Appendix A—World Production and Trade by Country and Product

Global milk production is largely from cows (84 percent), but a growing share of milk is produced from other animals, such as buffaloes, goats, and sheep. The quantity of milk produced by animals other than cows is not large, but cheese varieties produced from sheep and goats are traded internationally, and their overall share of production has increased slightly since 2000. From 2000 to 2004, total milk production grew about 6 percent, while cow's milk production grew somewhat less (app. tables 9-13). The countries that produce individual dairy products detailed in this section account for about 78 percent of total world milk production.

Butter

The international butter market consists of two segments of roughly the same size: anhydrous milkfat (AMF) and solid butter. Demand for, and trade in, both products has varied greatly in response to economic conditions in recent years but has shown no clear-cut trends. Demand for AMF is found primarily in the relatively affluent countries of Asia and Latin America, which use it for commercial reconstitution of beverage milks and for such products as ice cream. World butter production has remained fairly steady since the implementation of the World Trade Organization's (WTO) Uruguay Round Agreement on Agriculture (URAA) during 1986-94, though lower than pre-URAA quantities.

The major butter importers are Russia, the Middle East and North Africa, and the EU (for fixed negotiated amounts from New Zealand). In 1985, Oceania (Australia and New Zealand) exported less than 25 percent of the world's butter; by 2000, the region accounted for nearly half of the world's recorded butter exports, with New Zealand shipping about two-thirds of that amount. Significant additional trade in butter occurs among countries of the former Soviet Union and Eastern Europe, but reliable data are unavailable. The EU is the only other large butter exporter, although its share is much smaller than it was before URAA implementation. The United States normally is not a significant participant in the international butter market.

Cheese

World cheese production has grown by nearly 2 percent during the post-URAA period, with North America and Europe accounting for much of the growth in production and consumption. The international cheese market continues to grow steadily, but slowly, in response to economic growth in Latin America, Westernization of diets in Asia, and the spread of pizza consumption to every part of the world. Cheese consumption in Asia has more than doubled since 1990, but it is still quite low.

World cheese exports grew only about 1 percent annually from 1994 to 1999. Japan, the United States, the EU, and, sometimes, Russia are leading markets. The Middle East and North Africa are key markets, particularly for some cheese types. The EU remains the largest exporter of cheese, although

its exports have fallen because of the WTO export subsidy disciplines. All of Western Europe accounts for over half of world cheese exports, with most of the remainder coming from Oceania. With growing milk production, New Zealand and Australia boosted cheese production and exports substantially as decreasing European exports created trade opportunities.

Dry milk powders

Most East and Southeast Asian countries import significant amounts of milk powders. The more populous countries in the Middle East and North Africa continue to be key markets, although import demand has not grown much. Many countries in Latin America import substantial quantities of milk powders. Relatively rapid population growth in the region has boosted demand, although economic crises have led to erratic growth in import demand.

Milk powder export supplies consist of about equal amounts of skim milk and whole milk powders. About four-fifths of milk powder exports come from the EU and Oceania. Lesser amounts come from Poland, Argentina, and (for skim milk powder) the United States. U.S. export sales of skim milk powder have been generally lower in the 2000s than during the early 1990s.

Appendix B—Model Descriptions

Partial Equilibrium Agriculture Trade Simulator (PEATSim)

The Partial Equilibrium Agriculture Trade Simulator (PEATSim) model (formerly known as the ERS-Penn State model) is an applied partial equilibrium, multiple-commodity, multiregion model of agricultural policy and trade (Abler et al., 2001; Stout and Abler, 2004). PEATSim is a gross-trade model that accounts for exports and imports of each commodity in every identified region but does not identify them by origin or destination. The model is dynamic in that it allows for adjustment over time in crop and livestock production, dairy processing, and oilseed crushing.

The model includes 12 countries or regions—the United States, the European Union (EU-15), Japan, Argentina, Australia, Brazil, Canada, China, Mexico, New Zealand, South Korea, and the rest of the world (ROW). It covers 35 commodities (rice, wheat, corn, other coarse grains, soybeans, sunseed, rapeseed, peanuts, other oilseeds, cotton, sugar, soybean oil and meal, sunseed oil and meal, rapeseed oil and meal, cottonseed oil and meal, peanut oil and meal, tropical oils, other oilseed oil, beef and veal, pork, poultry, raw milk, butter, cheese, nonfat dry milk, whole dry milk, fluid milk, and other dairy products).[1] Raw and fluid milk are included as nontraded commodities.

[1]Constraints on dairy product shares are imposed to preserve consistency of milk components.

The model is different from other partial equilibrium trade models in that it has explicitly incorporated a wide range of domestic and border policies in agriculture. The core set of policies for all countries includes specific and ad valorem import and export taxes or subsidies, tariff-rate quotas (TRQ), and producer and consumer subsidies. Other types of domestic policies and programs are also included. For example, the U.S. model includes government support purchase prices, tariffs and TRQs, and export subsidies for dairy products and Milk Income Loss Contract (MILC) payments. The Japan model includes tariffs and "markups," such as for rice, wheat, and sugar. Compensation schemes for Japan and South Korea that pay producers for declines in price relative to a reference price are also included. The EU model includes intervention prices (which entail government purchases and export subsidies), tariffs, compensatory payments, acreage set-asides, and base area bounds (which limit the area (acreage) of grains and oilseeds that qualifies for payments), and production quotas for raw milk and sugar.[2] Milk production quotas for Canada and the EU are included.

[2]The model does not include limits on countries' exports due to WTO export subsidy commitments.

Model parameters come from various sources, including the European Simulation Model (ESIM), ERS baseline model projections, the Food and Agricultural Policy Simulator (FAPSIM), the Organisation for Economic Co-operation (OECD) AGLINK model, and the SWOPSIM (Static World Policy Simulation) model. Adjustments and restrictions were imposed on elasticities to satisfy requirements of economic theory, such as symmetry and homogeneity. The model can be used for comparative static or dynamic analyses.

PEATSim is used here as a comparative static model incorporating an adjustment path to capture dynamic adjustments, except for capital—a quasi-fixed input that has no longrun equilibrium adjustment—and to provide medium-term results. The analysis captures the marginal effects of policy reforms across all countries. No productivity growth is taken into account. The analysis does not account for shifts in supply functions over time, reflecting cost-reducing technology adoption, nor the growth in demand driven by population and income. This point is crucial in interpreting the model results. For example, productivity growth, if incorporated into the analysis, could have shown that a country with a capital-intensive and technologically advanced dairy sector that is able to compete in a nonsupported and nonprotected environment (such as the United States) may do well under trade liberalization.

The base year for the PEATSim dairy data is 2001, adjusted for the 2002 farm bill and China's WTO accession in the base model solution. Base data for crops (area, yield, production, consumption, stocks, and trade) are from the 2000 crop year and are drawn from USDA and country sources, including the USDA production, supply, and demand (PS&D) database.[3] Tariffs and TRQs are from the Agricultural Market Access Database (AMAD)[4] and Gibson et al. (2001).

[3]Found at *www.fas.usda.gov/psd*

[4]Found at *www.amad.org*

The model is a reduced-form model with production, consumption, and other behavioral variables represented by constant elasticity functions. All countries in the model are represented with similar structure, with different parameters and values of variables in behavioral equations. For a net importing country, dairy imports (and other commodity imports) are a residual to equilibrate exports and imports. For a net exporting country, dairy exports (and other commodity exports) are a residual. For detailed information on the model structure, equations, sources, and methods, see Stout and Abler (2004).

The University of Wisconsin World Dairy Model (2002)

The University of Wisconsin World Dairy Model (UWWDM) used for this analysis is an updated annualized version of a model developed to assess impacts of changes in international dairy trade relationships. The updated model contains updated supply and demand elasticities, explicit modeling of the EU CAP reforms starting in 2005, incorporation of Australia/New Zealand free trade, explicit US-Australia Free Trade Agreement information, and the United States MILC program, a target price deficiency payment introduced in 2002.

The model is a classic math-programming, spatial equilibrium model with additional structure to address a spatial equilibrium in hedonic (characteristic) space. This hedonic spatial equilibrium model incorporates 24 regions, 9 dairy products, and 4 milk components (fat, casein, whey protein, and lactose) using United Nations Food and Agriculture Organization (FAO) and OECD databases. All regions and markets are linked via transportation costs and trade policy distortions (export subsidies and/or import TRQs). Within- and over-quota tariffs, import quotas, and export subsidies are modeled using 2000

GATT/WTO commitments for all developed economies. Developing economies continue to open access to their dairy markets until 2005, as specified by the 1995 GATT/WTO agreement. The model provides a framework to analyze hypotheses concerning the effects of liberalizing dairy trade through modifying both trade and domestic dairy policies and programs.

The 24 regions in the model are re-aggregated to 5 major regions in the summary tables to provide better intuition as to the gainers and losers from additional world dairy sector liberalization:

- Developed economy, heavily protected dairy: EU-15, Japan, Other Western Europe;
- Developed economy, less heavily protected dairy: U.S. and Canada;
- Developed economy, competitive exporters: Oceania (Australia and New Zealand);
- Less developed economies, potentially competitive exporters: India, Other Eastern Europe, South America-South (Argentina, Uruguay and Chile), China and Mongolia, Poland, and South Africa Republic;
- Less developed economies, net importers: Former Soviet Union, South America-North (Brazil and Other South America), Other South Asia, Middle East, Rest of world, Mexico, North Africa, Central America & Caribbean, South/North Korea, South East Asia.

The UWWDM for this analysis uses the year 2002 as the base or reference point. The model is solved recursively (1 year at a time, with the previous year solution as the starting point for the following year, with regional GDP and population (World Bank data) driven commodity demands and 5-year moving average supply growth rates (from FAO data) from 2002 to 2007). The following policy simulations were assessed relative to the 2002 base model:

- Full dairy sector (full) liberalization: All trade and domestic support policies are removed starting in 2002 and simulated through 2007. The full liberalization combines two other scenarios: the free dairy trade (FDT) scenario and the no domestic support (NDS) scenario. The 2007 simulation results, summarized as changes from the base scenario for 2007 in appendix tables 6-8, provide quantitative estimates of the 2007 impacts of full dairy sector liberalization.
- Free dairy trade: The second scenario (FDT) considers the elimination of all trade distortions starting in 2000 through 2007. All export subsidies and import TRQs (quotas, within- and over-quota tariffs) are eliminated. Domestic support policies are maintained as in the base scenario. This should increase world trade, increase world market prices, and put considerable strain on several domestic support policies (intervention price program costs, in particular) in the protected dairy sectors.
- No domestic support: The third scenario (NDS) eliminates all domestic support starting in 2002 through 2007. These measures include intervention/support prices for the EU (SMP), Canada (butter and SMP), and the United States (butter, SMP, cheese) as well as other countries; elimination of classified pricing in the United States and Canada (modeled as a

price wedge/premium for residual (fluid, soft and frozen) products over manufactured products); and, production/marketing quotas in the EU and Canada. Modeling the classified pricing as defined can overstate its effect. A sensitivity analysis on changes in only the U.S. price wedge indicates that smaller effects do indeed appear when the wedge is reduced. Thus, the effects as originally modeled represent maximum impacts. Still, they are modest for the United States.

The 2007 simulation results for the FDT and NDS scenarios as described in this report, summarized as changes from the base scenario for 2007, are presented in Peng and Cox (2006). Several of the key results are noted here. As the base year (2002) saw large U.S. costs via its intervention/price support program (about $U.S. ~500M in SMP purchases) and target price/deficiency payment (MILC) program (about $U.S. 1.2B), domestic deregulation could have strong impacts on U.S. milk prices. Similarly, given the large levels of milk production quota rents in the EU and Canada (35 percent and 40 percent of the domestic milk prices, respectively), elimination of these policies sharply increases these countries' competitiveness (no milk production quota constraints at sharply reduced milk production costs) and, hence, sharply increases their milk production even while milk prices and revenues drop. Note, this will lower prices in the protected dairy economies, hence lower world dairy prices, but not necessarily provide additional access to competitive exports—unless over-quota tariffs become less prohibitive at these lower protected market prices. Additionally, increased milk production from the EU and Canada, potentially beyond their domestic consumption, will likely displace base level imports by these protected dairy sectors, and reduce potential export market growth opportunities for competitive exporters.

Appendix table 1

Major new product launches in global dairy markets, 2003-04

Country/product market	Brand name	Company	Product description
North America			
U.S. / milk	Land O'Lakes Dairy Ease 100% Lactose Free Milk	Dean Foods (under license)	New national brand of lactose-free milk
U.S. / cheese	Kraft Singles Pasteurized Process Cheese – Manchego	Kraft Foods	Processed Hispanic cheese; individually wrapped slices
U.S. / cheese	Stella Freshly Shredded Cheese – 3 Cheese European Blend, Natural Swiss	Saputo Cheese	Shredded cheese in resealable plastic cups
U.S. / cheese	Kraft Shredded Whole Milk Cheese – Queso Quesadilla	Kraft Foods	New cheese variety
U.S. / yogurt	Dannon Frusion Smoothies Fruit 'n Yogurt Drink	Danone	Name change for Dannon Frusion, package redesign with new graphics
U.S. / yogurt	Dannon Light n' Fit Carb Control Yogurt	Danone	Reduced carbohydrate sub-brand
Canada / milk	Dairy Oh!	George Weston Ltd	Fortified milk
Mexico / yogurt	Uva (grapefruit)	Lala	Regular drinking yogurt
Mexico / yogurt	Activia	Danone	Probiotic yogurt
Europe			
France / cheese	Mini Babybel au Chèvre	Fromageries Bel	Unspreadable processed cheese; new goat cheese variant
France / fermented drinks	Actimel allégé en sucre	Danone	Low-fat variant with reduced sugar content
France / yogurt	Velouté Fruix	Danone	Fruited yogurt. New range with puréed fruit; six flavors
Germany / flavored drinks	Müllermilch Lin Chi	Molkerei Alois Müller	Limited edition flavored milk drinks (exotic and fruity)
Germany / yogurt	Alete Milch- und Fruchtminis	Nestlé Deutschland AG	Yogurt for babies
Germany / yogurt	Onken Wellness Joghurt	Onken GmbH	Four new 1.5%-fat yogurt varieties, including aloe vera
Germany / fermented drinks	Actimel Multifrucht	Danone	Multifruit flavored fermented dairy drinks
Italy / fermented drinks	Crema Actidrink	Müller	Sold in 100 ml bottles
Italy / yogurt	Danone Frutta Frullata	Danone	Fruit frappe yogurt
Netherlands / yogurt	Vifit Calcimel	Campina Melkunie	Flavored yogurt with calcium
Sweden / yogurt	Cultura	Arla Foods	Probiotic yogurt
U.K. / yogurt	Munch Bunch Drinky	Nestlé	Fortified drinking yogurt for children, aimed at the lunchbox market
U.K. / yogurt	Petit Filous	Yoplait	Child-oriented fromage frais product, with added calcium
South America			
Argentina / yogurt	Yogurisimo Stick	Danone Argentina SA	Yogurt on a stick
Argentina / cheese	Adler	Cabaña y Estancia Santa Rosa SA	Spreadable processed cheese, in small pack sizes
Brazil / fluid milk	Corpus Light	Danone	Fat-free long-life/UHT milk
Chile / flavored drinks	Bliss Fresh	Nestlé Chile SA	Flavored milk drink with fruit juice
Chile / flavored drinks	Leche Cultivada Descremada	Parmalat Chile SA	Nonfat sour milk drink
Colombia / fluid milk	Avena con Canela La Alquería ultrapasteurizada	Productos Naturales de Cajicá SA	Long-life/UHT RTD flavored milk drink with extra cinnamon

Continued—

Appendix table 1

Major new product launches in global dairy markets, 2003-04—Continued

Country/product market	Brand name	Company	Product description
East Asia			
China / flavored drinks	Bright Wheat	Shanghai Bright Diary Co Ltd	With added wheat and chocolate
China / milk	Bight Shu Shui Nai (Sleeping Milk)	Inner Mongolia Mengniu Group	Brand extension in fresh milk, claims to aid sleep
Hong Kong / flavored milk	High-Calcium DHA chocolate milk	Kowloon Dairy	Flavored milk (focused on children under 10 years old)
India / flavored drinks	Amul Chocolate Milk	Gujarat Co-op Milk Marketing Federation Ltd	Flavored milk launched in the South, aiming at regional market
India / yogurt	Amul Lassi	Gujarat Co-op Milk Marketing Federation Ltd	Drinking yogurt launched in West India, targeting a regional market
Indonesia / fluid milk	Mimi UHT milk	Ultrajaya Milk Industry	UHT milk targeting children, available in small sizes
Japan / yogurt	Genso Mango	Chichiyasu	Mango-flavored yogurt
Japan / yogurt	Meiji Probiotics Yogurt LG21	Meiji Dairies Corp	Plain probiotic with reduced sugar
Taiwan / drinks milk	Kuang Chuan I Love Milk Beer Yeast High Calcium	Kuang Chuan Dairy Co Ltd	Flavored milk containing beer yeast, vitamin B complex, DNA and RNA

Source: Prepared by USDA, Economic Research Service using data from Euromonitor International 2005.

Appendix table 2

Changes in world market prices of dairy products

	Dairy reform only	All sectors liberalized
	Percent change from base	
Butter	66.4	68.2
Cheese	50.2	54.3
Nonfat Dry Milk (NFDM)	13.2	14.2
Whole Dry Milk (WDM)	24.0	26.4

Source: USDA, Economic Research Service, simulated from PEATSim model.

Appendix table 3

Changes in milk price and production with trade liberalization

	Dairy reform only		All sectors liberalized	
	Milk price	Milk production	Milk price	Milk production
		Percent		
United States	-11.4	-5.7	-8.8	-7.3
EU	-9.4	-3.2	-6.6	-4.3
Japan	-7.4	-1.8	-7.4	-3.1
Canada	-11.5	-2.9	-8.5	-3.4
Mexico	14.2	3.5	20.7	3.9
Brazil	4.2	1.1	8.6	0.7
Argentina	27.1	6.3	31.1	5.5
China	7.3	1.8	10.2	1.9
Australia	34.1	7.7	37.3	7.3
New Zealand	33.2	7.5	35.9	7.4
South Korea	-47.6	-14.8	-46.1	-14.9
Rest of world	9.2	2.3	8.4	2.8

Source: USDA, Economic Research Service, simulated from PEATSim model.

Appendix table 4

Changes in dairy product export shares with dairy policy reform[1]

	Butter		Nonfat dry milk		Cheese		Other dairy products	
Country	Base	Scenario	Base	Scenario	Base	Scenario	Base	Scenario
				Percent				
United States	0.8	0.8	11.8	12.2	2.8	2.2		
EU	16.6	2.1	23.3	17.5	54.1	54.2	28.3	48.5
Japan							2.8	9.8
Canada	1.7	2.0	3.4	3.4	1.9	1.7		
Mexico								
Brazil								
Argentina	1.3	2.3	2.4	2.8	2.3	3.9	27.3	16.3
China								
Australia	22.9	27.5	24.7	27.3	17.0	17.6	41.6	25.2
New Zealand	53.1	61.0	19.9	21.5	18.8	18.9		
South Korea								
Rest of world	3.6	4.3	14.6	15.2	3.1	1.4	0	0.1

[1] Changes in export shares of whole dry milk are insignificant.
Note: Blank cell indicates no significant share of commodity market.

Source: USDA, Economic Research Service, simulated from PEATSim model.

Appendix table 5

Changes in dairy product export shares with all commodity liberalization[1]

	Butter		Nonfat dry milk		Cheese		Other dairy products	
Country	Base	Scenario	Base	Scenario	Base	Scenario	Base	Scenario
				Percent				
United States	0.8	0.9	11.9	12.4	2.8	2.2		
EU	16.2	0.7	23.5	18.0	54.5	54.9	27.9	47.1
Japan							3.6	12.0
Canada	1.7	2.1	3.4	3.4	1.9	1.7		
Mexico								
Brazil								
Argentina	1.2	2.0	2.2	2.4	2.1	3.4	27.0	15.6
China								
Australia	23.0	27.7	24.6	27.1	16.9	17.5	41.4	24.8
New Zealand	53.5	62.3	19.7	21.1	18.8	18.9		
South Korea								
Rest of world	3.6	4.4	14.7	15.5	3.1	1.4	0.1	0.5

1/ Changes in export shares of whole dry milk are insignificant.
Note: Blank cell indicates no significant share of commodity market.

Source: USDA, Economic Research Service, simulated from PEATSim model.

Appendix table 6

Effects on milk price and production from multilateral liberalization, 2007

Country	Milk price change	Milk production change
	Percent	
EU	-54.7	11.6
Japan	-57.2	-21.5
United States	-4.1	-1.8
Canada	-51.7	8.8
New Zealand	24.5	8.1
Australia	-3.5	-1.3
South America-South (Argentina)	9.5	3.1

Source: USDA, Economic Research Service, from University of Wisconsin World Dairy Model.

Appendix table 7

Effects on dairy trade of multilateral liberalization, 2007

Country/region	Exports	Imports
	Percent change	
EU	24.8	-100.0
Japan	--	95.2
Australia	-6.9	--
New Zealand	30.3	--
Canada	-17.5	-35.2
United States	-5.9	62.9
Mexico	--	16.0
South America-North (Brazil)	--	134.9
South America-South (Argentina)	66.7	--
World	18.6	18.6

-- = not available due to insufficient trade.

Source: USDA, Economic Research Service, from University of Wisconsin World Dairy Model.

Appendix table 8

Welfare effects of multilateral liberalization, 2007

Country/region	Total welfare change
	Percent change from base
EU	-2.3
Japan	0.3
Australia	2.2
New Zealand	3.5
Canada	0.7
United States	0.8
Mexico	2.3
South America-North (Brazil)	-0.9
South America-South (Argentina)	1.0

Source: USDA, Economic Research Service, from University of Wisconsin World Dairy Model.

Appendix table 9

Milk production in selected countries and regions, 2004[1]

Country/Region	Cows milk production	Cows
	1,000 metric tons	*1,000 head*
North America		
Canada	7,885	1,057
Mexico	9,874	6,800
United States	77,477	9,010
Subtotal	95,236	16,867
South America		
Argentina	9,250	2,000
Brazil	23,317	15,200
Chile		
Colombia		
Peru		0
Venezuela		
Subtotal	32,567	17,200
European Union (EU)		
EU-25	130,812	23,963
Eastern Europe		
Romania	5,723	1,694
Former Soviet Union		
Russia	32,000	11,200
Ukraine	13,787	4,313
Subtotal	45,787	15,513
North Africa		
Egypt		
Algeria		
Subtotal		
South Asia		
India	37,500	37,000
Asia		
China	22,606	5,466
Indonesia		
Japan	8,329	936
Korea		
Malaysia		
Philippines		
Taiwan		
Thailand		
Subtotal	30,935	6,402
Oceania		
Australia	10,377	2,036
New Zealand	15,000	3,920
Subtotal	25,377	5,956
Total selected countries	**403,937**	**124,595**

[1]Source: Prepared by USDA, Economic Research Service using final estimates by USDA, Foreign Agriculture Service, December 2005.

Appendix table 10

Whole dry milk production, consumption and trade data, 2004[1]

Country/Region	Production	Consumption	Imports	Exports	Ending stocks
			1,000 metric tons		
North America					
Canada	0	0	0	0	0
Mexico	0	35	35	0	0
United States	19	22	3	0	1
Subtotal	19	57	38	0	1
South America					
Argentina	260	86	1	177	25
Brazil	420	435	21	16	11
Chile	51	52	4	8	4
Colombia	0	0	0	0	0
Peru	0	0	0	0	0
Venezuela	0	0	0	0	0
Subtotal	731	573	26	201	40
European Union (EU)					
EU-25	857	346	3	514	0
Eastern Europe					
Romania					
Former Soviet Union					
Russia	90	109	25	6	0
Ukraine	28	10	0	18	0
Subtotal	118	119	25	24	0
North Africa					
Egypt					
Algeria	0	140	161	0	30
Subtotal	0	140	161	0	30
South Asia					
India	0	0	0	0	0
Asia					
China	832	898	91	25	0
Indonesia	45	65	21	1	6
Japan	0	0	0	0	0
Korea	0	0	0	0	0
Malaysia	0	0	0	0	0
Philippines	0	17	45	28	0
Taiwan	6	36	30	0	0
Thailand	0	0	0	0	0
Subtotal	883	1,016	187	54	6
Oceania					
Australia	187	23	12	173	28
New Zealand	658	1	2	669	53
Subtotal	845	24	14	842	81
Total selected countries	**3,453**	**2,275**	**454**	**1,635**	**158**

[1]Source: Prepared by USDA, Economic Research Service using final estimates by USDA, Foreign Agriculture Service, December 2005.

Appendix table 11

Nonfat dry milk production, consumption and trade data, 2004[1]

Country/Region	Production	Consumption	Imports	Exports	Ending stocks
			1,000 metric tons		
North America					
Canada	88	56	2	16	41
Mexico	170	338	168	0	25
United States	638	621	1	231	232
Subtotal	896	1,015	171	247	298
South America					
Argentina	35	19	0	18	4
Brazil	110	112	4	2	0
Chile	10	15	3	0	3
Colombia	8	8	0	0	0
Peru		8	8	0	1
Venezuela					
Subtotal	163	162	15	20	8
European Union (EU)					
EU-25	1,066	950	25	282	77
Eastern Europe					
Romania					
Former Soviet Union					
Russia	125	170	65	20	0
Ukraine	78	15	0	63	2
Subtotal	203	185	65	83	2
North Africa					
Egypt	24	24	0	0	
Algeria	0	90	90	0	10
Subtotal	0	114	114	0	10
South Asia					
India	235	231	15	10	14
Asia					
China	68	127	61	2	0
Indonesia	0	115	125	12	10
Japan	183	222	37	0	83
Korea	25	31	4	0	7
Malaysia	0	0	0	0	0
Philippines	0	104	120	16	2
Taiwan	0	17	17	0	0
Thailand	0	0	0	0	0
Subtotal	276	616	364	30	102
Oceania					
Australia	203	20	2	187	5
New Zealand	294	5	1	305	55
Subtotal	497	25	3	492	60
Total selected countries	**3,336**	**3,298**	**772**	**1,164**	**571**

[1] Source: Prepared by USDA, Economic Research Service using final estimates by USDA, Foreign Agriculture Service, December 2005.

Appendix table 12

Cheese production, consumption and trade data, 2004[1]

Country/Region	Production	Consumption	Imports	Exports	Ending stocks
			1,000 metric tons		
North America					
Canada	305	319	24	10	59
Mexico	134	214	82	2	0
United States	4,026	4,189	209	61	322
Subtotal	4,465	4,722	315	73	381
South America					
Argentina	370	338	0	31	23
Brazil	470	468	4	6	0
Chile					
Colombia					
Peru					
Venezuela					
Subtotal	840	806	4	37	23
European Union (EU)					
EU-25	6,430	6,021	106	515	0
Eastern Europe					
Romania	26	25	3	4	5
Former Soviet Union					
Russia	350	528	190	10	12
Ukraine	224	133	3	94	2
Subtotal	574	661	193	104	14
North Africa					
Egypt	455	459	9	5	0
Algeria					
Subtotal	455	459	9	5	0
South Asia					
India					
Asia					
China					
Indonesia					
Japan	35	254	219	0	15
Korea	24	65	41	0	2
Malaysia					
Philippines					
Taiwan					
Thailand					
Subtotal	59	319	260	0	17
Oceania					
Australia	389	230	49	212	51
New Zealand	308	28	2	289	29
Subtotal	697	258	51	501	80
Total selected countries	**13,546**	**13,271**	**941**	**1,239**	**520**

[1] Source: Prepared by USDA, Economic Research Service using final estimates by USDA, Foreign Agriculture Service, December 2005.

Appendix table 13

Butter production, consumption and trade data, 2004[1]

Country/Region	Production	Consumption	Imports	Exports	Ending stocks
			1,000 metric tons		
North America					
Canada	86	96	28	17	14
Mexico	88	141	53	0	0
United States	567	615	23	0	20
Subtotal	741	852	104	17	34
South America					
Argentina					
Brazil	75	75	1	1	0
Chile					
Colombia					
Peru					
Venezuela					
Subtotal	75	75	1	1	0
European Union (EU)					
EU-25	2,154	1,936	90	352	232
Eastern Europe					
Romania	9	12	3	0	0
Former Soviet Union					
Russia	270	437	170	5	15
Ukraine	138	103	0	42	5
Subtotal	408	540	170	47	20
North Africa					
Egypt	12	40	28	0	0
Algeria		15	15	0	1
Subtotal	12	55	43	0	1
South Asia					
India	2,600	2,608	10	2	0
Asia					
China					
Indonesia					
Japan	80	88	7	0	23
Korea					
Malaysia					
Philippines					
Taiwan		11	11	0	0
Thailand					
Subtotal	80	99	18	0	23
Oceania					
Australia	132	60	9	75	8
New Zealand	390	26		374	21
Subtotal	522	86	9	449	29
Total selected countries	**6,601**	**6,263**	**448**	**868**	**339**

[1] Source: Prepared by USDA, Economic Research Service using final estimates by USDA, Foreign Agriculture Service, December 2005.