impacts on Wisconsin's specialty cheese exporters clearly are smaller than those affecting the state's dried whey and lactose producers.

Table 5. Production of Butter, Cheese, Dry Whey, and Lactose, Wisconsin, 1995-2001.*

Product	Average Annual Production for Wisconsin, 1995-2001 (1,000 metric tons)	% of U.S. Production, 1995-2001
Butter	135	24.8%
Cheese (excluding cottage cheese)	965	28.0
Dry Whey	150	27.5
Lactose**	44	23.0

*Sources: Wisconsin Department of Agriculture, Trade & Consumer Protection, Wisconsin Agricultural Statistics, Various Issues, 1996-2001 [23] and USDA, NASS, Dairy Products 2001 Annual Summary [21].
**Based on figures for 1995-2000.

Impact of the URWTO Agreement Limits on Subsidized Dairy Exports. The URWTO agreement limited DEIP exports for cheese, butter and NFDM to the tonnages shown in Table 6 for 1995/96 to 2000/01. The limits will remain at the 2000/01 level until any new limits are established under the Doha, Qatar WTO negotiating round.

Table 6. URWTO Agreement Limits on U.S. DEIP Export Subsidies, 1995/96 to 2000/01.*

Year**	Limits on Subsidized Exports		
	Cheese	Butter	NFDM
	(1,000 metric tons)		
1995/96	3.8	43.0	108.2
1996/97	3.7	38.6	100.2
1997/98	3.5	34.2	92.2
1998/99	3.4	29.9	84.2
1999/00	3.2	25.5	76.2
2000/01	3.0	21.1	68.2

*Source: USDA, GATT/WTO and Dairy [20].
**Physical tonnage limits on subsidized exports apply for the July1/June 30 year.

The reduction in U.S. butter production, the tight U.S. supply-demand situation, and limits on DEIP exports reduced U.S. butter exports from 15 percent of production during 1990-94 to 2.9 percent of production in 1995-2001. Indeed, the U.S. shifted from being a net butter exporter to a net butter importer in the latter half of the 1990s. Surprisingly, U.S. NFDM exports increased on average between the pre-URWTO period and the URWTO agreement era. In part, this occurred because, at times, U.S. firms exported NFDM without subsidies. In 2001, for example, U.S. dairy companies made about a quarter of NFDM exports without export subsidies [4].

The impacts of the limits on DEIP exports described in Table 6 are most important for NFDM. As noted earlier, there is a structural surplus of NFDM in the U.S. In mid 2002, there was approximately $1 billion of NFDM in Commodity Credit Corporation (CCC) inventories acquired as a result of price support purchases during the past three years [1]. CCC officials are finding it difficult to dispose of the surplus product before it goes out of condition.

Costs of URWTO Limits on Subsidized U.S. Dairy Exports: Dan Colacicco, Director of the Dairy and Sweetener Analysis Group of the USDA's Farm Service Agency, described how limits on DEIP exports and other developments have made disposal of U.S. surpluses of NFDM more costly, as follows [12]:

> "In 1987, we sold 850 million pounds (of NFDM) for restricted use; 500 million pounds (227 thousand metric tons) of that product went to export sales at world prices. That's an option we don't have anymore. (Under) the trade treaties that were signed in the '90s, we can no longer buy product at 90 cents per pound and sell it into the world market for 70 cents a pound….It's a clear violation of trade treaties."

After 2000/01, U.S. firms will be permitted to export with subsidy a maximum of 68.2 thousand metric tons of NFDM under the DEIP each year (Table 6). This figure is only about 30 percent as large as the 227 thousand metric ton figure for 1987 referred to by Colacicco.

Tillison describes costs of the URWTO agreement limits on DEIP subsidies for the U.S. dairy industry in the following terms [16]:

> "…The U.S. dairy industry was 'had' in the GATT negotiating round. Our negotiators agreed to percentage reductions in subsidies when the United States had almost no historical base to reduce from. The result: a country with a subsidy base of a billion pounds (like the European Union) takes a 25 percent reduction and can still subsidize 750 million pounds of product. The United States, on the other hand, starts with a million pound base and is left with just 750,000 pounds of product it can subsidize. What a good deal that was!"

Table 7. URWTO Agreement Limits on EU Dairy Export Subsidies, Base Period and 2000/01.*

Year	Limits on Subsidized Exports		
	Cheese	Butter	NFDM
	(1,000 metric tons)		
Original EU Base Quantity (1986-90):	386.2	463.4	308.0
Maximum Quantity that can be Exported with Subsidy under the URWTO Agreement: 2000/01	321.3	272.3	272.5

*Source: USDA, "Dairy: World Markets and Trade, FD 1-94, March 1994 [19] and U.S. Dairy Export Council [18].

Tillison raises a point about the preference enjoyed by the EU regarding permitted export subsidies. Because of the larger size of the export subsidy base obtained by the EU (Table 7), that group of countries is presently permitted to export with subsidy about four times as much NFDM per year as the U.S. The differences are greater for cheese and butter. The most binding of the constraints on the EU applies to cheese exports. EU butter and NFDM exports--most of which are exported with subsidy--rarely bump up against the URWTO agreement limit on those exports.

Failure of the WTO Dispute Settlement Mechanism to Provide a Timely Resolution to Claims that Canada Exceeded WTO Export Subsidy Limits. In 1997, U.S. and New Zealand dairy groups challenged Canada's Class 5 dairy export subsidy program, claiming that Canada exceeded limits on subsidized dairy exports agreed to under the URWTO agreement. After initial findings by a WTO panel that the Class 5 system was contrary to Canada's WTO export subsidy commitments, the Canadian government transferred certain provisions of the system to provincial authorities. U.S. and New Zealand groups challenged the new provincially-based program, arguing that nothing much had changed. After time-consuming appeals, the issue appears likely to be resolved late in 2002. However, the lengthy delays remind dairy industry groups that they should not count on the WTO dispute settlement mechanism to provide timely resolutions to disputes affecting dairy exports and other agricultural trade issues.

Beneficiaries of the URWTO Limits on Subsidized Exports. The main beneficiaries of the URWTO limits on subsidized dairy exports are dairy exporting firms in countries that export with little or no subsidies--e.g., New Zealand, Australia, and Argentina. For instance, Mr. Hamish Smith, an analyst with the New Zealand Ministry of Agriculture and Forestry, estimated that New Zealand's dairy industry gained NZ$346.6 million

(about US$157 million) in 2000 as a result of URWTO negotiated outcomes. Smith attributed part of this gain for the New Zealanders to limits on export subsidy use, noting that [2]:

> "Without the UR disciplines on export subsidy use, the EU and the United States (to a lesser extent) would have been able to increase their use of this type of trade-distorting mechanism in order to dispose of surplus production."

While the U.S. dairy industry operates at a disadvantage to the EU in terms of permitted dairy export subsidies, the U.S. is unlikely to get authorization for larger subsidized dairy exports. Indeed, the opening bid of the U.S. in the Doha Qatar WTO negotiations calls for eliminating all agricultural export subsidies.

The North American Free Trade Agreement

The NAFTA – which became effective on January 1, 1994 – included changes that gradually opened the Mexican market to larger U.S. dairy imports. Prior to the NAFTA, Mexico employed licenses and tariffs to limit access to Mexico's dairy markets.

When the NAFTA became effective, Mexico converted its import licensing arrangements for milk powder (the country's most important dairy import) into a tariff rate quota (TRQ) that would operate as follows [9]:

- The TRQ for milk powder was scheduled to remain in effect during a 15-year transition period.

- Initially duty-free access to the Mexican market was provided for 40,000 metric tons of U.S. NFDM and whole milk powder. The amount of U.S. milk powder entering Mexico duty free was scheduled to grow at an annual compounded rate over the 15-year transition period.

- For the first year of the agreement, U.S. exports of milk powder in excess of 40,000 metric tons were subject to a 139 percent tariff. During the first six years of the NAFTA, 24 percent of the tariff was scheduled to be eliminated and the remainder of the tariff was scheduled to be phased out during the remainder of the 15-year transition period.

- Mexico's over-quota tariff on milk powder imports from the U.S. is scheduled to go to zero in 2008.

For cheese, Mexico converted its import licensing arrangement to tariffs under the following arrangement:

- Imports of cheese that were subject to import licensing prior to the NAFTA initially were assigned a 20 percent tariff was that was scheduled to be reduced to zero during a 10-year transition period.

- Imports of fresh cheeses were subjected to a 40 percent tariff that was scheduled to be reduced to zero during a 10-year period.

Tariffs on most other dairy items imported from the U.S. are scheduled to be phased out over a 10-year period. Thus, in 2003 tariffs for fluid milk and cheeses imported from the U.S. will go to zero.

Benefits

Under the NAFTA tariff reductions scheduled to be completed in 2003, major parts of the Mexican dairy market will be open to U.S. exporters at zero tariff. This situation led some analysts – including the author – to suggest that the Mexican market will soon represent "low hanging fruit" for U.S. dairy exporters. This was an excessively sanguine forecast. But the zeroing out of tariffs for major dairy exports (except for milk powder) to Mexico by 2003 clearly represents an important benefit for the U.S. dairy industry. While some expected larger gains in market share, U.S. firms did obtain about a 30 percent share of Mexico's U.S.$548 million of dairy imports in 2000[17].

However, Mexico's dairy market has matured under the NAFTA, creating a more competitive environment in Mexico for U.S. dairy exporters. As part of this change, strong domestic firms have emerged and powerful European multinationals have increased their sales. The maturing of the Mexican market has a number of important implications for U.S. dairy firms, including the following:

- Mexico's cheese imports as a percentage of consumption in 2001 differed little from the 1994 figure. Moreover, the competition facing U.S. exporters for these sales is strong, especially from European firms.

- U.S. firms' shares of Mexican imports of fluid milk, yogurt, whey and lactose have been large--over 85 percent for all four products in 1999. Expanded U.S. exports of these products will be otained mainly through the gradual expansion of the Mexican market through income growth, population growth, and development of new, demand-expanding uses for the products.

- Margins on exports of bulk dairy products to Mexico have become "razor thin." This is no surprise and it means that suppliers of bulk commodities to Mexico must be low-cost exporters to be profitable.

- While Mexico promises to remain only about 75 percent ($\pm$5 percent) self-sufficient in milk production for the next several years, price incentives and

other developments will foster additional milk production in Northern Mexico.

Why Benefits Didn't Increase as Much as Expected. At times before the NAFTA Mexico was the world's largest importer of NFDM, substantial quantities of which were used for reconstitution into fluid milk for sale to low income people at subsidized prices in Mexico. The presence of pervasive and persistent poverty in Mexico suggests that NFDM will continue to be an important dairy import for Mexico. In addition, Mexican processors use the product to make a host of other dairy products, which should add to import demand.

U.S. firms will maintain substantial NFDM exports to Mexico in the years ahead, probably averaging about 60 thousand metric tons per year. However, this figure is not as large as anticipated by many partly because of Mexico's movement toward greater self-sufficiency in NFDM production. As shown in Table 8, Mexico's imports of NFDM fell from about 91 percent of consumption in 1994 to about 49 percent of consumption in 2001.

It is not clear why Mexico has increased self-sufficiency levels for NFDM. It might be supposed that increases in milk production in Mexico would be channeled into higher-valued uses than NFDM. However, for Mexican processors NFDM is a versatile product that can be used to produce a number of dairy products (reconstituted fluid milk, ice cream, cheese, etc.), some of which are high-valued. Presumably, economic incentives exist for Mexican firms to channel domestically-produced NFDM into these higher-valued products.

Table 8. Mexico's Imports of NFDM as a Percentage of Consumption, 1994-2001.*

Year	Imports (1,000 mt)	Consumption (1,000 mt)	Imports as % of Consumption
1994	200	220	90.9%
1995	180	205	87.8
1996	127	251	50.6
1997	133	250	53.2
1998	93	234	39.7
1999	123	256	48.0
2000	117	273	42.9
2001 (P)	140	285	49.1

*Source: USDA: Dairy: World Markets and Trade [19]. P=Preliminary.

U.S. exports of NFDM to Mexico also were reduced by the decision of LICONSA--a government agency that imports NFDM for production of reconstituted fluid milk--to diversify sources of milk powder imports among countries.

Positive Impacts on Wisconsin's Dairy Industry. Under the NAFTA, Mexico has become a large importer of dried whey and lactose. As noted earlier, these are important export items for Wisconsin firms, including Foremost Farms of Baraboo, Wisconsin; Century Foods International of Sparta, Wisconsin; and Schreiber Foods International of Green Bay, Wisconsin, all of which have recorded exports of these and other dairy products to Mexico in the NAFTA era.

However, Cox's research on the effects of the NAFTA on Wisconsin's farm milk prices suggests that the impacts would be small – only about $.01 per hundredweight increase [9]. This figure probably understates the impact on Wisconsin farm milk prices by a limited but unknown amount since Cox made the estimate before the expansion in dry whey and lactose exports to Mexico had fully materialized.

An Imperfectly Anticipated Cost of the NAFTA.

U.S. firms can scarcely complain that they have received an unfavorable deal under the NAFTA. Getting many of Mexico's dairy import tariffs to zero is a favorable deal for U.S. companies. However, the NAFTA has changed the economic environment in Mexico, making it a more competitive market. In this environment, Mexican firms have geared up for tougher competition from U.S. firms. For example, the Mexican dairy cooperatives, Alpura and Lala, now represent strong competitors for U.S. and other foreign firms. It is doubtful whether they would have achieved this level of competitiveness in the absence of foreign competition.

Mexico's dairy industry also is pushing for a greater self-sufficiency in milk production. The country will not soon become self-sufficient in milk production but the threat of imports has fostered increases in milk production, particularly in Northern Mexico. Mexico's quest for self-sufficiency in milk production is hampered by low milk production per cow, especially on the many semi-confined and dual-purpose farms in the country. Partly as a result of this problem, milk production per cow in Mexico was only about 16 percent of the comparable U.S. figure in 2000 [9]. Mexico could approach self-sufficiency more quickly if current efforts succeed in increasing increase milk production per cow on the semi-confined and dual-purpose farms.

Nor will Mexico's efforts to deal with U.S. competition be confined exclusively to bolstering competitiveness. Mexican firms have already used regulations to thwart U.S. competitors. For example, in the Mexicali/Tijuana area, local milk producers have made imports of U.S. milk unsaleable through local supermarkets with the help of regional government regulations that require local stores to sell all locally-produced milk first [9]. We may witness efforts by Mexican firms to thwart U.S. exports of milk powder to Mexico prior to when the tariff on this product reaches zero in 2008.

Implications

From the standpoint of dairy industry participants, the big benefit of the URWTO agreement is that it provided border protection that helped to keep U.S. prices for cheddar cheese, butter, and NFDM 40 percent, 78 percent, and 36 percent, respectively, higher than world prices for these products during 1995 to 2001. The main short-term cost was an unanticipated increase in MPC imports. A longer-term cost associated with the agreement may be more important. Benefits to the industry from border protection may prevent the U.S. dairy industry from gaining early mover advantages and delay for years the time when U.S. firms collectively become major players in international dairy markets.

Cox's world trade model shows that the U.S. dairy industry will have few incentives in the near term to deal with this potential cost by deregulating to facilitate expanded dairy exports [7]. Cox analyzed two scenarios that are of interest regarding this point. The first portrays a continuation of measures to open world dairy markets during 2000-2005 at the same rate that the markets were opened during 1995-2000. The second simulates free trade.

While there was some expansion in the physical volume of U.S. dairy exports under the two scenarios, both showed little change in U.S. farm milk prices. Under both scenarios, most of the upward adjustment in farm milk prices occurred in Oceania and Argentina and most of the downward adjustment occurred in Western Europe, Japan and Canada. Cox's findings help to explain why U.S. producer groups show little interest in giving up existing benefits from border protection and associated dairy price supports in hopes of expanding dairy exports.

The NAFTA will reduce tariffs on most U.S. dairy products (except for milk powder) exported to Mexico to zero in 2003. This is a significant benefit for the U.S. dairy industry.

Important longer-term changes in the business environment were created for U.S. dairy exporters by the URWTO agreement and the NAFTA. The URWTO agreement has channeled U.S. dairy exporting activity into products not priced out of international markets by border protection and the price support program and into differentiated products. Wisconsin companies have benefited from these changes. In particular, whey and lactose exports--important products for the state's dairy industry--have expanded as a result of this change. Wisconsin's producers of differentiated specialty cheeses also are likely to gain from this change in the exporting environment. For some firms, the profit gains from expanding exports of differentiated dairy products are likely to be important.

The change in the economic environment produced by the NAFTA is different. Almost according to a free-trade advocates script, the NAFTA has made Mexico's dairy firms tougher competitors. It also has triggered adjustments in Mexico's dairy industry to bring about import substitution – especially for NFDM. These changes in Mexico's dairy industry likely will limit gains by U.S. firms in market share over the longer-run.

However, simultaneously these developments will expand opportunities for U.S. and Wisconsin firms for supplying genetics, dairy equipment, and technical services to Mexico's dairy industry.

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