Industry & Trade Summary

Sugar

USITC Publication 3405
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U.S. International Trade Commission
Washington, DC 20436

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PREFACE

In 1991 the United States International Trade Commission initiated its current *Industry and Trade Summary* series of informational reports on the thousands of products imported into, and exported from, the United States. Each summary addresses a different commodity/industry and contains information on product uses, U.S. and foreign producers, and customs treatment. Also included is an analysis of the basic factors affecting trends in consumption, production, and trade of the commodity, as well as those bearing on the competitiveness of U.S. industries in domestic and foreign markets.[1]

This report on sugar covers the period 1995 through 1999. Listed below are the individual summary reports published to date on the agricultural and forest products sector.

USITC publication number	***Publication date***	***Title***
2459	November 1991	Live Sheep and Meat of Sheep
2462	November 1991	Cigarettes
2477	January 1992	Dairy Produce
2478	January 1992	Oilseeds
2511	March 1992	Live Swine and Fresh, Chilled, or Frozen Pork
2520	June 1992	Poultry
2544	August 1992	Fresh or Frozen Fish
2545	November 1992	Natural Sweeteners
2551	November 1992	Newsprint
2612	March 1993	Wood Pulp and Waste Paper
2615	March 1993	Citrus Fruit
2625	April 1993	Live Cattle and Fresh, Chilled, or Frozen Beef and Veal
2631	May 1993	Animal and Vegetable Fats and Oils
2635	June 1993	Cocoa, Chocolate, and Confectionery
2636	May 1993	Olives
2639	June 1993	Wine and Certain Fermented Beverages
2693	October 1993	Printing and Writing Paper
2702	November 1993	Fur Goods
2726	January 1994	Furskins
2737	March 1994	Cut Flowers
2749	March 1994	Paper Boxes and Bags
2762	April 1994	Coffee and Tea

[1] The information and analysis provided in this report are for the purpose of this report only. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under statutory authority covering the same or similar subject matter.

PREFACE—*Continued*

USITC publication number	*Publication date*	*Title*
2859	May 1995	Seeds
2865	April 1995	Malt Beverages
2875	May 1995	Certain Fresh Deciduous Fruits
2898	June 1995	Certain Miscellaneous Vegetable Substances and Products
2917	October 1995	Lumber, Flooring, and Siding
2918	August 1995	Printed Matter
2928	November 1995	Processed Vegetables
3015	February 1997	Hides, Skins, and Leather
3020	March 1997	Nonalcoholic Beverages
3022	April 1997	Industrial Papers and Paperboards
3080	January 1998	Dairy Products
3083	February 1998	Canned Fish, Except Shellfish
3095	March 1998	Milled Grains, Malts, and Starches
3096	April 1998	Millwork
3145	December 1998	Wool and Related Animal Hair
3148	December 1998	Poultry
3171	March 1999	Dried Fruits Other Than Tropical
3268	December 1999	Eggs
3275	January 2000	Animal Feeds
3350	September 2000	Grain (Cereals)
3352	September 2000	Edible Nuts
3355	September 2000	Newsprint
3373	November 2000	Distilled Spirits
3391	January 2001	Cotton

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ABBREVIATIONS and ACRONYMS

ACP	African, Caribbean, Pacific
ATPA	Andean Trade Preference Act
CA	Current Access
CBERA	Caribbean Basin Economic Recovery Act
CCC	Commodity Credit Corporation
ERS	Economic Research Service
EU	European Union
FAA	Food and Agriculture Act of 1981
FAIR	Federal Agricultural Improvement and Reform Act of 1996
FAS	Foreign Agricultural Service
FCFS	First-come, First-served
FSA	Farm Service Agency
GATT	General Agreement on Tariffs and Trade
GSP	Generalized System of Preferences
HFCS	High Fructose Corn Syrup
HTS	Harmonized Tariff Schedule of the United States
IP	Intervention Price
IPR	Import Penetration Ratio
ISO	International Sugar Organization
ITC	United States International Trade Commission
LR	Loan Rate
mmt	million metric tons
mst	million short tons
MAC	Minimum Access Commitment
MFN	Most-Favored Nation
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
NASS	National Agricultural Statistics Service
NTR	Normal Trade Relations
NYBOT	New York Board of Trade
PAP	Polyhydric Alcohol Program
PSE	Producer Subsidy Equivalent
RSREP	Refined Sugar Re-export Program
SCP	Sugar-containing Product
SCPREP	Sugar-containing Product Re-export Program
SIC	Standard Industrial Classification
SMP	Statutory Minimum Price
SPSA	Sugar Price Stabilization Agency
SSG	Special Safeguard
TRQ	Tariff-Rate Quota
UK	United Kingdom
URAA	Uruguay Round Agreement on Agriculture
USCIT	United States Court of International Trade
USDA	United States Department of Agriculture
USTR	United States Trade Representative
WTO	World Trade Organization

ABSTRACT

This report addresses market, industry, and trade conditions for sugar for the period 1995-99.

- The U.S. sugar industry produces a multitude of sugar products, derived from sugarcane and sugar beets, for both the industrial and retail markets, of which some are white fine sugar, granulated brown sugar, powdered white sugar, powdered brown sugar, liquid sugar, extra fine and super fine sugar, and special coarse sugar. The industry also produces byproducts from cane and beet production such as bagasse, molasses, ethyl alcohol, rum, animal feed, paper board, and particle board. The industry discussed here is limited to the growers of sugarcane and sugar beets, sugarcane millers and raw cane sugar refiners, and sugar beet processors that are involved in the production of raw cane and refined cane and beet sugar.

- U.S. production of sugar totaled 7.6 million metric tons (mmt) in 1999, representing an almost 6-percent increase since 1995. This increase was made possible by significant increases in acres planted and increases in yields. High domestic production levels, coupled with imports of foreign sugar fueled price declines for and forfeitures of raw and refined sugar in the U.S. market. Of the total amount of refined sugar produced in 1999, 53 percent was derived from sugar beets and the remainder from sugarcane.

- The United States is the fifth-largest producer of sugar in the world, following Brazil, the European Union, India, and China. During the most recent 5-year period, world production levels have increased by 12 percent, reaching nearly 130 mmt in 1999. The top five producers captured a combined world production share of 54 percent in 1999. World stocks of sugar rose by 36 percent during 1995-99, reaching almost 31 mmt in 1999. Increases in world production and stocks contributed to falling world prices. From 1995 to 1999 world exports increased by 20 percent, from 30 mmt to 36 mmt. As a share of production volume, world exports rose from 26 percent in 1995 to 28 percent in 1999. The world price of raw sugar fell by 51 percent from 1995 to 1999 and the world price of refined sugar fell by 49 percent in the same period.

- The United States is a net importer of sugar, and in 1999 was the world's fourth-largest importer of the commodity. Imports of sugar in 1999 were valued at $640 million. The United States scheduled tariff-rate quotas (TRQs) with the World Trade Organization (WTO) for raw and refined sugar for approximately 1.14 million metric tons during the Uruguay Round Agreement on Agriculture (URAA). In 1999, the United States imported 1.138 million metric tons of in-quota imports. In general, over-quota imports are nonexistent, as they face a prohibitive tariff equivalent to nearly 242 percent *ad valorem*. Exports of U.S. sugar are minimal, and occur only as a result of the sugar re-export program.

ABSTRACT—*Continued*

- Price margins between wholesale and retail markets have increased since 1995. In 1999, retail prices for refined sugar were 62 percent and 104 percent higher than the wholesale price of refined sugar and raw cane sugar, respectively. Consumer prices for retail products containing sugar have increased since 1995, while producer prices have fallen from 1995 levels.

- The greatest problem facing the U.S. sugar industry is declining prices caused in part by increased domestic production, coupled with imports of foreign sugar under the raw and refined sugar TRQs. It is generally acknowledged that U.S. domestic and trade policies for sugar have conflicting objectives, resulting in an excess supply of sugar in the U.S. market. The domestic policy maintains a guaranteed price for producers under the loan rate program, thus encouraging a certain level of production, while the trade policy maintains a required level of imports. Production plus imports in 1999 exceeded domestic consumption requirements by nearly 200,000 metric tons.

- The quantity of access for foreign sugar is in a state of uncertainty for two reasons. The U.S. sugar industry is awaiting a resolution to the issue of access for Mexico under NAFTA. The Mexican Government contested the validity of the "side letter" and claims it should be able to export all of its surplus production. Also, the U.S. industry awaits a resolution to the "stuffed molasses" issue for which an estimated 113,000 metric tons of additional refined sugar enters the United States annually.

- Practically all of the major sugar-producing nations afford high levels of protection from imports or provide some sort of government assistance.

INTRODUCTION

This report provides a summary of the U.S. sugar market, covering the basic factors affecting trends in consumption, production, and trade, as well as those bearing on the competitiveness of U.S. industry in domestic and foreign markets. Sugar and its products are provided for in several chapters of the Harmonized Tariff Schedule of the United States (HTS): chapter 4 (refined sugar-containing dairy products); chapter 17 (raw sugar, refined sugar, and sugar syrups); and chapters 18, 19, and 21 (refined sugar-containing products (SCPs)).

The scope of this summary is limited to raw sugar, refined sugar, and sugar syrups–found only in chapter 17, so the scope excludes SCPs (see table A-1). Chemically, "sugar"is a naturally occurring organic crystalline substance known as sucrose. Sucrose, a disaccharide, is a combination of two simple sugars–fructose and glucose. Internationally, when the term "sugar" is used, it is understood to mean sucrose that is produced from either sugarcane or sugar beets. Raw sugar is sugar normally produced from sugarcane that requires further refining or quality improvement.[1] Refined sugar is sugar processed from sugarcane or sugar beets. Sugar syrup (liquid refined sugar) is a solution of sugar (sucrose) in water, and is usually sold in bulk quantities.

Sugar is a large component of the American diet. In fact, the United States is the third-largest consumer of sugar in the world, behind the EU and Brazil. In the United States, consumption of sugar has been on the rise for the last 5 years, increasing by 7.5 percent since 1995, from almost 8 mmt to nearly 8.6 mmt (table 1). In 1999, per capita consumption of refined sugar reached 68.5 pounds, an increase of approximately 4 percent in 5 years (table 2). The increase in consumption is a rather new phenomenon in comparison to the massive declines in consumption of sugar experienced by the U.S. sugar industry during the 1980s and early 1990s as a result of the introduction of High Fructose Corn Syrup (HFCS) as a substitute sweetener. HFCS, a lower priced sweetener substitute, permanently captured a large part of the U.S. sweetener market share from sugar, and since its introduction, the U.S. sweetener market has become highly competitive. Sugar and HFCS are the most heavily consumed sweeteners in the United States today, and together comprise 85 percent of total U.S. caloric sweetener consumption–sugar 43 percent and HFCS 42 percent (figure 1).

Production levels for sugar have been growing in recent years. In 1999, production reached 7.6 mmt, reflecting an increase of nearly 6 percent since 1995. High production levels in the United States are a contributing factor to the difficult economic conditions facing the U.S. sugar industry in the most recent years (i.e., excess supply and lower domestic prices). Another likely contributing factor is the construct of the U.S. sugar policy. The domestic policy attempts to maintain a certain market price for U.S. producers under the loan rate program (and thus encourages a certain level of production) while the trade policy requires

[1] L.C. Polopolus and J. Alvarez, *Marketing Sugar and Other Sweeteners*, Elsevier, New York: 1991.

Table 1
Natural sweeteners: Total U.S. consumption, by product category, 1995-99

Calendar year	Sugar (refined basis)	HFCS	Glucose syrup	Dextrose	Honey	Maple syrup	Other edible syrups	Total caloric sweeteners
	))))))))))))))) *1,000 metric tons, dry basis*))))))))))))))))							
1995	7,998	6,947	2,265	478	103	12	32	17,835
1996	8,129	7,243	2,277	485	121	13	32	18,299
1997	8,258	7,665	2,488	466	125	14	32	19,048
1998	8,336	8,004	2,391	461	121	15	32	19,360
1999	8,598	8,268	2,334	448	133	14	32	19,828

Source: USDA, ERS, *Sugar and Sweetener Situation & Outlook*, May 2000.

Table 2
Natural sweeteners: Per capita U.S. consumption, by product category, 1995-99

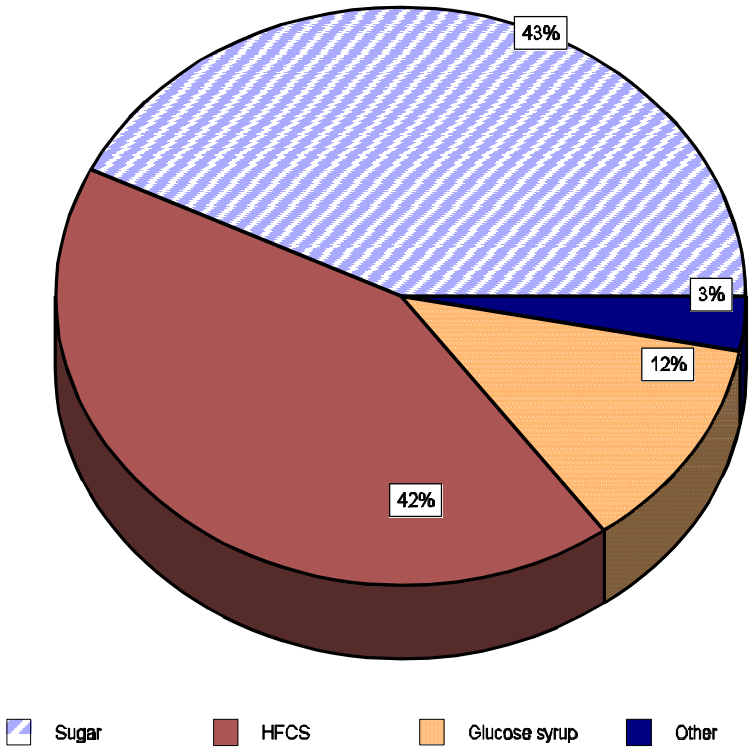
Calendar year	Refined sugar	HFCS	Glucose syrup	Dextrose	Honey	Edible syrups	Total caloric sweeteners
	))))))))))))))))))))))) *Pounds, dry basis*))))))))))))))))))))))))						
1995	66.1	57.4	18.7	3.9	0.8	0.4	147.3
1996	66.5	59.3	18.6	4.0	1.0	0.4	149.8
1997	67.0	62.2	20.2	3.8	1.0	0.4	154.6
1998	67.1	64.4	19.2	3.7	1.0	0.4	155.8
1999	68.5	65.9	18.6	3.6	1.1	0.4	158.1

Source: USDA, ERS, *Sugar and Sweetener Situation & Outlook*, May 2000.

a certain level of access to the U.S. market via imports in accordance with WTO commitments. Combined, the two policies have contributed to increased supply on the U.S. market and thus, price declines for sugar. Furthermore, the U.S. sugar market is pressured because the world has experienced an increase in production and stocks in recent years and this excess sugar supply has driven down world market prices to historical lows. A portion of this summary is devoted to providing a detailed overview of the complexities of the U.S. policy and economic conditions facing the U.S. sugar industry.

Sugarcane is a tall, immensely strong perennial grass that reaches heights from 8 to 24 feet and is grown in tropical or semitropical climates. The outer layer of sugarcane can be likened to a bamboo stalk. The inner core of the stalk is thick and pithy but moist, as it contains the cane juice. Each stalk of cane has an “eye” from which the cane is germinated. Sugarcane takes 6 to 24 months, depending upon the condition of the soil and the climate, to reach full maturity after the initial planting of the cane stalks. Each planting can produce several crops; however, each crop is less productive than the previous one. In Florida, for

Figure 1
Natural sweeteners: Product share of total U.S. consumption, 1999



Source: USDA, FSA, *Sweetener Market Data Yearbook,* fiscal year 1999.

example, producers harvest three successive crops, known as "ratoon" crops, from the same cane. In other parts of the world, more than 6 crops may be harvested from the same cane (e.g., 6 to 8 in Cuba).[2] Cane is planted in rows and fairly close together. In the United States, planting is one of the few times that manual labor is used during production. Once the sugarcane is mature and ready for harvest, the fields are generally burned. The burning takes place within 1 day of harvest to reduce the amount of dry matter and green leaves that enter the mill. Also, the burning process makes it easier to harvest the cane. Often, the cane is burned only a few short hours (or even minutes) before harvest. Some cane is harvested "green." Harvesting of cane has become 100 percent mechanized in recent years. The topper on the harvester first tops the cane and then the harvester chops the cane into pieces. These pieces are loaded into field carts. The field carts are attached to trucks or rail cars (depending upon how far the field is from the mill) and are transported immediately to the mill. One truck load (4 field carts) of cut cane weighs between 16 to 20 tons. The cane can sit 19 hours (at the most) after it is cut before it starts to lose sucrose. To extract the most sucrose possible the mill and refinery run 24 hours a day, 7 days a week during harvest.

When the cane arrives at the mill, it is leveled and knifed to break apart the stalk. Then the cane is sent through a series of four-roll mills, the *tandem*, where the juice is extracted. In the

[2] Association Andrew Van Hook, *Sugar*, Groiler Incorporated, 2000.

final four-roll mill, water is added to assist with the extraction of the juice. The raw juice is then ready to begin the purification process. The raw cane juice is treated with lime and heated to the boiling point; the liming neutralizes acidity and prevents the inversion of sucrose. The combined effect of heat and lime is the formation of a heavy precipitate of complex composition know as *filter mud*. The separation of the filter mud from the pure cane juice is accomplished by placing the substance in a clarifier where continuous decantation occurs. The clear juice is extracted from the clarifier and the thick, de-sweetened mud gathered from the mud filter is disposed.[3] The clarified juice contains about 85 percent water. Most of this water is removed and condensed in steam-heated multiple effect evaporators operating under a vacuum. The product that results from the evaporation stage is a high-density fluid either *syrup* or *molasses*. The crystallization of sucrose (sugar) out of syrup and molasses is carried out in large vessels under vacuum called *vacuum pans.* The mixture of sugar crystals and syrup or molasses is called *massecuite*. The massecuite is boiled (called sugar boiling) and then placed into crystallizer tanks where it is cured by slow cooling and stirring for a period of 36 hours. The crystallization process increases the recovery of sucrose from the molasses. The massecuite is then placed in a centrifuge where the sugar crystals are separated from the molasses by centrifugal force. There is a fine screen at the bottom of the centrifuges where the molasses is forced through, leaving the raw sugar as the finished product. The remaining molasses is extracted through another crystallization process and then through yet another centrifuge. Both operations are done several times to extract the largest possible quantity of sugar from the massecuite. Finally, the raw sugar that remains is either sent directly to a warehouse for storage or shipped to a refinery.[4]

The refining process begins when raw sugar is added to water and the mixture is melted to produce liquified sugar. Chemicals, air, and additional heat are added to the liquified sugar and it is placed in a clarifier. The remaining liquid is called clarified liquor. The scum is removed from the clarified liquor, and the liquor is further heated. It passes through granular carbon filters that remove constituents imparting the amber coloring. The final filtrate is concentrated in a pan and heated. The liquified sugar moves through triple effect evaporators that remove the water, creating a mixture called *pan liquor* that is 76 percent solid. Pan liquor is then heated and the sugar crystallizes in the pan. The massecuite from the pan is placed is a centrifuge, while the run-off syrup is collected for further processing. The wet sugar that is taken out of the centrifuge is placed in large dryers to dry the sugar. The sugar is transferred to conditioning silos where it is further dried in conditioned, dehumidified air for 24 hours. The sugar is stored in bins according to crystal size. Finally, the sugar is transferred by conveyors to bulk shipping or packaging areas.[5]

Sugar beets are biennials that are harvested yearly for their roots. The roots are white in color and narrow in shape and contain approximately 16-18 percent sucrose. Unlike red beets, when harvested, sugar beets are not fit for human consumption. In the United States, sugar beets are grown approximately 5 months out of the year in cooler, temperate climates, and generally in rotation with other crops such as corn and soybeans. Because sugar beets are highly perishable, they are processed soon after harvest so as to maintain higher sucrose levels.

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[3] Often the filter mud is returned to the sugarcane producer for application in the field.

[4] Information on processing was obtained while the author made a tour of the Florida sugarcane industry, Feb. 2000.

[5] Information obtained while on a tour of the Florida sugarcane industry, Feb. 2000.

Processing plants operate for a campaign (a period of time) of 4 to 7 months.[6] The processing begins at the onset of harvesting (early fall) and continues 24 hours a day, 7 days a week.

At harvest, the sugar beets are dug from the ground with special harvesters. The crown and the leaves are removed by "toppers" from the beets in the field. Trucks are used to deliver the beets to piling stations near the factory for storage in beet piles. Beets are taken from the piles directly to the processing plant for processing into refined beet sugar. Unlike refined cane sugar, refined beet sugar is processed from raw beet sugar directly into refined beet sugar at the same processing plant. The first step in beet sugar manufacturing is cleaning the beet root–removing excess dirt, rocks and trash–through a process called *screening*. Then the beets are washed while tumbling in a rotating wheel and sliced into chips, "cossettes," by revolving knives. These cossettes are soaked in hot water, a process known as *diffusion*. Essentially, the plant cells are infused with water in cone-shaped metal vessels, forcing the cells to rupture. The beet pulp is *leached* from the beet juice to be used in the production of animal feed and other products, after which the beet juice goes through *purification* processes. The addition of lime and the passage of carbon dioxide through the product solidify nonsugar substances in the beet juice, while the passage of sulfur dioxide through the juice controls the acidity and improves the color. The purified juice is thickened through the *evaporation* of excess moisture. From this point, the process becomes identical to that of cane sugar refining. Crystals form in the thick juice when it is boiled in vacuum pans and seeded with pulverized sugar. The viscous fluid is placed in a centrifuge where the crystals are separated from the thick juice known as molasses. The molasses is added to the beet pulp and dried into pellet form for use as animal feed. The sugar is stored, packaged, or mixed with water and delivered as liquid sugar.

SUGAR INDUSTRY

U.S. Industry Profile

Industry Structure

The structure of the United States sugar industry is shown in figure 2. The sugar industry consists of three sectors: (1) the *production sector* where the production of sugarcane and sugar beets occurs; (2) the *processing sector* where sugarcane and sugar beets are manufactured into refined sugar; and (3) the *consumption sector* where refined sugar is consumed domestically by industrial and nonindustrial users, placed into stocks, or exported under the sugar re-export program.

The *production sector* is composed of the producers of sugarcane and sugar beets. The North American Industry Classification System (NAICS) categories applicable to the production of

[6] American Sugarbeet Association, website http://hometown.aol.com/asga/sugar.htm, Mar. 2000.

sugarcane and sugar beets are 111930 and 111991, respectively.[7] The production of sugarcane and sugar beets used in domestically manufactured refined sugar occurs primarily on U.S. soil, even though there are no quantitative import restrictions on sugarcane or sugar beets. Low levels of imports of sugarcane are recorded for the years 1995 through 1999 (table 3); however, imports of cane are inconsequential relative to domestic production (i.e., nearly zero percent of domestic production; see table 3). Imports of sugar beets follow the same course as imports of sugarcane, with imports close to zero percent of U.S. production in 1995, 1996 and 1997, and at zero in 1998 and 1999. The general tariffs for cane and beets are rather low in comparison to U.S. prices, $1.24 per ton and 39.7 cents per ton, respectively (see table 4). The tariffs most likely do not inhibit imports of beets and cane; rather, the need to process them within hours deters importation of cane and beets in mass quantities. Exports of sugarcane and sugar beets to foreign markets occur (table 3), but are negligible relative to domestic production (i.e., the ratio of exports to production is close to zero).

The *processing sector* consists of sugarcane mill owners engaged primarily in the processing of sugar cane into raw cane sugar (NAICS category 311311), sugarcane refiners engaged primarily in the refining of raw cane sugar (NAICS category 311312), and beet sugar manufacturers engaged primarily in the manufacturing of refined sugar from sugar beets (NAICS category 311313). The structure of the processing sector differs for sugarcane and sugar beets. Ultimately, refined sugar results from the processing of both crops; however, the method by which refined sugar is obtained differs for the two crops. Sugar beets are processed into refined beet sugar at the same processing plant. Unlike the production of refined beet sugar, making refined cane sugar involves an extra step in the manufacturing process. First the harvested sugarcane is transported to the mill where raw sugar is produced, and subsequently the raw sugar is transported to the refinery where it is processed into refined cane sugar. There is no difference in terms of physical character between refined cane sugar and refined beet sugar in their final form.

The *consumption sector* consists of domestic and foreign consumers of U.S. refined sugar. Domestically, nearly 60 percent of U.S. refined sugar used in the United States in 1999 was consumed by industrial users (e.g., bakeries, confectionery manufacturers, ice cream makers, etc.) and 41 percent by nonindustrial users (e.g., hotels, restaurants and grocers) (table 5). Only approximately 3 percent of U.S. production of refined sugar in 1999 was exported by means of the sugar re-export program (i.e., imported as raw sugar at the world price, plus a low tariff refined and re-exported) and less than 10 percent was placed in carry-over stocks (i.e., placed in storage for sale the preceding year).

[7] The corresponding categories under the former Standard Industrial Classification (SIC) system are 2061 for sugarcane production and 2063 for sugar beet production.

Figure 2
Sugar: U.S. industry structure

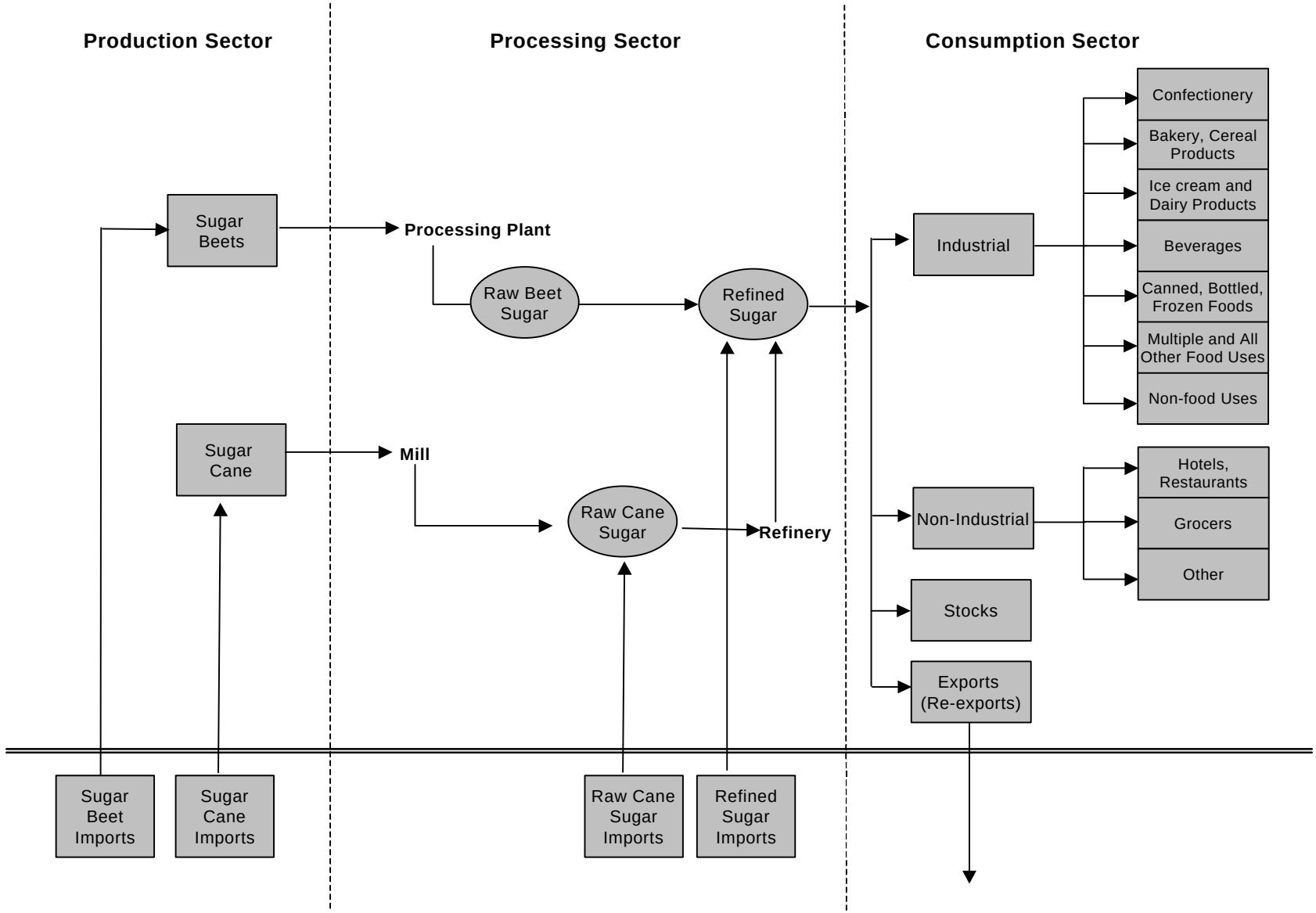

Table 3
Sugar beets and sugarcane: Area harvested, yield, production, imports, and exports, 1995-99

Items	1995	1996	1997	1998	1999	Change 1995-99
			1,000 acres			*Percent*
Area harvested:						
Sugar beets:						
Great Lakes[1]	203.3	134.6	160.9	174.1	191.7	-5.7
Upper Midwest[2]	624.2	663.3	673.5	700.6	717	14.9
Great Plains[3]	249.7	230.1	262.5	220.5	253.4	1.5
Far West[4]	328.8	295.3	331.4	355.5	365	11
Total	1,406.0	1,323.3	1428.3	1450.7	1527.1	8.6
Sugarcane:[5]						
Florida	417.0	417.0	421.0	426.0	443.0	6.2
Hawaii	48.5	42.9	32.0	30.3	32.7	-32.6
Louisiana	368.0	335.0	380.0	400.0	435.0	18.2
Texas	41.2	34.6	27.3	32	28.7	-30.3
Total	874.7	829.5	860.3	888.3	939.4	7.4
			Tons per acre			
Yield:						
Sugar beets:						
Great Lakes[1]	15.4	17	19	16.7	19.1	23.7
Upper Midwest[2]	18.5	18.5	18.5	21.7	20.5	10.8
Great Plains[3]	18.8	21.4	21.1	21.3	21.3	13.5
Far West[4]	23.2	28.8	29.5	28.6	27.9	20
Average	19.8	20.2	20.9	22.4	21.8	10.1
Sugarcane:[5]						
Florida	34.6	33.1	36.9	40.1	35.5	2.6
Hawaii	81.5	82.6	91.4	90	87.6	7.5
Louisiana	25.6	27.9	28.2	29.7	33	28.9
Texas	32.4	28.7	30.3	32.9	34	4.9
Average	33.3	33.4	34.2	36.9	36.1	8.4
			1,000 tons			
Production:						
Sugar beets:						
Great Lakes[1]	3,200	2,049	3,057	2,787	3,567	11.5
Upper Midwest[2]	11,363	12,184	12,456	15,096	14,585	28.4
Great Plains[3]	4,694	4,588	5,126	4,729	5,388	14.8
Far West[4]	8,324	7,859	9,269	9,887	9,779	17.5
Total	27,581	26,680	29,908	32,499	33,319	20.8
Sugarcane:[5]						
Florida	14,445	13,803	15,535	17,083	15,727	8.9
Hawaii	3,953	3,544	2,925	2,727	2,865	-27.5
Louisiana	9,421	9,347	10,716	11,880	14,355	52.4
Texas	1,336	992	827	1,053	976	-27
Total	29,155	27,686	30,003	32,743	33,923	16.4
						Share of 1999 production
			1,000 tons			*Percent*
Imports:						
Sugar beets	0.1	5.6	61.9	0	0	0
Sugarcane	0.0	0.6	0.1	4.3	9.5	0
Exports:						
Sugar beets	0.5	1	1	6.4	3.8	0
Sugarcane	0.6	0.8	0.6	0.6	0.4	0

[1] Great Lakes: Michigan, Ohio.
[2] Upper Midwest: Minnesota, North Dakota.
[3] Great Plains: Colorado, Montana, Nebraska, New Mexico, Texas, Wyoming.
[4] Far West: California, Idaho, Oregon, Washington.
[5] Excludes sugarcane produced for seed.

Source: USDA, NASS, *Crop Production Annual Summary*, various issues, and USDA, NASS, *Crop Values Annual Summary*, various issues.

Table 4
Sugar beets and sugarcane: U.S. prices, 1995-99

Items	1995	1996	1997	1998	1999	Change 1995-98
	Dollars per ton					
Sugar beets:						
Great Lakes[1]	33.80	41.80	38.45	37.10	([2])	9.8
Upper Midwest[3]	38.55	46.60	38.30	35.25	([2])	-8.6
Great Plains[4]	36.78	40.73	35.65	36.63	([2])	-0.4
Far West[5]	39.73	43.63	40.00	35.90	([2])	-9.6
U.S. average	38.10	45.40	38.80	36.40	36.50	-4.5
Sugarcane:						
Florida	30.60	29.40	28.70	29.50	([2])	-3.6
Hawaii	32.30	30.50	29.20	32.00	([2])	-0.9
Louisiana	27.00	26.20	27.10	23.20	([2])	-14.1
Texas	26.20	25.50	25.60	24.90	([2])	-5.0
U.S. average	29.50	28.30	28.10	27.30	24.10	-7.5

[1] Great Lakes: Michigan, Ohio.
[2] Not available.
[3] Upper Midwest: Minnesota, North Dakota.
[4] Great Plains: Colorado, Montana, Nebraska, New Mexico, Texas, Wyoming.
[5] Far West: California, Idaho, Oregon, Washington.

Source: USDA, NASS, *Crop Production Annual Summary*, various issues; USDA, NASS, *Corp Values Annual Summary*, various issues; and USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Sept. 2000.

Number, concentration, geographic distribution of firms

Production sector

Over the past 5 years, the production sector has seen an increase in the acreage devoted to sugarcane and sugar beets, area harvested, yield, and actual output, the bulk of which can be attributed to a few key producing States.

Sugarcane is grown in four States: Florida, Hawaii, Louisiana, and Texas. In 1998, the total number of sugarcane producing farms was reported to be 5,109, up 7.8 percent from 1994 figures.[8] In recent years, Hawaii and Texas sugarcane farmers have contributed to only a small portion of total U.S. sugarcane production (8 and 3 percent in 1999, respectively). The majority of sugarcane production is concentrated within Florida and Louisiana. Combined, Florida and Louisiana farmers produced approximately 30 million tons of sugarcane in 1999, which is almost 90 percent of the total sugarcane produced in the United States (table 3). Texas and Hawaii have reduced the amount of land in production, and as a consequence, overall production has fallen by over 30 percent in both States. Overall, sugarcane production has increased by 16 percent since 1995, attributed mostly to substantial increases in production of Louisiana sugarcane–approximately 52 percent since 1995.

[8] USDA, FSA, *Total Farm Acreage Report*, Sept. 1999.

Table 5
Refined sugar: U.S. deliveries for domestic human consumption by consumer use, 1995-99[1]

Items	1995	1996	1997	1998	1999	Change 95 to 99	Share of total use 1999
	Metric tons, actual weight					– Percent –	
Industrial use:							
Bakery, cereal and related products	1,706,990	1,771,091	1,932,719	1,992,747	2,079,961	21.8	24.5
Confectionery and related products	1,214,195	1,217,520	1,242,938	1,211,091	1,222,137	0.7	14.4
Ice cream and dairy products	410,649	405,117	391,804	399,039	429,237	4.5	5.1
Beverages	153,421	173,866	153,600	143,520	161,934	5.5	1.9
Canned, bottled, frozen goods	254,940	282,074	281,088	295,382	310,426	21.8	3.7
Multiple and all other food uses	739,670	778,183	718,489	808,190	783,447	5.9	9.2
Nonfood uses	64,450	59,193	60,576	63,167	66,109	4.2	0.8
Total industrial use	4,543,315	4,687,044	4,781,213	4,913,136	5,053,252	11.2	59.5
Nonindustrial use:							
Hotels, restaurants	90,985	77,040	72,238	71,246	65,119	-28.4	0.8
Grocers	3,056,512	3,161,198	3,220,651	3,141,123	3,186,657	4.3	37.5
Other	176,197	160,652	175,935	199,277	183,818	4.3	2.2
Total nonindustrial use	3,323,694	3,398,891	3,468,823	3,411,646	3,435,594	3.4	40.5
Total use	7,867,009	8,085,935	8,250,037	8,324,782	8,488,845	7.9	100.0

[1] Fiscal year is the period beginning Oct. 1 of the previous year and ending Sept. 30.

Note.—Short tons converted to metric tons by multiplying by .9072.

Source: USDA, FAS, *Sweetener Market Data Yearbook*, fiscal year 1999.

The area of sugarcane harvested in the United States has increased by 7.4 percent since 1995, from 875,000 acres in 1995 to 939,000 acres in 1999. Florida has historically allocated the most land to production of sugarcane of the four cane-producing States, and has harvested the greatest amount of acres on a yearly basis. However, there has been a gradual increase in the number of sugarcane-producing farms in Louisiana in recent years (from 4,231 in 1994 to 4,602 in 1998).[9] In contrast, the number of farms in operation in Florida has remained quite steady (between 150 and 160 farms). Louisiana farmers have been increasing the amount of land in production and have thereby increased the amount of acres harvested since 1995 by 18.2 percent. In 1999, Louisiana came within 9,000 acres of surpassing the total amount of area harvested in Florida (table 3).

[9] Ibid.

Advances in technology, coupled with favorable growing conditions, have lead to higher yields of cane per acre. Once again, Louisiana farmers are major contributors to the increases, recording sugarcane yields which rose by 30 percent in the last 5 years. On average, yield per acre was 36.1 tons in 1999. Overall, sugarcane yield in the United States has increased by 8.4 percent since 1995.

Sugar beets are grown in 12 States and were planted on approximately 11,847 farms in 1998, down from 13,657 in 1994.[10] The production of sugar beets is concentrated into four regions: (1) the Far West, in the States of California, Idaho, Oregon, and Washington; (2) the Great Plains, in Colorado, Montana, Nebraska, New Mexico, Texas, and Wyoming; (3) the Upper Midwest, in Minnesota and North Dakota; and (4) the Great Lakes, in Michigan and Ohio.

Sugar beet production has increased in every region since 1995 (table 3), resulting in an almost 21 percent overall increase in total U.S. production between 1995 and 1999. Production increases have been greatest in the Upper Midwest (28.4 percent), followed by smaller increases of 17.5, 14.8, and 11.5 percent in the Far West, the Great Plains, and the Great Lakes regions, respectively. In 1999, 73 percent of the total production of sugar beets was concentrated in the Upper Midwest and Far West, particularly in the States of California, Idaho, Michigan, Minnesota, and North Dakota There was an 8.6-percent increase in total acres of sugar beets harvested in 1999, and acres harvested rose in every region except in the Great Lakes region where there was a 5.7-percent decline. The Upper Midwest harvested 47 percent of all of the sugar beets harvested in the United States in 1999. Increased yields of sugar beets in every region have resulted in a 10-percent increase in overall yield since 1995. On average, yield per acre in 1999 was 21.8 tons, with the highest yields in the Far West (27.9 tons per acre). As with sugarcane, higher yields can be attributed to favorable growing conditions, increased efficiency in planting and harvesting, and advances in technology.

Processing sector

Over the past two decades, the structure of the processing sector has been changing, with fewer sugarcane mills and beet sugar factories in operation and with increased concentration among the sellers of refined sugar.[11]

There were 29 sugarcane mills operating in the United States as of 1999 (table 6). Closures and consolidations have been fairly common in the last decade, and the number of mills in operation has dropped by 27 percent since 1989. Three of the four cane-producing states have seen closures in mills since 1989: from 7 to 6 in Florida, from 20 to 18 in Louisiana, and from 12 to only 4 in Hawaii.

Currently, Louisiana has the greatest total grinding capacity–the State's 18 mills are equipped to grind a total of 175,000 tons of cane per day. In comparison, Florida possesses only 71 percent of Louisiana's total grinding capacity (124,500 tons of sugarcane per day); however, there are only 6 mills in operation in Florida. Thus, the average grinding capacity

[10] Ibid.
[11] USDA, ERS, *Sugar and Sweetener Situation and Outlook Report,* Sept. 1997.

Table 6
U.S. sugarcane processors: Company, mill location, grinding capacity, 1999

Company	Mill location	Grinding capacity	Share of total
		Tons per day	*Percent*
Florida:			
Atlantic Sugar Association	Belle Glade, FL	14000	
Okeelanta Corporation[1]	South Bay, FL	24,500	
Osceola Farms Company[1]	Pahokee, FL	15,500	
Sugar Cane Growers Cooperative of Florida	Belle Glade, FL	25,500	
United States Sugar Corporation	Clewiston, FL	26,000	
	Canal Point, FL	19,000	
Total Florida		124,500	37.9
Hawaii:			
Gay & Robinson, Inc.	Kaumakani, Kauai, HI	2,880	
Hawaiian Commercial & Sugar Company	Puunene, HI	7,200	
	Paia, HI	3,600	
Lihue Plantation Company, Ltd.	Lihue, HI	3,600	
Total Hawaii		17,280	5.3
Louisiana:			
Alma Plantation	Lakeland, LA	8,000	
Cajun Sugar Cooperative	New Iberia, LA	12,000	
Caldwell Sugars Cooperative	Thibodaux, LA	6,000	
Harry L. Laws & Company	Brusly, LA	5,500	
Cora Texas Manufacturing Company	White Castle, LA	12,000	
M.A. Patout & Son, Ltd.	Jeanerette, LA	24,000	
Evan Hall Sugar Cooperative	Donaldsonville, LA	7,500	
Glenwood Cooperative, Inc.	Napoleanville, LA	6,500	
Iberia Sugar Cooperative, Inc.	New Iberia, LA	7,000	
Jeanerette Sugar Company	Jeanerette, LA	7,000	
Lafourche Sugars Corporation	Thibodaux, LA	9,500	
Louisiana Sugar Cane Cooperative	St. Martinville, LA	9,000	
Lula-Westfield, LLC	Belle Rose, LA	8,200	
	Paincourtville, LA	9,800	
Raceland Raw Sugar Corporation	Raceland, LA	13,000	
St. James Sugar Cooperative	St. James, LA	7,000	
St. Mary Sugar Cooperative	Jeanerette, LA	10,000	
Sterling Sugars, Inc.	Franklin, LA	13,000	
Total Louisiana		175,000	53.4
Texas:			
Rio Grande Valley Sugar Growers, Inc.	Santa Rosa, TX	11,000	
Total Texas		11,000	3.4
Total United States		327,780	100

[1] Subsidiary of Florida Crystals Corp.

Source: Lilleboe Communications, U.S. Sugar Industry Directory, 1999/2000.

in reach of Florida's sugarcane mills is much greater–on average 20,750 tons of cane per day–as opposed to only 11,000 in Texas, 9,722 in Louisiana, and 4,320 in Hawaii.

There are 10 refineries that process raw cane sugar into refined sugar in the United States (table 7). Two refineries have closed since 1995–Supreme Sugar in California and C&H Sugar in Hawaii–and one refinery has opened–United States Sugar Corp. in Clewiston, Florida. Sugar is no longer refined in Hawaii since the closure in 1996. In 1999, raw sugar refining was concentrated among six companies, of which 2 (Imperial Sugar and Tate & Lyle, Inc.) owned 67 percent of the melting capacity. The average melting capacity of U.S. refineries is approximately 2,400 tons of sugar per day.

Sugar beets are processed in 30 factories in the United States, and 65 percent of the slicing capacity is concentrated among the four largest firms (table 8). Most of the companies operating sugar beet processing plants are cooperatives which are owned by sugar beet producers. The beet processing industry has lost 20 percent of its processing facilities (6 plants) since 1988, and 2 more facilities terminated processing operations at the end of the 2000 processing season.

Table 7
U.S. sugarcane refiners: Company, refinery location, melting capacity, 1999

Company	Refinery location	Melting capacity	Share of total
		Tons sugar per day	*Percent*
California & Hawaiian Sugar Company (C&H)[1]	Crockett, CA	3,400	14.2
Florida Crystals Refinery, Inc.[1]	South Bay, FL	925	3.9
Imperial Sugar Company[1]	Clewiston, FL	850	
	Gramercy, LA	2,150	
	Port Wentworth, GA	3,100	
	Sugarland, TX	1,950	
	Total	8,050	33.6
Refined Sugars, Inc.[2]	Yonkers, NY	1,800	7.5
Tate & Lyle North American Sugars, Inc. (Domino)[1]	Baltimore, MD	3,000	
	Brooklyn, NY	2,000	
	Chalmette, LA	3,000	
	Total	8,000	33.4
United States Sugar Corporation[3]	Clewiston, FL	1,800	7.5
Total United States		23,975	100

[1] Source: United States Cane Sugar Refiners' Association.
[2] Source: John Gephart, Refined Sugars, Inc.
[3] Source: U.S. Sugar Corp.

Table 8
U.S. sugar beet processors: Company, factory location, slicing capacity, 1999

Company	Factory location	Slicing capacity	Share of total
		Tons per day	*Percent*
Amalgamated Sugar Company	Mini-Cassia, ID	12500	
	Twin Falls, ID	6,500	
	Nampa, ID	12,000	
	Nyssa, ID	9000	
	Total	40,000	21.5
American Crystal Sugar Company	Crookston, MN	5,300	
	East Grand Forks, MN	9,000	
	Moorhead, MN	5,400	
	Drayton, ND	5,900	
	Hillsboro, ND	7700	
	Total	33,300	18.0
Holly Sugar Corporation[1]	Sidney, MT	7,000	
	Worland, WY	3,600	
	Torrington, WY	5400	
	Total	16,000	8.7
Michigan Sugar Company	Caro, MI	3,600	
	Carrollton, MI	3,100	
	Croswell, MI	3,700	
	Sebewaing, MI	5550	
	Total	15,950	8.6
Minn-Dak Farmers Cooperative	Wahpeton, ND	7,500	4.1
Monitor Sugar Company	Bay City, MI	8,000	4.3
Pacific Northwest Sugar Company	Moses Lake, WA	6,000	3.2
Southern Minnesota Beet Sugar Cooperative	Renville, MN	11,000	5.9
Spreckles Sugar Company	Brawley, CA	8,400	
	Mendota, CA	4,200	
	Tracy, CA[3]	5,000	
	Woodland, CA[3]	3800	
	Total	21,400	11.6
Western Sugar Company	Ft. Morgan, CO	5,800	
	Greeley, CO	4,000	
	Billings, MT	5,000	
	Bayard, NE	3,000	
	Scottsbluff, NE	5,000	
	Lovell, WY	3100	
	Total	25,900	14.0
Total United States		185,050	100.0

[1] Division of Imperial Holly Company.
[2] Division of Savannah Foods.
[3] Ceased processing at end of 2000.

Source: Lilleboe Communications, U.S. Sugar Industry Directory, 1999/2000.

Employment

There are differing estimates of the actual number employed by the U.S. sugar industry, and none of the estimates are current. The Census of Manufacturing (CM)[12] reported that, in 1997, sugarcane mills employed 4,968 employees, 68 percent of which were involved in the production of raw sugar; that cane sugar refineries employed 3,891 employees, 73 percent of which were responsible for production of refined sugar; and that beet sugar factories employed 7,718 workers, 87 percent of which were involved in production. In 1992, the CM reported that 7,000 employees worked in sugarcane mills; 4,800 employees worked in sugarcane refineries; and 7,600 employees worked in beet processing plants.[13] This suggests, from 1992 to 1997, a 30-percent decline in the number employed by sugarcane mills; a 19-percent decline in the number employed by refineries; and a 2-percent increase in the number employed by beet processing plants. The average annual salary reported in the CM for production workers in sugarcane mills, cane sugar refineries, and beet-processing plants in 1997 was $32,672, $44,710, and $30,377, respectively.

The number of growers of sugarcane and sugar beets and the wages for growers are not directly reported by the Government. The USDA's Farm Service Agency (FSA) has released estimates of the number of farms on which cane and beets are grown, but that does not necessarily coincide with the actual number of growers within the industry (see previous section of the production sector). What is generally known is that the number of farms that produced sugarcane increased from 1994 to 1998, and the number of farms that produced sugar beets decreased during that time frame. It can be inferred that the number of farmers increased in the sugarcane industry over the period and the number of farmers in the sugar beet industry fell.[14]

The industry supports another set of employment data published by LMC International, Ltd. (LMC) in 1994.[15] According to LMC, in 1994, there were 26,692 full-time equivalent employees involved directly in the growing of sugar beets and 22,488 involved directly in the growing of sugarcane. On the processing side, LMC estimated 8,585 full-time equivalent employees in the beet processing sector, 6,268 full-time equivalent in the cane milling sector, and 4,231 full-time equivalent in the refining of cane sugar. Estimates of annual income were not provided by LMC.

Sugar beet farmers are skilled laborers; they rotate other crops with sugar beets and typically have extensive knowledge of the markets and the production practices involved in producing a variety of crops. Harvesting of sugar beets is mechanized, and there is a high degree of skill involved in the operation of harvesting machines. The skill level required for sugarcane production has increased in recent years, as the industry has almost completely shed its use

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[12] U.S. Department of Commerce, Economics and Statistics Division, U.S. Census Bureau, *1997 Economic Census, Manufacturing Series: Beet Sugar Manufacturing; 1997 Economic Census, Manufacturing Series: Cane Sugar Refining;* and *1997 Economic Census, Manufacturing Series: Sugarcane Mills.*

[13] U.S. Department of Commerce, Economics and Statistics Division, U.S. Census Bureau, *1992 Census of Manufactures: Sugar and Confectionery Products.*

[14] USDA, FSA, *Total Farm Acreage Report*, Sept. 1999.

[15] LMC International, Ltd., "The Importance of the Sugar and Corn Sweetener Industry to the U.S. Economy," Oxford, England, 1994.

of manual labor in the field and has fully mechanized its harvesting process.
Processing of sugar beets and sugarcane both require high skill levels, as the processing facilities are automated and involve extensive knowledge of computer systems. In both the beet and cane industry, highly skilled professionals are involved in every step of the production process. For example, the industry employs agronomists, entomologists, plant pathologists, biotechnologists, computer technicians, and production management specialists, to name a few.

Vertical and horizontal integration

The degree and type of integration within the U.S. sugar industry differ by region and by raw commodity (i.e., sugarcane and sugar beets). In general, the sugar industry is vertically integrated in that vertical links exist between various levels of the marketing system; however, horizontal integration exists between beet and cane operations as well.

In the sugarcane industry, vertical links are established between sugarcane production, milling, refining, and marketing. Three companies (and their subsidiaries) and one cooperative operate in Florida (table 6): Florida Crystals Corp., United States Sugar Corp., Atlantic Sugar Association, and Sugar Cane Growers Cooperative of Florida. The first two companies listed, Florida Crystals Corp. and United Sugar Corp., are fully vertically integrated (i.e., each company grows cane, harvests the cane with company-owned mechanical harvesters, transports the cane directly from the field to a sugar mill owned by the company, transports the raw sugar from its mill directly to a refinery that is also owned by the company for processing into refined sugar, and finally markets its refined sugar to buyers, both household consumers and manufacturers). The two companies may also contract with individual growers for cane or with mills for raw sugar to secure additional supply. The remaining company and the farmer-owned cooperative in Florida are not involved in every stage of the sugar production process, but are still highly vertically integrated through forward contracting for cane and raw sugar. Atlantic Sugar Association generally contracts with individual growers to guarantee supply of the raw commodity, and then refineries in Florida or out-of-state refineries contract with the mill to guarantee supply of raw sugar. Sugar Cane Growers Cooperative of Florida enlists its owners (cane farmers)
as suppliers of sugarcane for the sugar mill. Refineries then purchase the raw sugar for processing. Thus, even though the fields, mills, and refineries are not owned by the same entity in the latter two cases, vertical integration is still present.

In the second largest sugarcane producing state, Louisiana, vertical integration exists in that cane growers contract with sugar mills, which are often farmer-owned cooperatives (table 6). A link is established between cane production and milling in Louisiana; however, the direct link between the sugar mill and the refinery does not exist in that state as it does in Florida. Raw sugar produced in Louisiana is shipped to another site (usually out of state) for transformation into refined sugar. Vertical integration occurs within Texas between growers and the sole sugar mill in Santa Rosa, which is owned by the grower cooperative. In Hawaii, growers and mills are vertically integrated in that the mills contract for cane, but as no refinery exists in Hawaii, all raw sugar is transported to the mainland for refining. Nevertheless, the mill and refineries are vertically linked via supply contracts.

In the beet sugar industry, vertical integration between the grower and the processor is not as strong as in the cane industry. Ten companies operate sugar beet processing plants in 10 U.S.

States**.** Generally, sugar beet processors do not grow their own sugar beets, but instead, contract with independent growers or members of grower cooperatives in their area. There are some cases, however, where vertical integration exists between growers and processors in that some sugar beet growers collectively own a beet processing facility or facilities in their area. One example is American Crystal Sugar Co., which is a company that operates 5 processing plants (table 8) and is owned by 1,300 farmers in the Red River Valley of Minnesota and North Dakota.

Vertical links between processors and marketers of refined beet and cane sugar exist in the U.S. sugar industry in that processors are also the marketers of their own refined sugar. In some cases, refined beet sugar processors will package sugar under private labels for customers.

Horizontal integration also exits between beet and cane operations in the marketing of sugar. One example is United Sugars Corp., which is a sugar marketing cooperative comprising three Upper Midwest beet processors and United States Sugar Corp., a sugarcane refiner in Clewiston, Florida. United Sugars Corp. is the largest seller of refined sugar in the United States.

Degree of integration with foreign suppliers

As mentioned earlier, sugarcane and sugar beets are rarely imported into the United States, so sugarcane mills and sugar beet processing plants are not linked with foreign suppliers. Refiners in the United States likewise are not linked via ownership or through joint ventures with foreign sugarcane mills. The relationship between foreign raw sugar suppliers and U.S. refineries is contractual. Contracts for raw sugar are usually performed with the assistance of brokers and sugar dealers.[16] It should be noted that three of the refineries operating in the United States are owned by the British-based multinational sugar company, Tate and Lyle (table 7); however, imports of raw sugar still occur via contracting.

Marketing methods and product distribution

The U.S. sugar sector processes and markets several major products to industrial and retail users. Combined, refiners and beet processors produce a multitude of granulated sugar products such as white fine, granulated brown, powdered white, powdered brown, extra fine, super fine, standard, special coarse, canners', bakers' special, and bottler's special.[17] Also, cane refiners in the industry produce some specialty sugars such as turbinado sugar, raw washed sugar, and organic sugar. Additionally, the industry markets a wide array of cane and beet byproducts. In the beet sugar industry, beet pulp and molasses are byproducts for which viable markets exist. The byproducts of cane sugar production for which important markets exist are bagasse, molasses, and filter mud. From all of these byproducts, a plethora of other products are produced, including ethyl alcohol, rum, and alcohol derivatives from molasses; animal feed from beet pulp and molasses; and electricity, paper board, and particle board from bagasse.

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[16] L.C. Polopolus and J. Alvarez, *Marketing Sugar and Other Sweeteners*, Elsevier, New York: 1991.

[17] Ibid.

Two market sectors exist for refined sugar in the United States: industrial and nonindustrial. The industrial sector used nearly 60 percent of the sugar produced in the United States in 1999 (table 5) in products such as baked goods and cereal products, confectionery products, ice cream and dairy products, beverages, and canned, bottled, and frozen goods. The nonindustrial sector, comprised of hotels restaurants, and grocers, consumed the remainder of the sugar.

Refined sugar is marketed to the industrial and nonindustrial sectors through different methods. Producers of refined sugar may choose to market sugar on their own. Often, however, refiners will employ sugar brokers to facilitate in the marketing of their sugar. The sugar brokers serve as a liaison for both the buyer and the seller of sugar. The broker does not take title to the sugar, but provides the economic function of pricing by bringing the buyer and seller together and assists in the rapid dissemination of prices.[18] Brokers are paid a brokerage fee for their services. Refiners may prefer to sell their sugar through one broker or through a network of brokers.

Another method of marketing used by refiners is to sell their sugar to what the industry calls "operators." Operators differ from sugar brokers in that they actually take title or ownership of the sugar from the refiners. They purchase the sugar in large quantities at discounted prices and then resell the sugar in smaller quantities to "jobbers" and industrial users.[19]

Refiners do not always utilize the services of brokers and operators in the marketing of their sugar. As mentioned earlier, they may choose to market their own sugar either directly to industrial users in bulk or to retail and food service markets in appropriate packaging. One example of refiners marketing their own sugar is United Sugars Corp. The corporation was formed by three beet sugar refiners in 1993; in 1997, one cane refiner joined forces. These four refiners jointly market their sugar to industrial users such as Kraft, General Mills, Mars, and Hershey, and also package refined sugar under their own label and private labels for retail sale in grocery stores.[20]

A new phenomenon in the marketing of sugar is the use of the Internet. While there is not one single industry site where the buying and selling of sugar takes place, there are scattered websites where buyers and sellers trade sugar. The websites serve as brokers of sorts and facilitate the bringing together of buyers and sellers of sugar. Also, there are a multitude of websites where traders of sugar futures and options contracts place orders electronically for a minimal fee, and subsequently those orders are passed to traders on the New York Board of Trade (NYBOT) where sugar futures are traded.[21] The industry may move toward utilizing the Internet more intensively in the future for marketing purposes in an attempt to reach more customers, eliminate transaction costs, and facilitate the dissemination of the most current information.

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[18] Ibid.

[19] Ibid.

[20] Ibid.

[21] Raw sugar is traded on the Coffee, Sugar, and Cocoa Exchange, which is a subsidiary of the NYBOT. The United States contract for U.S. domestic raw sugar is No. 14 and for world raw sugar is No. 11.

U.S. Government Programs

U.S. sugar producers have been afforded some degree of protection and/or support from the Federal Government since shortly after the Revolutionary War. From 1789 to 1934, protection was granted primarily in the form of tariffs. It was the Jones-Costigan Act of 1934, however, that cast the foundation for the present-day U.S. sugar program.[22] The Jones-Costigan Act was responsible for instituting the allocation system for domestic and foreign sugar in the United States. The act called for: (1) an annual determination of U.S. domestic requirements for sugar; (2) the division of the U.S. sugar market among domestic and foreign suppliers via the use of quotas; (3) the allotment of quotas among processors of sugar in domestic areas (i.e., marketing allotments); and (4) the adjustment of cane and beet production in each area to the established quotas (i.e., acreage allotments). Subsequent legislation superseded the 1934 Act–the Sugar Act of 1937 and the Sugar Act of 1948–but the basic objectives of the Jones-Costigan Act were preserved in this legislation until 1974 when, after several extensions and renewals, Congress elected not to renew the Sugar Act of 1948.[23] Three years later, excess production and low world prices lead to the passage of the Food and Agriculture Act of 1977. This act restored the concept of providing domestic support to producers and instituted the first loan-and-purchase program for sugar.[24]

Loan rate program

The sugar loan rate program was adopted in 1979 in title III of the Agricultural Act of 1949. The 1979 statute authorized the President to offer price supports to processors through offering loans and through conducting purchases to remove some of the excess supply of sugar from the market. In 1981, Congress voted to provide the loans on a nonrecourse basis under the Food and Agriculture Act of 1981 (FAA). Under the FAA, processors of raw cane sugar and refined beet sugar received the loan rate on a per-pound basis, using their sugar as collateral. As a qualification for the loan, the processor agreed to pay the producer of sugarcane or sugar beets a minimum price set by the USDA.

In 1981, the raw sugar loan rate was set at 16.75 cents per pound and the refined beet sugar loan rate at 19.70 cents per pound. Congress required the rate to increase to 18 cents for raw cane sugar by 1985. If the market price exceeded the loan rate at the time of sale, then the processor would simply sell the sugar on the open market and repay the amount of the loan to the government. If, however, the market price fell below the loan rate, the processor would have the opportunity to forfeit the sugar under loan to the Commodity Credit Corporation (CCC), with no forfeiture penalties attached (under the non-recourse provision). Therefore, the loan rate acted as a guaranteed minimum price for processors with the government as a guaranteed customer.

The loan rate program was continued under the 1990 Farm Act, but in 1996 the U.S. sugar program was reformed with the passage of the new farm bill, the FAIR Act. The 1996 FAIR Act involved several key changes to the previous loan rate program. Under the previous sugar legislation, forfeitures of sugar under the loan rate program were nonexistent because the program was required to operate at "no cost to the government." Thus, the USDA was able

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[22] R. Lord, USDA, ERS, *Sugar: Background for 1995 Farm Legislation*, Apr. 1995.
[23] USDA, ERS, *Sugar: Background for 1990 Farm Legislation*, R. D. Barry, et. al., Feb. 1990.
[24] USDA, ERS, *Sugar: Background for 1985 Farm Legislation*, Sept. 1984.

to maintain a "no cost" program by either restricting supply through the use of domestic sugar marketing allotments (production quotas) or adjusting (reducing) the level of the raw and refined sugar import quotas (the TRQs).[25] Both of these options had the effect of limiting the supply of sugar on the market and artificially forcing the domestic market prices above the loan rates.

The new provisions of the FAIR Act limited the options available to the USDA for increasing the domestic price above the loan rate.[26] Marketing allotments were suspended under the FAIR Act, leaving the USDA with only the practice of managing TRQ levels for imports of raw and refined sugar as a means for reducing supply and increasing domestic prices; however, reducing the TRQ levels is not viewed as a viable option for several reasons. First, the United States has entered into international agreements (e.g., WTO and NAFTA) to increase market access through increases in TRQs and through reductions in over-quota tariff levels, both of which have the potential to increase levels of imported sugar on the market. Second, the 'no cost' provision was excluded from the FAIR Act, so altering the TRQs below URAA committed levels to discourage costly forfeitures is no longer feasible. Third, a provision was included in the FAIR Act that fixed the current national average loan rates at 1995 levels (18 and 22.9 cents per pound for raw cane and refined beet, respectively), so the loan rates may no longer be adjusted to make certain they exceed domestic market prices. Finally, and most importantly, all loans were converted to recourse loans unless the USDA announces the TRQ at a level greater than 1.5 mst (1.36 mmt), raw value, annually.[27] Under the FAIR Act provisions, even nonrecourse loans are now subject to a 1-cent forfeiture penalty.

The FAIR Act provisions no longer afford the USDA any flexibility in administering the loan rate program through the use of import restrictions.[28] Thus when the domestic price drops below the loan rate, as it did in the first half of 2000, forfeitures of sugar are likely to occur in greater numbers.[29]

Marketing assessments

The 1996 FAIR Act provided for marketing assessments for the sale of raw cane sugar and beet sugar during the 1997 through 2003 fiscal years. Processors of sugarcane and sugar beets are required to pay the CCC a nonrefundable marketing fee on a monthly basis. Sellers of domestic raw cane sugar are assessed 0.2475 cent per pound (i.e., 1.375 percent of the national cane sugar loan rate) and sellers of refined beet sugar are assessed 0.2654 cent per pound (i.e., 1.159 percent of the national beet sugar loan rate). Sugar that has yet to be marketed by the last day of the fiscal year (September 30) is subject to the assessment rate on

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[25] Section 22 import quotas were converted to TRQs in 1990. See U.S. Trade Measures section for further explanation of U.S. sugar TRQs.

[26] USDA, ERS, *Provisions of the Federal Agriculture Improvement and Reform Act of 1996*, Sept. 1996.

[27] The USDA set the combined TRQ levels for raw and refined sugar at 1.501 mst for the 1999-2000 TRQ season, so as to allow for the issuance of nonrecourse loans.

[28] USDA, ERS, *Provisions of the Federal Agriculture Improvement and Reform Act of 1996*, Sept. 1996.

[29] On May 16, 2000, the USDA announced that it would purchase 136,000 metric tons (150,000 short tons) of domestic sugar to remove some of the excess supply from the market as a means of increasing prices above the loan rate. In total, 120,000 metric tons were purchased. The purchase was an attempt to discourage forfeitures and to minimize costs to the Government (see 2000 Sugar Purchase section).

that date. When this sugar is finally marketed, processors are not subject to a second assessment rate. Forfeited sugar is considered to be marketed and is subject to a marketing assessment on the date of forfeiture. The penalty for foregoing the assessment payment is the loan value of the quantity of sugar involved.[30]

Information reporting

Sugarcane processors, cane refiners, and beet refiners are required to report production, imports, distribution, and stocks to the USDA on a monthly basis. Also, purchases of sugarcane and sugar beets must be reported. Reported data are issued on a monthly basis by the FSA. Each reporting violation is subject to a $10,000 civil penalty.[31]

2000 sugar purchase

In the year 2000, domestic prices for sugar fell well below the loan rate, and the threat of large-scale forfeitures of the 1999 sugar crop to the CCC loomed. Some members of the sugar industry asked the Government to purchase some of the excess sugar that was present in the market, (i.e., up to 350,000 short tons) and to dispose of the sugar (e.g., donate it to foreign countries or use it in the production of ethanol) so that the stocks would not hang over the market with the threat of release at a later date.[32] On May 11, 2000, the Secretary of Agriculture announced that the CCC would purchase sugar "...to reduce the cost of expected sugar program forfeitures, support sugar growers, and help stabilize low prices."[33] The CCC agreed to purchase up to 136,000 metric tons of sugar, at least 75 percent of which would be refined. Through purchasing the sugar, the USDA had hoped to save as much as $6 million that would otherwise have been incurred from expected loan forfeitures. The authority to purchase the sugar was granted under the cost reduction option of the Food Security Act of 1985. The CCC did not dispose of the sugar but placed it in storage. The U.S. industry had hoped the size of the purchase would have been much closer to 336,000 metric tons and argued that 136,000 metric tons would not preclude forfeitures from occurring.[34] In all, the CCC purchases totaled 120,000 metric tons, valued at just over $54 million. In the end, 54 percent of the beet sugar under loan and 58 percent of the raw cane sugar under loan (valued at $378 million) was forfeited to the CCC.[35]

Payment-in-kind program

Effective August 18, 2000, the government implemented a temporary Payment-in-Kind (PIK) Program pursuant to section 1109(e) of the Food and Security Act of 1985. The PIK program results in the diversion of acres from sugar beet production, and thus to a reduction in the

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[30] USDA, FAS, "The U.S. Sugar Program," FASonline, www.fas.usda.gov/info/factsheets/sugar.html, Mar. 2000.

[31] Ibid.

[32] B.W. Dyer & Company, *Dyergram*, "Pressure Mounts for USDA to Intervene in Sugar Market,: Apr. 5, 2000.

[33] USDA, "USDA to Purchase U.S. Sugar, Reduce Cost to the Government," News Release No. 0159.00, May 11, 2000.

[34] M. Pates, Agweek Online, Aglink, "Sugar leaders: Buy won't be enough," Wednesday, May 17, 2000.

[35] USDA, FSA, 1999 Loan Forfeiture National Report.

overall amount of sugar in the market, and was spurred by an effort to assist all U.S. sugar producers in dealing with low prices caused by oversupply on the domestic market.[36] The reasoning provided by the CCC for the implementation of the temporary PIK program was based upon the combination of the following factors: market prices below forfeiture levels; expected forfeitures of the 1999 crop; greater excess supply outlook for the upcoming crop year; CCC holding sugar inventory with no other specific disposal plan; and the U.S. sugar producers' growing realization of the major market problems facing the sugar sector.[37] Through the implementation of the PIK program, the CCC hopes to reduce the amount of forfeitures expected, and to eliminate CCC inventory, thereby eliminating storage costs.[38] Essentially, the CCC is using the PIK program as a domestic supply control measure[39] in an attempt to raise prices above the existing loan rates for raw and refined sugar, and to maintain imports of sugar in accordance with market access commitments made during the URAA

The PIK program requires sugar beet producers involved in the program to agree not to harvest beets in return for sugar from the CCC's existing inventory. Sugar beet producers may submit bids indicating the dollar value of CCC sugar they are willing to accept in return for diverting acres away from sugar beet production. The CCC reviews all bids and accepts those bids that will maximize the amount of acreage reduced for the least reduction in CCC inventory of sugar. A payment limit of $20,000 per producer is enforced. In total, U.S. sugar beet producers submitted 5,022 bids to participate in the PIK program with approximately 102,000 acres to be diverted from production.[40] Diverted acres represent approximately 7 percent of the total acreage planted to sugar beets in fiscal year 2000.

Sugar trade programs

Tariff-rate quota program

The United States converted its absolute import quotas for sugar to TRQs in 1990. In doing so, lower in-quota tariff rates were established for sugar from countries that held shares of the previous absolute import quotas for raw and refined sugar, and higher (generally prohibitive) over-quota tariff rates were established for sugar from nonquota holding countries. As mentioned earlier, the TRQ has effectively doubled as a domestic policy tool that, when reduced, subsequently bolstered the domestic price above the loan rate so as to discourage forfeitures of sugar. The U.S. sugar TRQ program is explained in detail in the section entitled "United States Trade."

Refined sugar re-export program

The sugar re-export program was instituted in November 1982 through the issuance of Presidential Proclamation 5002; the program, as later modified, derives from the terms of

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[36] Sugar Payment-In-Kind (PIK) Diversion Program, *Federal Register*, Vol. 65, No. 164, Aug. 23, 2000, pp. 51280-51283.

[37] Ibid.

[38] Ibid.

[39] USDA, ERS, *Agricultural Outlook*, "Weak Prices Test U.S. Sugar Policy," Sept. 2000.

[40] USDA, FSA, "USDA Announces Final Results for the Fiscal Year 2000 Sugar PIK Diversion Program," Press Release No. 1671.00, Dec. 7, 2000.

additional note 6 to chapter 17 of the Harmonized Tariff Schedule. At the time of issuance, sugar refiners and manufacturers of SCPs were limited by restrictive import quotas and were finding it difficult to compete in the world market with foreign competitors who had access to raw and refined sugar at low world prices.[41] The Proclamation authorized, the Secretary of Agriculture to allow the entry of quota-exempt raw cane sugar, provided the sugar is refined and re-exported in either refined form, as an ingredient in SCPs, or used in the production of polyhydric alcohol.

The refiners that wish to participate in the re-export program obtain licenses from the USDA Licensing Authority at the Foreign Agricultural Service (FAS). A license under the Refined Sugar Re-export Program (RSREP) allows for the importation of quota-exempt raw cane sugar under HTS subheading 1701.11.20 at a lower tariff rate (table A-1) as long as the refiner exports the equivalent quantity of refined sugar onto the world market, or transfers an equivalent quantity of refined sugar to licensees under the Sugar-containing Product Re-export Program (SCPREP) or the Polyhydric Alcohol Program (PAP) within 90 days of importation. There is no limit on the amount of raw sugar the refiner may import, but there is a license limit of 50,000 short tons (45,360 metric tons), raw value, at any given time. The license works like credits and debits when balancing a checkbook–credits are added when the licensee exports domestically produced refined sugar before importing quota-exempt raw cane sugar, and debits are subtracted when the licensee imports quota-exempt raw cane sugar before exporting or transferring quota-exempt refined sugar. Imports from Mexico do not count against a refiner's license unless the quantity of sugar is not re-exported with 30 days of importation. Five companies participated in the RSREP during fiscal year 1999, importing a total of approximately 350,000 metric tons of raw sugar, which is an increase of 10.5 percent from 1998 levels.[42] Of the 1999 imports, roughly 60 percent was exported in the form of refined sugar, 40 percent was delivered to manufacturers of SCPs and 3 percent was delivered to producers of polyhydric alcohol.[43]

Sugar-containing product re-export program

Manufacturers of SCPs that wish to participate in the sugar re-export program are also required to obtain licenses from the USDA Licensing Authority at the FAS. A license under the SCPREP permits the holder to receive transfers of low-priced refined sugar from licensed refiners as long as an equivalent amount of the sugar is exported as an ingredient in SCPs within 18 months of the transfer. The license balance may not exceed 10,000 short tons, refined value. Over 300 companies owned licenses under the SCPREP in 1999.[44]

Polyhydric alcohol program

Producers of polyhydric alcohol that wish to participate in the PAP must obtain licenses from the USDA Licensing Authority at the FAS. As with the licensees in the SCPREP, these producers may receive transfers of low-priced refined sugar from licensed refiners, but may not exceed a license balance of 10,000 short tons, refined value. The producers under the PAP must, within 18 months of the transfer, use the equivalent amount of sugar transferred from

[41] USDA, FAS, *Sugar Import Requirements*.
[42] FAS Licensing Authority, Apr. 3, 2000.
[43] Greater than 100 percent due to debit of 21,656 metric tons of imported sugar.
[44] FAS Licensing Authority, Apr. 3, 2000.

the refiner in the production of any type of polyhydric alcohol, except that produced by distillation or polyhydric alcohol used as a substitute for sugar as a sweetener in human food. In 1999, there were 18 participants in the PAP.[45]

Research and development

The U.S. sugar industry is one of the most technologically advanced and efficient in the world.[46] Research is instrumental in maintaining the industry's competitive edge, so millions of dollars are spent on research annually. Advances have been made in areas such as biotechnology, plant breeding, pest control, disease prevention, planting, harvesting, irrigation, fertilizing, transportation, and processing. The U.S. Government funds USDA research facilities that staff specialists (e.g., plant pathologists, plant scientists, entomologists, and agronomists) to conduct research and to disseminate their findings to producers and processors of cane and beets. Also, the government, universities, and private companies fund the research efforts of professors, research assistants, and graduate students conducting relevant industry-specific studies.

Biotechnology research is leading to developments in disease and insect resistant cane and beet varieties,[47] creation of maps of sugarcane genetic structure, genetic modification to correct for crop deficiencies, mapping of favorable traits, and identification of beneficial plant breeding schemes, to name a few.[48] The United States has progressed to the stage of controlled field testing of genetically modified sugarcane and sugar beet varieties.[49]

Advances in pest control in recent years have led to integrated pest management schemes where a natural enemy is introduced into the growing area with the intention of eradicating the pest. For example, the *Cotesia* parasite indigenous to Pakistan is a natural enemy of the sugarcane borer. Researchers introduced the parasite to sugarcane growing areas in the United States so that it would seek out the cane borer, lay its eggs in the borer's belly, and cause the borer to become sick and subsequently die. This new pest management scheme reduces the level of pesticides used while reducing the level of harm to the sugarcane plant.[50]

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[45] Ibid.

[46] For example, U.S. sugar production costs were below world average production costs for 1995-99. U.S. beet producers costs ranked second lowest out of 40 sugar-producing nations and U.S. cane producers costs ranked thirty-first out of 63 sugar-producing nations. LMC International Ltd., *A Worldwide Survey of Sugar and HFCS Production Costs: The 2000 Report*, preliminary results presented to the 17th Annual International Sweetener Symposium, Aug. 2000.

[47] F.O. Licht, "Sugar in the 21st Century–The international sugar congress in Berlin," *International Sugar and Sweetener Report*, Vol 132., No. 21, July 18, 2000.

[48] H.E. Rees, "Recent developments in sugarcane agriculture," *International Sugar Journal*, Vol. 102, No. 1221, 2000.

[49] F.O. Licht, "Sugar in the 21st Century–The international sugar congress in Berlin," *International Sugar and Sweetener Report*, Vol 132., No. 21, July 18, 2000.

[50] Information was obtained while the author made a tour of the Florida sugarcane industry, Feb. 2000.

In the United States, both cane and beet harvesting are fully mechanized. This is a major advancement for the sugarcane industry, for in 1991 over one-half of Florida's sugarcane was still harvested by hand.[51] Advances in both industries by private U.S. companies have been made in the development of harvesting equipment so as to "fine tune" the harvesting process, leading to increases in the amount of cane and beets harvested in a given season. In sugarcane harvesting, the large, mechanical harvesters are now able to harvest cane "green" (i.e., without it having been burned first) with greater ease than in previous years.

On the processing side, research efforts to increase sucrose extraction levels from cane and beets continue to progress. In the U.S. sugarcane industry, sugar recovery rates have increased from 11.68 percent in 1995 to 12.07 percent in 1999, and in the U.S. sugar beet industry, sugar recovery rates have increased from 14 percent to 14.8 percent in the same period.[52]

U.S. Market

Consumer Characteristics and Factors Affecting Demand

Characteristics of consumers

The characteristics of the sugar consumer have changed since the 1950s, when most of the refined sugar produced in the United States was purchased directly by households.[53] Today, the primary group of consumers of U.S. refined sugar are industrial users that purchase sugar for use as an input in their final products, which then generally are sold to households in the form of processed foods. Of the approximately 8.5 mmt of refined sugar delivered in the United States in 1999, almost 60 percent was consumed by the industrial sector (table 5). The nonindustrial sector consumed the remaining 40 percent of the sugar, of which grocers were the main buyers, purchasing roughly 38 percent of the total sugar delivered in 1999. All industrial and nonindustrial users have increased their purchases of sugar since 1995 with the exception of hotels and restaurants, which have actually reduced their use substantially–by almost one-third.

Factors affecting demand

In terms of quantity, demand for sugar in the United States depends on several factors: the real price of sugar, per capita real income, the real price of sweetener substitutes (e.g., price of HFCS and honey), demand for output of sweetener-containing products, population,

[51] USITC, *Industry and Trade Summary: Natural Sweeteners*, USITC Publication 2545 (AG-8), Nov. 1992.

[52] USDA, ERS, *Sugar and Sweetener Situation and Outlook Yearbook*, May 2000.

[53] USDA, ERS, "U.S. Food Supply Providing More Food and Calories," *Food Review*, Vol. 22, Issue 3, 2000.

population growth rates, and tastes and preferences (e.g., health concerns).[54,55] Depending upon the sector demanding the sugar, these aforementioned factors may or may not apply.

Two definitive sectors demand sugar in the United States (see figure 2): the industrial sector, composed of producers of bakery items, beverages, processed products, confectionery items, dairy products, and the like; and the nonindustrial sector, composed of grocers, hotels, restaurants, and household consumers.

For industrial users, the relative price of alternative sweeteners is one of the most important factors affecting demand.[56] In some instances, alternative sweeteners are directly substitutable for sugar. For example, the increase in the relative price of sugar to HFCS in the late 1970s and early 1980s, lead to the substitution of HFCS for sugar in the soft drink industry. Before the introduction of HFCS as a lower-priced sweetener, sugar had satisfied all sweetener demand, but when it came to direct price competition, HFCS prevailed, capturing virtually the entire soft-drink market share and 43 percent of the overall sweetener market share. In other instances, industrial users find that there is no substitute for sugar. For example, since HFCS comes in liquid form, these sweeteners can only be substitutes for sugar in products that do not require a crystalline structure. In cases where sugar is used as a bulking agent, HFCS would not substitute. This being said, there are products containing sweeteners in liquid form (e.g., liquid sugar) where HFCS would suffice. In such situations,
cost of substitute sweeteners is a determining factor. In 1998, it was estimated that among industrial users of sugar, the bakery and beverage sectors are more responsive to relative price changes (i.e., to a decline in the price of sugar) than the confectionery and dairy sectors.[57]

For the nonindustrial (household) consumer of sweeteners, price is not the major determining factor for demand.[58] In fact, demand for sugar at the household level is rather price inelastic. In a more recent study in 1998, the retail demand elasticity of sugar was estimated to be -.86. Most estimations for the responsiveness of consumers to changes in the price of sugar conclude that for a 1-percent increase in the price of sugar, a less than 1-percent decrease in the quantity demanded of sugar will result. Recent estimates for price elasticity have ranged from -0.50 to -.86.[59, 60]

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[54] M. Benirschka, N. Koo, and J. Lou, "World Sugar Policy Simulation Model: Description and Computer Program Documentation," North Dakota State University, AER No. 356, Aug. 1996.

[55] S.L. Haley, "Modeling the U.S. Sweetener Sector: An Application to the Analysis of Policy Reform," International Agricultural Trade Research Consortium Working Paper #98-5, Aug. 1998.

[56] L.C. Polopolus and J. Alvarez, *Marketing Sugar and Other Sweeteners*, Elsevier: New York, 1991.

[57] S.L. Haley, "Modeling the U.S. Sweetener Sector: An Application to the Analysis of Policy Reform," International Agricultural Trade Research Consortium Working Paper #98-5, Aug. 1998.

[58] Ibid.

[59] N. Uri, "A Re-Examination of the Demand for Sugar in the United States," *Journal of International Food and Agribusiness Marketing*, Vol. 6, No. 2, 1994.

[60] S.L. Haley, "Modeling the U.S. Sweetener Sector: An Application to the Analysis of Policy Reform," International Agricultural Trade Research Consortium Working Paper #98-5, Aug. 1998.

Although price does not weigh heavily in the decision to purchase sugar at the household level for these nonindustrial users, factors such as health concerns weigh into the decision to purchase sugar. Health concerns have a negative effect on the demand of sugar and have spurred an increase in the use of non-caloric sweeteners in recent years (e.g., asparatame and saccharin). Overall, however, as mentioned earlier, consumption of sugar has increased. Increases in income have been found to have a minimal positive effect on the demand for sugar in the United States.[61]

Consumption

Consumption levels and trends

Regardless of health concerns, the American "sweet tooth" has become ever more present in the last two decades, with consumption of sweet treats such as soft drinks, candies, cakes, and dairy desserts such as ice cream on the rise. Americans are the largest consumers of sweeteners in the world and the third largest consumers of sugar in the world behind the EU and Brazil. Since the early 1990s Americans have increased their overall intake of calories, most of which has come from increased consumption of carbohydrates in the form of added sugars–primarily sucrose from cane and beet sugar and corn sweeteners.[62] Even though Americans are consuming more caloric sweeteners in total (158.1 pounds in 1999) (table 2), per capita consumption of cane and beet sugar has been on the decline since the late 1960s to early 1970s. From 1970 to 1999, annual per capita consumption of cane and beet sugar has fallen by 40 percent–from 96 pounds[63] to 68.5 pounds per year (table 2). Americans have been consuming corn sweeteners and artificial sugar substitutes in place of cane and beet sugar. As a component of their total diet, Americans obtain 18 percent (658 calories) of their total daily caloric intake from sugar and sweeteners, a greater portion than in any other region in the world.[64]

One important trend that is worth noting is the increased consumption of organic sugar. From 1995 to 1999 the value of purchases by U.S. consumers of organically grown food products increased by 100 percent, from $2.1 billion to an estimated $4.2 billion.[65] U.S. consumers purchase organically grown sugar less for price reasons than for its perceived health benefits and for its environmental benefits. Organic sugar is produced without pesticides, herbicides, or preharvest burning, and is less processed than refined sugar. Organic sugar is generally a natural brown color, providing an image of a more natural product.

Approximately 1,000 to 1,500 metric tons of organic sugar is produced in the United States annually from sugarcane.[66] The U.S. sugar beet industry is experimenting with organic sugar

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[61] L.C. Polopolus and J. Alvarez, *Marketing Sugar and Other Sweeteners*, Elsevier: New York, 1991.

[62] USDA, ARS, "Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans," 2000.

[63] USDA, ERS, "U.S. Food Supply Providing More Food and Calories," *Food Review*, Vol. 22, Issue 3, 2000.

[64] "Sugar consumption: A defining difference," *Milling & Baking News*, June 6, 2000.

[65] P.J. Buzanell, "The U.S. Organic Sugar Market," *Sugar y Azucar*, Sept. 2000.

[66] Ibid.

production as well, but levels of production are not available. World production of organic sugar ranges from 18 mmt to 40 mmt in a given year.[67] The United States consumes approximately 40 percent of total world production of organic sugar.[68] Thus, organic sugar is imported from countries such as Costa Rica, the Dominican Republic, Colombia, Paraguay, and Brazil in order to meet the growing domestic demand for the product.[69,70] Industrial users are the largest consumer group of organic sugar in the United States, accounting for 70 percent of domestic use.[71] The direct retail sector for organic sugar is growing, but is limited by insufficient supply, owing to low world production levels as well as to limitation on imports through the U.S. sugar TRQs. Apparently, organically grown sugarcane may yield up to 20 percent less sugar than conventionally grown sugarcane and organically grown sugar beets may yield up to 60 percent less sugar.[72]

Import penetration levels

Import levels as a percentage of domestic consumption have fluctuated in recent years (table 9). The levels are correlated with the size of the annual TRQ allocation and to domestic production levels. The import penetration ratio (IPR), which is the ratio of imports to consumption, increased in years when the TRQ was higher and decreased when the United States began tightening the TRQ level. In 1995, just under 20 percent of apparent consumption was contributed by imports. In fiscal year 1996, the URAA TRQ allocations came into effect. In 1996 and 1997, the combined raw and refined sugar TRQ levels were set at 2.2 mmt and 2.15 mmt (see table 18) respectively, yielding IPRs of nearly 30 percent in each year. In 1998 and 1999, the TRQ levels were reduced to around 1.65 mmt and 1.2 mmt, respectively. Subsequently, IPRs dropped to 22 and 18.2 percent, respectively. It should be noted that in years when domestic production of sugar was on the decline, the IPR rose, and *vice versa*.

Table 9
Sugar: U.S. imports, consumption, and import penetration ratio (IPR), 1995-99[1]

Fiscal year	Imports	Consumption	IPR
	— *1,000 metric tons, raw value* —		*Percent*
1995	1,664	8,470	19.6
1996	2,536	8,667	29.3
1997	2,517	8,866	28.4
1998	1,962	8,903	22.0
1999	1,655	9,079	18.2

[1] Fiscal year is the 12-month period beginning October 1 of the previous year and ending September 30.

Note.—IPR equals U.S. imports divided by domestic consumption.
Source: USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, May 2000.

[67] S. Gudoshnikov, "Organic sugar–a growth opportunity for producers?," *International Sugar Journal*, Vol. 102, No. 1221, Sept. 2000.
[68] Ibid.
[69] P.J. Buzanell, "The U.S. Organic Sugar Market," *Sugar y Azucar*, Sept. 2000.
[70] S. Gudoshnikov, "Organic sugar–a growth opportunity for producers?," *International Sugar Journal*, Vol. 102, No. 1221, Sept. 2000.
[71] P.J. Buzanell, "The U.S. Organic Sugar Market," *Sugar y Azucar*, September, 2000.
[72] S. Gudoshnikov, "Organic sugar–a growth opportunity for producers?," *International Sugar Journal*, Vol. 102, No. 1221, Sept. 2000.

Production Levels and Trends

The United States was the fifth-largest producer of sugar in the world in 1999, trailing Brazil, the European Union, India, and China (table 10). The United States contributed approximately 6 percent of the world sugar supply last year (table 10) and 60 percent of the total production in North America in 1999.

U.S. production levels have been trending upward since 1990; and in 1999, production climbed to a record 7.6 mmt (table 11). Both beet and cane sugar levels have been on the rise for the past 3 years. Of the total amount of refined sugar produced in the United States, over half is beet sugar (53 percent in 1999) and the remainder is cane sugar (figure 3).

Domestic Prices

In 1991, domestic producer prices for both raw and refined sugar experienced a considerable decline from their 1990 levels (figure 4). Since then, prices have not been able to recover, but from 1995 to 1999, domestic prices for raw and refined sugar have generally trended upward (figure 4), remaining well above the loan rates of 18 and 22.9 cents, respectively. In the first months of fiscal year 2000,[73] however, prices took a strong downturn, falling below loan rate levels for the first time in years. Increased production along with steady imports under TRQs and slower growth in consumption of sugar led to an excess supply of sugar on the domestic market. Prices did not withstand the pressure of the excess sugar; thus, large-scale forfeitures resulted.

One concern of the sugar industry is that retail prices for refined sugar and SCPs have been rising at a faster rate than wholesale prices for raw and refined sugar in the last decade.[74] As a result, the price margins have been widening each year, creating greater disparity between the price the processors receive for the bulk product and the price retailers receive for the final, packaged product (figure 5). In 1999, retail prices for refined sugar were 62 and 104 percent higher than the wholesale price of refined beet and raw cane sugar, respectively (table 12). The margins have increased substantially since 1995. Consumer prices for retail products containing sugar such as cereal, ice cream, candy, cookies, and cakes have increased since 1995, while producer prices have fallen from 1995 levels. Table 13 presents the producer price index (PPI) levels for raw and refined sugar and the consumer price index (CPI) levels for sugar and sweetener-containing products for the years 1995 through 1999. The PPI shows a slight increase in the producer prices received for raw and refined sugar. In table 13, the PPI is measured in July (i.e., the PPI is not averaged over the course of the year), explaining the contradiction with the fall in absolute price levels in table 12. In comparison to the price increases indicated by the CPI in sugar and sweetener-containing products, producer price increases are marginal.

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[73] Fiscal year is the 12-month period beginning Oct. 1, 1999 and ending Sept. 30, 2000.

[74] See "Exploding the Consumer Sugar Cost Myth: Theory versus Reality," *Sugar y Azucar*, July 1998.

Table 10
Sugar: World production, consumption, imports, and exports, crop-years, 1995-99[1]

Country	1995	1996	1997	1998	1999	Change 95 to 99	Share of 1999
	1,000 metric tons, raw value					Percent	
Production:							
Brazil	12,500	13,700	14,650	15,700	18,300	46.4	14.0
EU	16,761	17,234	18,221	19,305	17,826	6.4	13.7
India	16,410	18,225	14,616	14,592	17,361	5.8	13.3
China	6,299	6,686	7,789	8,631	8,969	42.4	6.9
United States	7,191	6,686	6,536	7,276	7,597	5.6	5.8
Thailand	5,448	6,223	6,013	4,245	5,386	-1.1	4.1
Mexico	4,556	4,660	4,835	5,490	4,985	9.4	3.8
Australia	5,196	5,049	5,659	5,567	4,871	-6.3	3.7
Pakistan	3,212	2,643	2,560	3,805	3,791	18.0	2.9
Cuba	3,300	4,450	4,200	3,200	3,780	14.5	2.9
Other	35,251	36,744	37,832	37,396	37,596	6.7	28.8
Total World	116,124	122,300	122,911	125,207	130,462	12.3	100.0
Consumption:							
India	13,841	14,820	15,697	16,700	16,977	22.7	13.7
EU	14,659	14,146	14,332	14,307	14,256	-2.7	11.5
Brazil	8,000	8,100	8,500	8,800	9,100	13.8	7.3
United States	8,470	8,667	8,866	8,903	9,079	7.2	7.3
China	7,948	8,040	8,268	9,012	9,000	13.2	7.2
Russian Federation	4,900	5,000	5,100	4,960	4,995	1.9	4.0
Mexico	4,310	4,140	4,240	4,240	4,400	2.1	3.5
Pakistan	2,900	3,090	3,050	3,200	3,210	10.7	2.6
Indonesia	2,800	2,900	3,100	3,150	2,800	0.0	2.3
Japan	2,520	2,520	2,374	2,418	2,313	-8.2	1.9
Other	43,649	45,070	46,176	47,288	48,227	10.5	38.8
Total World	113,997	116,493	119,703	122,978	124,357	9.1	100.0
Imports:							
Russian Federation	2,700	3,200	3,600	4,210	5,400	100.0	15.0
EU	2,137	1,813	1,808	1,829	1,867	-12.6	5.2
Indonesia	301	919	1,091	921	1,788	494.0	5.0
United States	1,664	2,536	2,517	1,962	1,655	-0.5	4.6
Japan	1,703	1,673	1,608	1,592	1,542	-9.5	4.3
Korea	1,345	1,411	1,497	1,424	1,403	4.3	3.9
Malaysia	1,030	1,120	1,166	1,065	1,186	15.1	3.3
Canada	1,020	1,174	1,057	1,061	1,110	8.8	3.1
Algeria	990	1,000	920	925	940	-5.1	2.6
Iran	800	940	1,350	1,200	900	12.5	2.5
Other	16,598	18,342	19,118	19,747	18,129	9.2	50.5
Total World	30,288	34,128	35,732	35,936	35,920	18.6	100.0
Exports:							
Brazil	4,300	5,800	5,800	7,200	8,750	103.5	24.4
EU	5,449	4,629	5,228	6,361	5,329	-2.2	14.8
Australia	4,321	4,242	4,564	4,554	4,076	-5.7	11.4
Thailand	3,809	4,537	4,194	2,839	3,352	-12.0	9.3
Cuba	2,600	3,800	3,600	2,500	3,200	23.1	8.9
South Africa	369	399	1,056	1,160	1,355	267.2	3.8
Guatemala	931	923	1,075	1,361	1,086	16.6	3.0
Colombia	523	694	821	1,020	960	83.6	2.7
Mexico	235	587	750	1,224	590	151.1	1.6
Pakistan	349	0	0	628	540	54.7	1.5
Other	7,002	8517	8644	6549	6682	-9.7	18.6
Total World	30,288	34128	35732	35396	35920	18.6	100.0

[1] Crop years vary by country.

Source: USDA, ERS *Sugar and Sweetener Situation and Outlook Report*, May 2000.

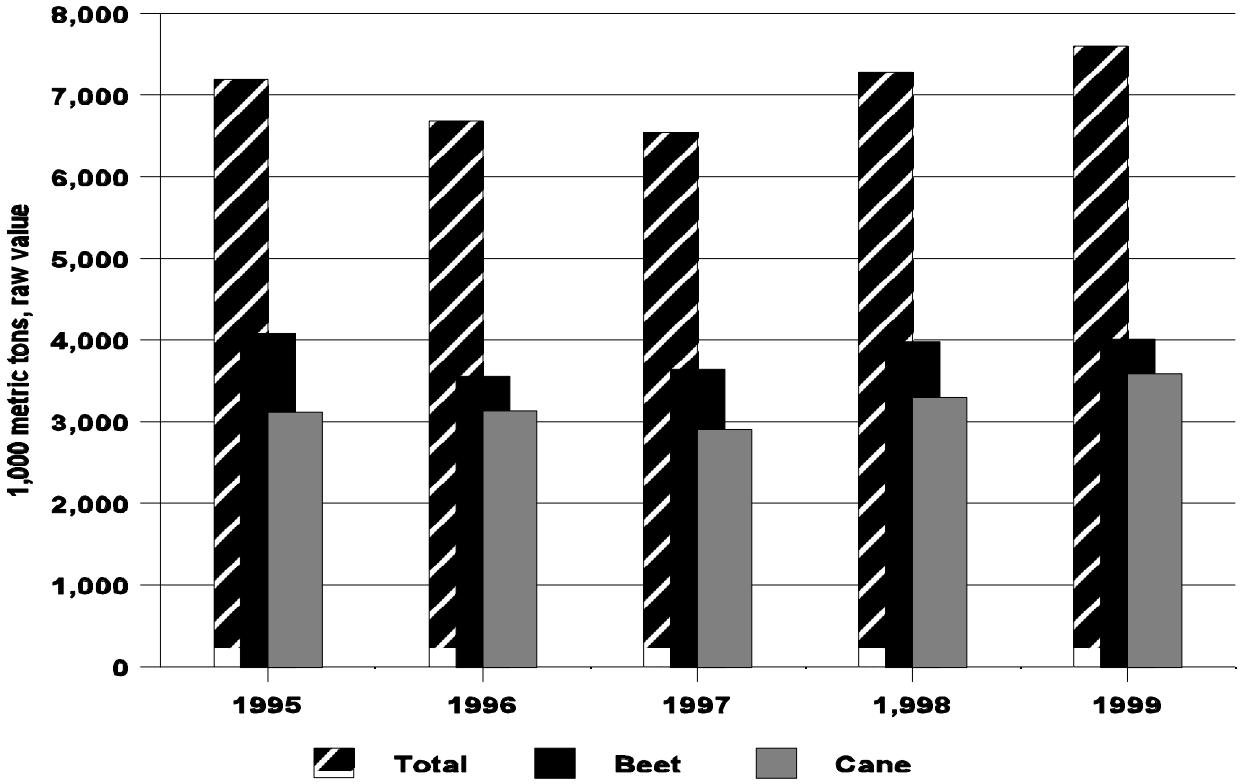
Table 11
Sugar: U.S. production, 1995-99[1]

Items	1995	1996	1997	1998	1999
	1,000 metric tons, raw value[2]				
Production:					
Beets	4,077	3,553	3,641	3,982	4,013
Cane	3,115	3,134	2,904	3,294	3,585
Total	7,192	6,687	6,545	7,276	7,598
	Percent				
Share of production:					
Beets	57	53	56	55	53
Cane	43	47	44	45	47
	Million dollars				
Value of production:					
Beets[3]	2,322	2,287	2,175	2,293	2,363
Cane[4]	1,577	1,548	1,406	1,602	1,672
Total	3,899	3,835	3,581	3,895	4,035

[1] Fiscal year refers to the 12-month period beginning October 1 and ending September 30 of the following year.
[2] Quantity converted to metric tons by multiplying short tons by .9072.
[3] Valued at wholesale domestic price for refined beet sugar (table 12).
[4] Valued at wholesale domestic price for raw cane sugar (table 12).

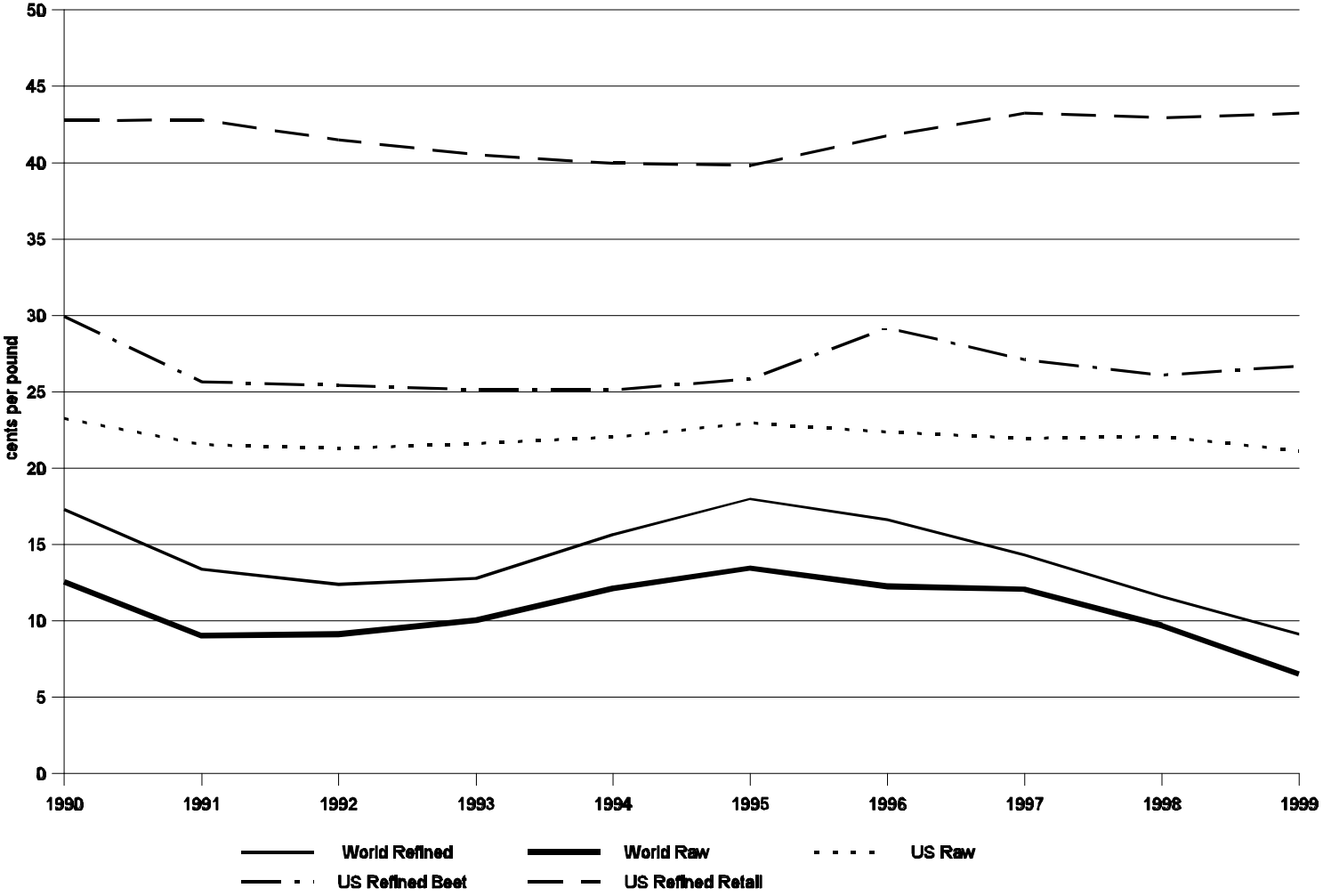
Note.—Total production may differ from figures in table 10 due to rounding.

Figure 3
Sugar: U.S. production, 1995-99



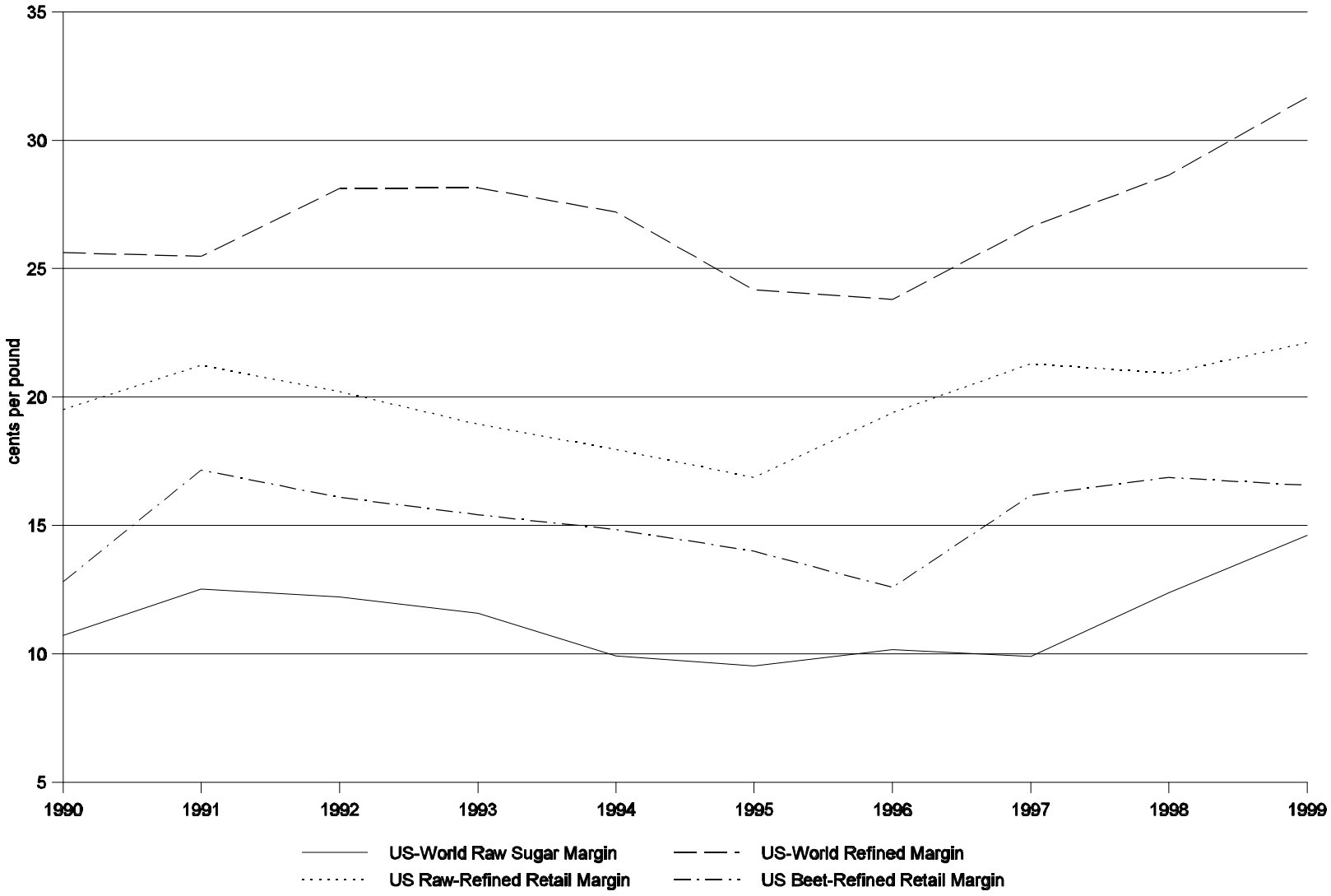
Source: USDA, FSA, *Sweetener Market Data Yearbook,* fiscal year 1999.

Figure 4
Sugar: Domestic and world prices, 1990-99



Source: USDA, ERS, *Sugar and Sweetener Situation and Outlook Report,* Jan. 2000.

Figure 5
Sugar: Price margins, 1990-99



Source: USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.

Table 12
Sugar: World prices, U.S. prices, and price margins, 1995-99[1]

Prices/margins	1995	1996	1997	1998	1999	Change 95-99
	Cents per pound					*Percent*
World prices:						
Raw	13.44	12.24	12.06	9.68	6.54	-51.3
Refined	17.99	16.64	14.33	11.59	9.13	-49.2
U.S. prices:						
Raw	22.96	22.40	21.96	22.06	21.16	-7.8
Refined beet (wholesale)	25.83	29.20	27.09	26.12	26.71	3.4
Refined retail	39.83	41.79	43.26	42.98	43.27	8.6
	Percent					
Price margins:						
U.S. raw - World raw sugar	71	83	82	128	224	153
World refined sugar - U.S. refined retail	134	143	186	247	347	213
U.S. raw - U.S. refined retail sugar	73	87	97	95	104	31
U.S. refined beet (wholesale) - U.S. refined retail sugar	54	43	60	65	62	8

[1] Fiscal year is the period beginning Oct. 1 of the previous year and ending Sept. 30.

Source: USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.

Table 13
U.S. producer price index for sugar and consumer price index for sugar and selected sweetener-containing products

Indices	1995	1996	1997	1998	1999	Change 1995-99
	June 1992 = 100					*Percent*
Producer price index						
Raw cane sugar	112.1	116.5	115.5	113.8	114.1	1.78
Refined beet sugar	109.2	109.9	115.9	116.8	113.0	3.48
Refined cane sugar	123.3	124.5	127.9	127.1	123.7	0.32
	1982-84 = 100					
Consumer price index:						
Nonalcoholic beverages	131.7	128.6	133.4	133.0	134.3	1.97
Sugar and sweets	137.5	143.7	147.8	150.2	152.3	10.76
Flour and prepared flour mixes	140.8	151.6	156.2	159.1	160.9	14.28
Cereal	192.5	189.9	187.5	189.9	195.2	1.40
Cookies, fresh cakes and cupcakes	169.1	174.1	179.2	181.2	185.0	9.40
Other bakery products	168.3	176.5	180.2	184.3	186.7	10.93
Ice cream and related products	137.4	144.6	150.6	155.5	161.7	17.69

Source: USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Sept. 2000.

U.S. Trade

Overview

The United States administers a TRQ for sugar and limits in-quota imports to approximately 1.25 mmt in accordance with the URAA. Over-quota imports are essentially nonexistent, as they face a prohibitive tariff of 242 percent *ad valorem* equivalent. Exports of U.S. sugar are very small and occur only as a result of the sugar re-export program, as the domestic price for sugar exceeds the world price by nearly 250 percent and creates no incentive for U.S. exporters to export their products.

U.S. Imports

Import levels

The United States is a net importer of sugar and in 1999 was the world's fourth-largest importer of the commodity behind the EU, the Russian Federation, and Indonesia. In 1999, the total value of imports of sugar in raw and refined forms totaled approximately $640 million (see table A-1). Total import levels of sugar on a raw equivalent basis for 1995 through 1999 are provided in table 9. In-quota imports by country are found in table 18.

Products imported

Sugar is separately imported into the United States under 34 different 8-digit tariff lines in chapter 17 and one tariff line in chapter 21 of the HTS. For convenience, raw and refined sugar tariff lines are provided in table A-1.[75]

Twenty of the 34 sugar tariff lines in chapter 17 are under heading 1701 and cover cane or beet sugar and chemically pure sucrose in solid form (including powder). Raw cane and raw beet sugars are imported under subheadings 1701.11 and 1701.12, respectively.[76] Raw sugars enter in the form of brown crystals, the brown color resulting from the presence of impurities. The impurities present in raw sugar make it unfit for human consumption; however, a form of raw sugar imported into the United States, called turbinado sugar has a high enough degree of purity so as to be safely consumed by humans. Most of the raw sugar is imported under 1701.11 and 1701.12, but generally requires further processing at a refinery.

Refined cane or beet sugars are imported under subheadings 1701.91, 1701.99, 1702.90.10, and 2106.90.44. Refined sugar enters in varying forms and in varying degrees of fineness, coloring, and flavoring. Pure refined sugar, in solid form, not containing any added flavoring or coloring, falls in subheading 1701.99 in forms such as retail packets, cubes, slabs, bulk packages, and pure sugar candies (e.g., rock candy and pearl sugar). Refined sugar, in solid

[75] Tariff lines for sugar cane and sugar beets from chapter 12 are also included.

[76] Only HTS 1701.11 is subject to the raw cane sugar TRQ. Raw beet sugar imported under 1701.12 is classified under the refined sugar TRQ.

form, containing added coloring or flavoring, is provided for in subheading 1701.91 as products such as flavored sugars (e.g., cinnamon sugar), sugar decorations (e.g., cake decorations), and dyed sugar candies (e.g., rock candy with red or blue dye), to name a few. Refined sugar in the form of sugar syrup or 'liquid sugar' is imported under subheadings 1702.90.10 (in-quota) and 1702.90.20 (over-quota) when it contains sugar derived from cane or beet, no more than 6 percent non-soluble solids (i.e., approximately 94 percent refined sugar), and no added flavoring or coloring. Refined sugar can also be imported as a sugar syrup under 2106.90.44 and 2106.90.46 when it contains coloring, but no added flavoring. Imports of this product are generally near zero, as it is rare to market liquid sugar with added coloring but without added flavoring as well.[77] When sugar syrups contain no added flavoring or coloring, subheadings 1702.90.54 and 1702.90.58 apply. Other sugars containing over 65 percent by dry weight of sugar enter the United States under 1702.90.64 and 1702.90.68.

Principal import suppliers

The five principal import suppliers of raw sugar to the United States are Brazil, the Dominican Republic, the Philippines, Australia, and Guatemala, in that order (table 14). In 1999, these five countries supplied approximately 56 percent of total U.S. raw sugar imports, with Brazil supplying 17 percent; the Dominican Republic 14 percent; the Philippines 14 percent; Australia 7 percent; and Guatemala 5 percent. Total imports of raw sugar from the aforementioned countries were valued at $252 million in 1999, which was over 60 percent of the total value of raw sugar imports (table 14). Most of the raw sugar imported into the United States is raw cane sugar.

Mexico, Canada, Guatemala, Paraguay, and Brazil dominate U.S. imports of pure refined sugar; imports from these countries comprised 91 percent of total quantity and 88 percent of total value of pure refined sugar imports in 1999 (table 14). The Philippines, Mauritius, Hong Kong, Canada, and Italy are the top five exporters to the United States of refined sugar in solid form, containing added coloring or flavoring (not shown in table 14). Switzerland, China, and Canada are the main exporters of sugar syrups to the United States (not shown in table 14).

U.S. Trade Measures

Tariff measures

Table A1 shows the column 1 rates of duty as of January 1, 2000 for articles included in this summary. Tariff rates for cane and beet sugar are set forth in heading 1701 of chapter 17 of the HTS. Criteria used to classify sugar under consideration in this summary are included in the General Rules of Interpretation of the HTS and in chapter notes and tariff descriptions. In addition, "raw sugar" is defined in subheading note 1 to chapter 17 as "...sugar whose content of sucrose by weight, in the dry state, corresponds to a polarimeter reading of less than 99.5 degrees," where "degree" means International Sugar Degree as determined by a polarimetric test performed in accordance with procedures recognized by the International Commission for Uniform Methods of Sugar Analysis.

[77] Conversation with National Import Specialist, U.S. Customs, May 9, 2000.

Table 14
Raw and refined sugar: U.S. imports for consumption, by country, 1995-99

Products	1995	1996	1997	1998	1999	Change 1995-99	Share of 1999
	1,000 metric tons					*Percent*	
Raw sugar:[1]							
Imports:							
Brazil	209	317	347	213	174	-16.8	16.9
Dominican Republic	180	330	480	292	143	-20.6	13.9
Philippines	140	260	319	183	141	0.0	13.7
Australia	124	230	130	148	75	-39.5	7.3
Guatemala	53	117	93	74	46	-13.5	4.5
Other countries	610	938	942	765	448	-26.6	43.6
Total	1,316	2,192	2,311	1,675	1,027	100.0	100.0
	Million dollars						
Import value:							
Brazil	91	126	117	94	69	-24.2	16.8
Dominican Republic	84	150	173	114	65	-22.6	15.8
Philippines	67	98	101	82	65	-3.0	15.8
Australia	52	102	57	63	33	-36.5	8.0
Guatemala	21	55	33	31	20	-4.8	4.9
Other countries	269	371	347	276	158	-41.2	38.6
Total	584	902	828	660	410	-29.8	100.0
	Dollars per metric tons						
Unit value:							
Brazil	435	397	337	441	397	-8.9	([2])
Dominican Republic	467	455	360	390	455	-2.6	([2])
Philippines	479	377	317	448	461	-3.7	([2])
Australia	419	443	438	426	440	4.9	([2])
Guatemala	396	470	355	419	435	9.7	([2])
Other countries	441	395	368	360	353	-19.9	([2])
Average	444	411	358	394	399	-10.0	([2])
	1,000 metric tons						
Refined sugar:[3]							
Imports:							
Mexico	0	14.1	20.3	13.3	18.1	100.0	34.8
Canada	22.8	7.6	11.6	11	12	47.4	24.4
Guatemala	0	2.6	1.4	5.2	9.6	100.0	19.5
Paraguay	0	0	7.3	3	4.9	100.0	10.0
Brazil	4.3	2.1	2.8	0.7	1.9	-55.8	2.6
Other countries	13	13.4	2.3	2.3	4.3	-66.9	8.7
Total	40.1	39.8	38.4	35.5	50.8	26.7	100.0
	Million dollars						
Import value:							
Mexico	0	6.6	10.6	5	8.6	100.0	35.1
Canada	9.4	4.6	6	5.9	6.4	31.9	26.1
Guatemala	0	0.8	0.4	2.4	3.4	100.0	13.8
Paraguay	0	0	0	1.8	2.6	100.0	10.7
Brazil	2.6	1.1	1	0.3	0.6	-323.3	2.5
Other countries	6.9	6	2.4	1.9	2.9	-140.3	11.7
Total	18.9	19.2	20.4	17.3	24.4	22.5	100.0
	Dollars per metric tons						
Unit value:							
Mexico	0	470	521	393	500	100.0	([2])
Canada	497	609	518	536	531	6.3	([2])
Guatemala	0	308	286	462	354	100.0	([2])
Paraguay	0	0	0	597	531	100.0	([2])
Brazil	605	524	357	429	462	-23.6	([2])
Other countries	529	450	1,043	826	674	27.4	([2])
Average	522	482	531	497	498	-4.6	([2])

[1] Includes raw cane and beet sugarHTS codes 1701.11.10, 1701.11.50, 1701.12.10, and 1701.12.50.
[2] Not available.
[3] Excludes refined sugar with added flavoring and/or coloring, SCPs, and sugar syrups. Includes pure refined sugarHTS codes 1701.99.10 and 1701.99.50.

Source: U.S. Department of Commerce, U.S. Treasury, and U.S. International Trade Commission.

Tracing the appropriate tariff rates for sugar (and SCPs) becomes quite complicated due to policy structure (e.g., TRQs and special safeguards (SSGs)), varying tariff types (e.g., *ad valorem*, specific, compound, and technical tariffs[78]), preferential agreements (e.g., NAFTA, CBERA), product identity, and an intricate footnote scheme that cross-references provisions in several HTS chapters. Preferential rates are offered for 19 of the 20 rate lines listed in heading 1701, and about 65 percent of the tariff lines included in heading 1701 make available a preferential rate of "Free."[79] Appendix B provides a review of the structure of the HTS for sugar and SCPs, which clarifies the process by which tariff rates and import quantities are determined. Also, for further understanding of the preferential tariff rates, an explanation of tariff and trade agreement terms is given in appendix C.

While tariff measures in the form of TRQs are currently used to regulate the level of sugar imports into the United States, absolute import quotas under section 22 of the Agricultural Adjustment Act and other authorities were the primary means prior to 1991. During the time absolute quotas were administered, only a single tariff line existed for each of the following: raw cane sugar, raw beet sugar, and refined sugar in chapter 17 of the HTS. Subheading 1701.11 listed the raw cane sugar tariff rate, 1701.12 listed the raw beet sugar tariff rate, and 1701.91 listed the tariff rate for refined sugar. The column 1-general rates of duty for each of these products was "1.4606 cents per kilogram less .020668 cent per kilogram for each degree under 100 degrees and fractions of a degree in proportion, but not less than 0.943854 cent per kilogram." During this period, column 1-special in-quota duty-free tariff rates existed for GSP countries, CBERA countries, and Israel. Thus, column 1 tariff rates (general and special) applied to imports from those countries that owned a portion of the import quota.

As a result of a GATT panel ruling, on September 13, 1990, absolute quotas for raw cane and refined sugar were converted to TRQs, creating a two-tiered tariff system that offered a low in-quota tariff rate for imports from countries holding portions of the import quota and a higher over-quota tariff rate for all other imports.[80] This system was designed to provide the opportunity for over-quota imports if importers were willing to pay the over-quota tariff rate. Over-quota tariff rates were added to the HTS for raw cane sugar, raw beet sugar and refined sugar.[81] In addition, SSGs, based upon the value of the imported product, were automatically applied to over-quota tariff imports, increasing the actual level of protection to equal the over-quota tariff rate plus the SSG.

When the United States negotiated NAFTA with Canada and Mexico, they were given access to the preferential in-quota tariff rate of "Free," but Canada was granted no preferences for

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[78] Technical tariffs, as classified by the WTO, include those tariffs based upon technical formulations such as those based on alcohol content, sugar content, or the value of the imported product.

[79] Duty-free preferential rates are offered to eligible products in accordance with the Caribbean Basin Economic Recovery Act; the United States-Israel Free Trade Implementation Act of 1985 (IFTA); the Andean Free -Trade Preference Act (AFTPA); Generalized System of Preferences (GSP); the North American Free-Trade Agreement (NAFTA); and the Caribbean Basin Economic Recovery Act (CBERA).

[80] TRQs were also implemented for SCPs.

[81] The initial over-quota tariff rates for all three commodities were technical tariff rates of 37.386 cents per kilogram less 0.529 cent per kilogram for each degree under 100 degrees and fractions of a degree in proportion, but not less than 24.161 cents per kilogram.

over-quota tariff rates. Mexico, on the other hand, was allocated its own TRQ, which was not part of the already established global TRQ, and was granted preferential over-quota tariff rates. Table A-2 lists the preferential tariff rates for Mexico found in chapter 99, subchapter VI of the HTS.

The two-tiered tariff quota regime that the United States had implemented in 1990 was continued under the URAA, and so structurally the URAA was not difficult to implement (i.e., the structure of the HTS for sugar was not changed as a result of the URAA). As a condition of the URAA, all countries agreed to convert non-tariff barriers (e.g., absolute import quotas, embargoes, etc.) to tariffs (known as the process of 'tariffication') by calculating the actual gap that existed between domestic and world prices in the base period, 1986-1988. In addition, each country agreed to reduce those tariffs by an unweighted average of 36 percent (15 percent minimum per tariff line) over the implementation period.[82]

During the process of tariffication, the United States actually increased its over-quota tariffs from 1994 levels of 16.96 cents per pound for raw and refined sugar to 17.86 cents per pound for raw sugar and to 19.07 cents per pound for refined sugar. Table 15 illustrates the process of tariffication performed by the United States for raw and refined sugar.

Table 15
Raw and refined sugar: URAA base period world and domestic prices and URAA over-quota tariff commitment levels

No.	Description	Raw sugar		Refined sugar	
		Cents per pound	*Cents per kilogram*	*Cents per pound*	*Cents per kilogram*
i	1986-88 average domestic price[1]	21.63	47.69	24.14	53.22
ii	1986-88 average world price[1]	7.64	16.84	9.74	21.47
iii	1986-88 actual domestic and world price gap = (i) - (ii)	13.99	30.85	14.40	31.75
iv	Initial URAA over-quota tariff commitment level[2]	18.08	39.86	19.07	42.04
v	Difference between initial over-quota tariff and actual price				
vi	gap = (iv) - (iii)	4.09	9.01	4.67	10.29
vii	2000 final over-quota tariff level[2]	15.36	33.86	16.21	35.74
	Difference between final over-quota tariff and actual price gap = (vi) - (iii)	1.37	3.01	1.81	3.99

[1] USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.
[2] URAA Schedule of Commitments: Schedule XX–United States, Part I, Section I-A.

Note.—URAA base period is 1986-88.

[82] For the most part, the implementation period for developed countries spanned 1995 through 2000 and for developing countries 1995 through 2004.

As shown in table 15, using price information from USDA and scheduled tariff levels, over-quota tariffs were set above the actual gap that existed between the domestic and world prices during the base period (at 4.09 cents per pound and 4.67 cents per pound for raw and refined sugar, respectively). Also, the price and tariff information reported in table 15 shows that even after tariff reductions of 15 percent (table 16), the 2000 final over-quota tariff levels remain above the gap between domestic and world prices that existed in the base period (at 1.37 cents per pound and 1.81 cents per pound for raw and refined sugar, respectively).

Table 16 provides the scheduled base level tariffs and the tariff reduction commitments made by the United States during the URAA in both specific and *ad valorem* equivalent terms. The United States reduced all over-quota sugar tariffs by the required minimum of 15 percent. In-quota tariffs remained at their preexisting levels. SSGs were scheduled with the WTO as well. Table A-3 shows the value-based and quantity-based SSGs that were scheduled during the URAA. Value-based SSGs are automatically applied to over-quota imports, effectively increasing the amount of the over-quota tariffs by the level of the SSGs. Shipments from Mexico and Canada are not subject to SSGs.

Nontariff measures

As mentioned earlier, TRQs for raw and refined sugar were first implemented in 1990, negotiated separately with Mexico as part of NAFTA, and scheduled with the WTO during the URAA.

NAFTA tariff-rate quotas

The U.S. schedule of concessions under NAFTA granted Mexico its own TRQs for sugar, under which the country may ship both raw and refined sugar. The level of the TRQs for raw and refined sugar for Mexico, and the precise conditions under which Mexico may ship sugar, are not completely published in the NAFTA or in the HTS, but rather, in what is termed a "side letter" (side-agreement) to the NAFTA. Under the provisions of the side letter, the quantitative limitations on imports for raw and refined sugar from Mexico are as follows: In years 1-6 (1994-1999), the greater of 7,258 metric tons (minimum boat load) or the "other country" share of the TRQ if Mexico is not a net surplus producer or 25,000 metric tons if Mexico is a net surplus producer; in years 7-14 (2000-2007), the greater of 7,258 metric tons or the "other country" share of the TRQ if Mexico is not a net surplus producer or surplus production up to 250,000 metric tons; in year 15 (2008), the TRQs are eliminated, allowing for a common market for sugar between the United States and Mexico.

The validity of the side letter has been brought into question by Mexico, causing the United States and Mexico to enter into negotiations over the interpretation of 'net surplus producer' and the level of the yearly TRQ allotments in comparison to the original NAFTA provisions.[83] Under the original NAFTA provisions, 'net surplus producer' status was to be determined based on sugar production minus sugar consumption, but under the side letter, net surplus producer is stated to be sugar production minus the sum of sugar consumption

[83] B.W. Dyer & Company, *Dyergram*, "Mexico Dispute to go to NAFTA Panel After Negotiations Fail," Aug. 24, 2000.

Table 16
Raw and refined sugar: Over-quota tariff reduction commitments under the URAA

Commodity (HTS)	Base		1995		1996		1997		1998		1999		2000		Total tariff reduction
	Cents per pound	*Cents per kilogram*	*Cents per pound*	*Cents per kilogram*	*Cents per pound*	*Cents per kilogram*	*Cents per pound*	*Cents per kilogram*	*Cents per pound*	*Cents per kilogram*	*Cents per pound*	*Cents per kilogram*	*Cents per pound*	*Cents per kilogram*	*Percent*
Raw sugar:[1]															
1701.11.50	18.08	39.86	17.64	38.89	17.17	37.85	16.72	36.86	16.27	35.86	15.82	34.88	15.36	33.86	15
Refined sugar:[2]															
1701.12.50	19.07	42.04	18.6	41.00	18.12	39.95	17.64	38.89	17.16	37.83	16.69	36.79	16.21	35.74	15
1701.12.50	19.07	42.04	18.6	41.00	18.12	39.95	17.64	38.89	17.16	37.83	16.69	36.79	16.21	35.74	15
1701.12.50	19.07	42.04	18.6	41.00	18.12	39.95	17.64	38.89	17.16	37.83	16.69	36.79	16.21	35.74	15
1701.12.50	19.07	42.04	18.6	41.00	18.12	39.95	17.64	38.89	17.16	37.83	16.69	36.79	16.21	35.74	15

[1] The corresponding in-quota tariff rate for raw sugar is 1701.11.10.
[2] The corresponding in-quota tariff rates for refined sugar are 1701.12.10, 1701.91.10, 1701.99.10, and 2106.90.44, respectively.

Note.—Over quota imports are subject to additional special safeguard duties found in chapter 99, subchapter IV of the HTS. Thus, the actual over quota tariff rate charged to nonquota holders is the rate listed above plus the additional safeguard rate based upon the value of the imported product.

Source: URAA Schedule of Commitments: Schedule XX–United States, Part I, Section I-A.

and HFCS consumption. The net surplus producer calculation is used in the determination of the size of Mexico's TRQ each year. Under the original NAFTA terms, as of year 7, if Mexico had been a net surplus producer for at least one year, the country would gain access for 150,000 metric tons. In years 8-14, if Mexico had been a net surplus producer for one year, the amount would increase to 110 percent of the previous year's access; otherwise, if Mexico had been a net surplus producer for 2 years, all surplus production could be imported into the United States. After the calculation for 'net surplus producer' is performed, the United States Trade Representative (USTR) announces Mexico's TRQ amount in conjunction with the overall TRQ for raw and refined sugar. In 1996, Mexico was not considered a net surplus producer, so the USTR allocated 7,258 metric tons of the raw sugar quota and 7,258 metric tons of the refined sugar quota to Mexico. In the years 1997 through 2000, Mexico was determined to be a net surplus producer, so under the provisions of the side letter, was permitted to ship 25,000 metric tons of raw or refined sugar. The USTR "double allocates" TRQ amounts to Mexico. That is, Mexico was allocated 25,000 metric tons of the raw sugar TRQ and 25,000 metric tons of the refined sugar TRQ; however, Mexico was permitted to export half of the total amount (up to 25,000 metric tons) allocated by the USTR (see table 18).

Mexico has contested the allocation level for year 7, which under the side letter is for quantities up to 250,000 metric tons. The Mexican Government` believes that pursuant to the original NAFTA, Mexico should be allowed to export all surplus production to the United States. The two countries have been in extensive negotiations over the issue; in recent months, Mexico has announced that it will take the United States to a NAFTA dispute settlement panel. In the meantime, based upon net surplus producer calculations, the United States allocated 116,000 metric tons to Mexico for fiscal year 2001. As of the date of preparation of this summary, the issue has not been resolved.

URAA tariff-rate quotas

As part of the URAA, each country was required to maintain "current access" (CA) (at the time of negotiation) to their markets and if that access was not at least 5 percent of domestic consumption in the base period (1986-88), then the country was required to make a "minimum access commitment" (MAC) of 3 percent of domestic consumption in the base period, increasing to 5 percent by the year 2000.

The TRQ was selected by the WTO members as an acceptable policy instrument that met the criteria for both ending absolute quotas and ensuring market access. Thus, several countries scheduled TRQs with the WTO and agreed to increase access (or maintain access if already at 5 percent) to MAC levels during the 5-year implementation period. Because the United States had already converted its absolute import quotas to TRQs for sugar years earlier, the country officially scheduled their TRQ levels for raw and refined sugar with the WTO.

Each year, the USDA calculates TRQ levels and the USTR announces the yearly country-by-country allocation amounts. The United States tends to announce actual TRQ levels that exceed the scheduled minimum TRQ amounts each year for both raw and refined sugar. Table

17 provides the scheduled WTO (and NAFTA)[84] TRQs versus the actual announced TRQ amounts for 1996 through 2000.

Table 17
Raw and refined sugar: U.S. access commitment levels under the URAA and actual TRQ allocation levels

Fiscal year	URAA commitment	Actual TRQ allocation[1]	Difference
	Metric tons		
Raw sugar:			
1996	1,117,195	2,167,160	1,049,965
1997	1,117,195	2,100,001	982,806
1998	1,117,195	1,600,000	482,805
1999	1,117,195	1,164,937	47,742
2000	1,117,195	1,135,000	17,805
Refined sugar:			
1996	22,000	22,000	0
1997	22,000	47,000	25,000
1998	22,000	50,000	28,000
1999	22,000	50,000	28,000
2000	22,000	60,000	38,000

[1] Mexico is included in these actual TRQ allocations.

Note.—Mexico is allocated 25,000 metric tons of the raw sugar TRQ and 25,000 metric tons of the refined sugar TRQ; however, Mexico is limited to shipping 25,000 metric tons in total of either raw or refined sugar. Thus, Mexico's TRQ is double allocated in this table. USTR double allocated to Mexico in the years 1995-2000.

Table 18 lists total TRQ imports along with individual country allocations and TRQ fill rates. In aggregate, the TRQs for raw and refined sugar have high fill rates–the overall fill rate reached almost 96 percent in 1999. Quota holding countries have an incentive to fill their portion of the TRQ, as the TRQ effectively raises the export price to the foreign producer equal to the difference between the domestic price in the United States and the world price (i.e., the exporting country captures virtually all of the economic rents created by the TRQ).

The Dominican Republic, Brazil, Philippines, and Australia hold the largest allocations and generally export the entire amount of their llotments. Most other individual country allocations also exhibit high fill rates, although there are some exceptions. Some countries that own minuscule amounts of the TRQ (e.g., Haiti, Gabon, and Cote D'Ivoire) appear to have difficulty filling their quota each year. These amounts are not reallocated to other countries, but rather go unused. There are no use-it-or-lose-it provisions as in the case of U.S. dairy TRQs,[85] so countries receive the same prorated share of the yearly TRQ regardless of whether or not their quota was filled in the previous year.

[84] NAFTA TRQs are included in the actual annual TRQ allocation, but are considered to be in addition to the WTO TRQ.

[85] See D.S. Boughner, "The Economics of Two-tiered Tariff-rate Import Quotas: An Empirical Application to the United States Dairy Industry," M.S. thesis, Cornell University, 1999 for details on U.S. dairy TRQs.

Table 18
U.S. raw and refined sugar TRQ allocations and actual imports, by country, 1996-99

Country	1996 TRQ allocation	1996 Actual imports	1996 Fill rate	1997 TRQ allocation	1997 Actual imports	1997 Fill rate	1998 TRQ allocation	1998 Actual imports	1998 Fill rate	1999 TRQ allocation	1999 Actual imports	1999 Fill rate
	Metric tons		*Percent*	*Metric tons*		*Percent*	*Metric tons*		*Percent*	*Metric tons*		Percent
Raw cane sugar:												
Dominican Republic	350,940	329,516	93.9	357,060	355,454	99.6	268,350	267,130	99.5	190,657	190,621	100.0
Brazil	323,271	323,268	100.0	294,169	294,207	100.0	221,084	220,358	99.7	157,076	157,076	100.0
Philippines	237,422	237,110	99.9	273,881	254,431	92.9	205,837	202,090	98.2	146,243	145,448	99.5
Australia	185,044	185,044	100.0	168,386	168,756	100.2	126,552	127,062	100.4	89,912	89,402	99.4
Guatemala	107,014	107,014	100.0	97,380	97,884	100.5	73,186	72,907	99.6	51,997	51,997	100.0
Argentina	95,867	95,867	100.0	87,236	87,226	100.0	65,563	65,517	99.9	46,581	45,178	97.0
Peru	91,407	91,407	100.0	83,179	83,310	100.2	62,513	62,578	100.1	44,415	44,350	99.9
Panama	57,825	48,158	83.3	58,834	55,049	93.6	44,217	44,138	99.8	31,415	31,412	100.0
El Salvador	57,966	57,966	100.0	52,748	52,748	100.0	39,643	39,925	100.7	28,165	27,961	99.3
Colombia	53,506	53,126	99.3	48,690	53,177	109.2	36,593	33,751	92.2	25,999	23,685	91.1
Mexico[2]	7,258	6,973	96.1	25,000	23,892	95.6	25,000	25,000	100.0	25,000	23,715	94.9
South Africa	51,278	51,278	100.0	46,661	46,385	99.4	35,069	35,173	100.3	24,915	24,915	100.0
Nicaragua	46,819	45,901	98.0	42,604	42,417	99.6	32,019	32,137	100.4	22,749	22,584	99.3
Swaziland	35,673	35,673	100.0	32,460	32,720	100.8	24,395	24,480	100.3	17,332	17,332	100.0
Costa Rica	33,411	33,441	100.1	30,431	30,519	100.3	22,871	22,835	99.8	16,249	16,249	100.0
Thailand	31,213	31,212	100.0	28,403	28,481	100.3	21,346	21,313	99.8	15,166	15,109	99.6
Mozambique	28,983	25,686	88.6	26,374	26,689	101.2	19,821	20,083	101.3	14,083	14,083	100.0
Guyana	26,754	26,754	100.0	24,345	24,558	100.9	18,297	18,329	100.2	12,999	12,999	100.0
Taiwan	26,754	26,754	100.0	24,345	24,374	100.1	18,297	18,300	100.0	12,999	12,999	100.0
Zimbabwe	26,754	26,754	100.0	24,345	24,420	100.3	18,297	18,244	99.7	12,999	12,999	100.0
Mauritius	26,754	23,695	88.6	24,345	24,488	100.6	18,297	18,526	101.3	12,999	5,941	45.7
Belize	24,523	24,524	100.0	22,316	22,420	100.5	16,772	16,796	100.1	11,916	11,916	100.0
Ecuador	24,523	24,523	100.0	22,316	22,353	100.2	16,772	16,772	100.0	11,916	11,916	100.0
Jamaica	24,523	24,523	100.0	22,316	22,068	98.9	16,772	16,616	99.1	11,916	11,742	98.5
Honduras	22,294	20,173	90.5	20,288	20,339	100.3	15,247	15,317	100.5	10,833	10,833	100.0
Malawi	22,294	17,970	80.6	20,288	10,847	53.5	15,247	11,968	78.5	10,833	10,833	100.0
Fiji	20,065	20,065	100.0	18,259	18,355	100.5	13,722	10,795	78.7	9,750	9,750	100.0
Bolivia	17,835	17,660	99.0	16,230	16,339	100.7	12,198	11,413	93.6	8,666	8,555	98.7
India	15,951	14,311	89.7	16,230	16,076	99.1	12,198	12,554	102.9	8,666	8,503	98.1
Trinidad-Tobago	15,606	15,606	100.0	14,201	14,164	99.7	10,673	10,946	102.6	7,583	7,249	95.6
Barbados	12,311	0	0	11,359	0	0	7,830	0	0	7,583	0	0
Uruguay	7,258	7,023	96.8	7,258	6,997	96.4	7,258	7,404	102.0	7,258	7,258	100.0
Papua New Guinea	7,258	0	0	7,258	7,362	101.4	7,258	104	1.4	7,258	7,258	100.0
Madagascar	7,258	7,258	100.0	7,258	7,307	100.7	7,258	7,312	100.7	7,258	7,059	97.3

See footnotes at end of table.

Table 18–*Continued*
U.S. raw and refined sugar TRQ allocations and actual imports, by country, 1996-99

Country	1996 TRQ allocation	Actual imports	Fill rate	1997 TRQ allocation	Actual imports	Fill rate	1998 TRQ allocation	Actual imports	Fill rate	1999 TRQ allocation	Actual imports	Fill rate
	Metric tons		*Percent*	*Metric tons*		*Percent*	*Metric tons*		*Percent*	*Metric tons*		Percent
Paraguay	7,258	7,258	100.0	7,258	5,934	81.8	7,258	5,023	69.2	7,258	6,976	96.1
Congo	7,258	5,643	77.7	7,258	7,312	100.7	7,258	7,296	100.5	7,258	6,891	94.9
St. Kitts and Nevis	7,258	4,096	56.4	7,258	7,219	99.5	7,258	7,237	99.7	7,258	0	0
Cote D'Ivoire	7,258	80	1.1	7,258	7,289	100.4	7,258	31	0.4	7,258	0	0
Haiti	7,258	0	0	7,258	0	0	7,258	0	0	7,258	0	0
Gabon	7,258	0	0	7,258	0	0	7,258	0	0	7,258	0	0
Total raw came	2,167,160	2,073,310	95.7	2,100,001	2,043,566	97.3	1,600,000	1,547,460	96.7	1,164,934	1,112,794	95.5
Refined sugars:[3, 4]												
Mexico (NAFTA)	—	—		25,000	23,892	95.6	25,000	25,000	100.0	25,000	23,715	94.9
Mexico (WTO)	—	—		—	—	—	2,954	2,954	100.0	2,954	2,954	100.0
Canada	—	—		—	—	—	10,300	9,521	92.4	10,300	10,300	100.0
Specialty sugar	1,656	129	7.8	1,656	1,656	100.0	4,656	4,367	93.8	4,656	4,656	100.0
Other refined sugars	20,344	20,344	100.0	20,344	20,344	100.0	7,090	7,090	100.0	7,090	7,090	100.0
Total refined	22,000	20,473	93.1	47,000	22,000	46.8	50,000	48,932	97.9	50,000	48,715	97
Grand total	2,189,160	2,093,783	95.6	2,147,001	2,065,566	96.2	1,650,000	1,571,392	95.2	1,189,934	1,137,794	95.6

[1] The raw cane sugar TRQ of 1,117,195 metric tons applies to tariff line 1701.11.10 found in additional note 5(a), Chapter 17 of the Harmonized Tariff Schedule. The TRQ amount announced yearly by USTR differs from what is listed in the HTS.

[2] Mexico may ship either raw or refined sugar totaling 25,000 metric tons; however Mexico is allocated 25,000 metric tons of both the raw cane sugar TRQ and 25,000 metric tons of the refined sugar TRQ.

[3] The refined sugar TRQ of 22,000 metric tons applies to tariff lines 1701.12.10, 1701.91.10, 1701.99.10, 1702.90.10, 2106.90.44 found in additional note 5(a), Chapter 17 of the Harmonized Tariff Schedule. The TRQ amount announced yearly by USTR differs from what is listed in the HTS.

[4] The refined sugar TRQ set at 50,000 metric tons for 1998 and 1999 was allocated as follows: Canada 10,300; Mexico 25,000 under NAFTA and 2,954 under WTO; FCFS 7,090; and FCFS specialty sugars of 4,656.

Note.—TRQs are allocated on a fiscal-year basis.

Source: USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, May 2000.

Government trade-related investigations

On October 1, 1998, pursuant to the provisions of section 751(c) of the Tariff Act of 1930 (19 U.S.C. § 1675 (c)), the Commission instituted 5-year reviews (i.e., "Sunset Reviews") of the antidumping orders covering sugar from Belgium, France, and Germany; the countervailing duty order covering sugar from the EU; and the antidumping orders covering sugar and syrups from Canada. Based upon response from the interested parties illustrating a sufficient willingness to participate and to provide information in a full review, the Commission determined on January 7, 1999, that it would conduct full 5-year reviews of the aforementioned orders.[86]

Based upon the reviews, the Commission found that the revocation of the antidumping orders in place against Belgium, France, and Germany and the countervailing duty orders in place against the EU would, within a reasonably foreseeable time, likely lead to the continuation or recurrence of material injury to the domestic sugar industry. The Commission determined that the revocation of the antidumping orders in place against Canada, however, would not likely lead to the continuation or recurrence of material injury to the domestic sugar industry within a reasonably foreseeable time. As a result, the U.S. Department of Commerce revoked the order against imports from Canada.

Foreign Industry Profile

Overview of World Market

Sugar is produced in nearly 200 nations and is consumed in almost every country in the world; however, the international market is concentrated among a few countries. The top 10 producing nations are responsible for over 71 percent of the world's total output, and the top 3 produce approximately 41 percent of total production (figure 6). Since 1995, world sugar production has been on the rise, showing a 12-percent increase in 5 years. The primary contributor to the increases in world production has been Brazil. Brazil increased its output by almost 50 percent in the last half of the 1990s, going from production of 12.5 mmt in 1995 to 18.3 mmt in 1999.

In general, the leading sugar producing nations consume their domestically produced sugar. Practically all of the major sugar producing nations afford their industries high levels of protection from imports or receive some sort of government assistance. Australia is the exception, with a percentage Producer Subsidy Equivalent (PSE) of only 4 percent.[87]

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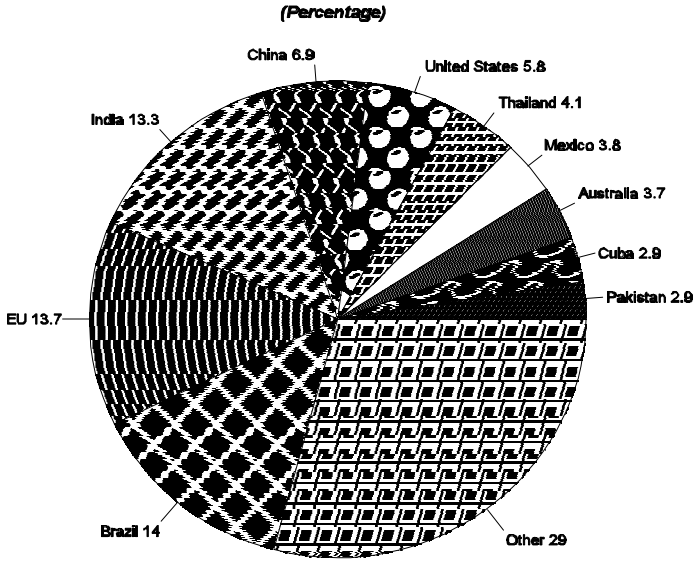
[86] USITC, *Sugar from the European Union; Sugar from Belgium, France and Germany; and Sugar from Canada*, Investigation Nos. 104-TAA-7 (Review); AA1921-198-200 (Review); and 731-TA-3 (Review), Publication 3238, Sept. 1999.

[87] "PSE," as defined by the OECD, is an indicator of the value of monetary transfers to agriculture resulting from agricultural policies in a given year. Total PSE is the total value of transfers and "percentage PSE" is the total value of transfers as a percentage of the total value of production, adjusted to include direct payments and to exclude levies on production.

Figure 6
Sugar: Country shares of world production, 1999



Source: USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.

Not all of the leading producers are major exporters of sugar; however, the top five exporters make the top 10 list of producers (i.e., Brazil, EU, Thailand, Australia, and Cuba). These top five exporters hold 73 percent of the world export market for sugar.

The international markets for sugar are not well integrated. Only five multinational companies in the international market exist and, in total, they are responsible for just over 9 percent of world production–Tate & Lyle of the United Kingdom (UK), Südzuker of Germany, Eridania Beghin Say of France, British Sugar of the UK, and Danisco of Denmark. National boundaries tend to determine markets because of the special support and protection the commodity receives from domestic governments, and because of the intricate domestic regulations that serve as barriers to entry for foreign investors.[88] Generally, the national markets are concentrated among a few seasoned participants (i.e., grower cooperatives, state entities, or private companies). For example, in the United States, six companies operate all of the cane refineries in the nation. In the EU, grower cooperatives own 37 percent of the production quotas.[89] In Cuba, China, and India, the state controls production, processing, and marketing operations.

[88] F.O. Licht, "The Evolving Industrial Organization of World Sugar in the Light of the WTO Process," *International Sugar and Sweetener Report*, Vol. 132, No. 12, Apr. 14, 2000.
[89] Ibid.

The world sugar market has been coined a 'Market in Disarray,'[90] as world sugar prices have plunged and as the level of surplus stocks has soared. Figure 4 illustrates the difference in the trend in world prices in the first half of the 1990s from the trend in the second half on the 1990s. From 1991 to 1995, market prices experienced an overall increase, but as a result of increased sugar production in the latter half of the decade, world prices for raw and refined sugar have been steadily falling since 1995. The raw sugar price has fallen by over 50 percent, from 13.44 to 6.54 cents per pound in 5 years (table 12). The year 1998 was the first time that the world raw sugar price had dipped below 10 cents since the end of 1992. The refined sugar price mirrored the drop in raw sugar prices, plummeting by 49 percent during the same period.

Several explanations for the depressed world sugar market situation have been provided, such as recent economic turmoil in regions such as Asia, Latin America, and Russia; application of internal domestic sugar policies that provide production incentives; imposition of import barriers such as state trading enterprises (STEs), import licensing regulations, TRQs and high over-quota tariffs that afford countries high levels of protection; overcapacity due to massive expansion in production; and slow growth rates in world consumption (only 0.06 percent in 1999). All of the aforementioned reasons have led to an active and heated international dialogue on the state of the world sugar market, and on the suggested remedies.

In the next round of WTO agricultural negotiations, sugar is expected to be a commodity under scrutiny. The major participants will be pressured to reduce domestic support (e.g., the United States, Japan, and the EU) and to eliminate export subsidies (e.g., the EU).[91] Also, countries will be pressured to increase market access by lowering prohibitive over-quota tariffs and increasing TRQ quantities.[92]

Country Profiles

Mexico

Mexico, a sugarcane-producing nation, is seventh in world production of sugar, growing close to 4 percent of overall world sugar production. The nation also ranks seventh in world consumption, and consumed an average of 77 pounds per capita in 1999. The sugar industry is one of the largest agricultural industries in Mexico, employing almost 320,000 workers, approximately 100,000 of whom are temporary cane cutters. Mexico operated 61 factories in 1999, located in 15 States. Forty percent of sugar production in 1999 was concentrated within the State of Veracruz, where 22 of the 61 factories are situated. In 1999, Mexico produced almost 5 mmt of sugar, up 9 percent since 1995 and 61 percent since 1990. Higher sugar production levels have resulted from increases in sugarcane area planted, harvested area, sugarcane yield, factory yield, and sugar recovery rates.[93]

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[90] H. Ahfeld, "Sugar Markets in Disarray," paper presented at the 2000 International Sweetener Colloquium, Feb. 2000.

[91] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[92] Ibid.

[93] P. Buzzanell, "Mexico–U.S. and NAFTA: Bumpy Road to A Common Sweetener Market," paper presented at the 2000 International Sweetener Colloquium, Feb. 2000.

The sugar industry in Mexico has a long history of government control;[94] however, between1988 and 1993, the industry was privatized, allowing individual mills to assume responsibility for the marketing of their own sugar. Although the industry is operated by private firms, the government still regulates particular aspects of the industry. Trade volumes are controlled by the government through the import program (i.e., TRQs and tariffs) and the Temporary Export Program (TEP).[95] Also, minimum sugarcane prices received by growers are set by the government and domestic prices for sugar are determined by the government through the setting of the sugar 'reference price.'[96] The government offers marketing subsidies, crop insurance premiums, input subsidies, and technical assistance as well.[97] In all, the OECD estimated that producers of sugar in Mexico received a 66 percent PSE from the programs administered by the government in 1999.

Regardless of the high levels of government support, the Mexican sugar industry is in upheaval,[98] facing excess capacity and extreme financial problems. Sugar mills have accrued major debt and have been unable to finance that debt. The industry attributes the debt to a drop in domestic sugar consumption, low world sugar prices, and increasing costs of production. Consumption trended downward during the 1990s, due in part to high sugar prices and growth in substitution of HFCS for soft drinks (until 1997 when compensatory import duties were applied).

Mexico has long been a participant in the world market for sugar, but its role has not always been clearly defined. The country fluctuated between net exporter and net importer status in the 1980s. From 1989 to 1994 Mexico was a net importer of sugar, as the government-run industry could not keep up with domestic demand. The United States was the major exporter of sugar to Mexico during that time. Since 1995, however, a sugar surplus has resulted under the privatized industry, and Mexico has served purely as an exporter, not importing any sugar from outside markets.

Trade in sugar in Mexico is regulated by the state through Azucar, S.A., but actual trade is conducted by private traders. Mexico exports most of its surplus sugar to the United States at preferential NAFTA rates and under a preferential NAFTA TRQ (see table A-1 and A-2). In years of surplus, traders are exempt from paying export taxes under the TEP. Mexico exports mostly refined sugar to the United States, even though it is allowed to ship either raw or refined under the U.S. sugar TRQ. Mexico does ship some raw sugar to the United States as part of the refined sugar re-export program (consult the "U.S. trade measures" section of this summary for specifics on Mexico's access to the U.S. sugar market pursuant to NAFTA and the URAA).

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[94] OECD, *Review of Agricultural Policies in Mexico*, National Policies and Agricultural Trade, 1997, p. 66.

[95] LMC International, "A Study of Sugar Policy in Selected Countries," Aug. 1997.

[96] The reference price for sugar was set at 20 cents per pound and the minimum price for sugar cane was 57 percent of the reference price in 1999.

[97] LMC International, "A Study of Sugar Policy in Selected Countries," Aug. 1997.

[98] F.O. Licht, "Mexico: Sugar Industry in Crisis," *International Sugar and Sweetener Report*, Vol. 132, No. 34, Nov. 2000.

Canada

Canada accounts for only 1 percent of the output quantity of sugar in North America and merely 0.15 percent of total world output. The Canadian sugar industry is composed of sugar beet producers, one sugar beet plant, and four cane sugar refineries. The sole Canadian beet plant is located in Alberta (the major sugar beet producing province in Canada), while the cane-sugar-processing facilities are in Vancouver, Toronto, Saint John, and Montreal. Approximately 90 percent of Canada's domestic white sugar production is derived from imported raw cane sugar, with the remaining 10 percent derived from domestically grown sugar beets.[99] About 20 percent of domestic production sold within Canada is sold on the retail market, with the remaining 80 percent sold to industrial users.[100]

Canada is a net importer of sugar, most of which is raw cane sugar. In 1999, its total imports of raw cane sugar were approximately 1.1 mmt, up 5.5 percent from 1998.[101] The main sources of Canadian raw sugar imports are Australia, Brazil, and Cuba. Imports of refined sugar in 1999 were up almost 31 percent from 1998 levels–from 17,607 to 23,000 metric tons–but were only a fraction of total sugar imports.[102] The United States and Brazil are the two major sources of refined sugar for Canada. Exports of refined sugar from the United States to Canada have fallen substantially since 1995, by roughly 81 percent. In 1995, the United States exported over 100,000 metric tons of refined sugar to Canada, mostly under the RSREP, but in 1996, the total amount of U.S. refined sugar exports to Canada dropped to just below 30,000 metric tons as a result of the imposition of high anti-dumping duties on U.S. sugar companies by the Deputy Minister of National Revenue on July 7, 1995.[103] Aside from the antidumping duties (and countervailing duties on the EU) on refined sugar, the Canadian sugar industry is not afforded domestic protection in the form of domestic or trade policies. That is, Canada does not operate any price supports or subsidy regimes, no TRQs are applied for sugar, and the tariff rates are rather low.

Although Canada is a net sugar importer, Canadian producers have exported minimal amounts of refined sugar to the United States in recent years under the U.S. refined sugar TRQ. Any exports to markets other than the United States are normally conducted on the spot market when shortages occur.[104] Subsequent to the URAA, the United States and Canada entered into a bilateral agreement (Sept. 4, 1997) under which Canada was allocated 10,300 metric tons of the U.S. refined sugar TRQ, and has filled the TRQ each year since.[105] Canada also competes for the unallocated portion of the U.S. global TRQ for refined sugar.[106] In total, its access to the refined sugar market in the United States is limited by the TRQs.

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[99] Agriculture and Agri-Food Canada, Food Bureau, *The Canadian Cane and Beet Sugar Industry: Sub-sector Profile*, 1999.

[100] Ibid.

[101] USDA, FAS, Global Agriculture Information Network Report #CA0055, May 2, 2000.

[102] Ibid.

[103] USDA, FAS, Global Agriculture Information Network Report #CA9048, Apr. 29, 1999.

[104] Agriculture and Agri-Food Canada, Food Bureau, *The Canadian Cane and Beet Sugar Industry: Sub-sector Profile*, 1999.

[105] Canada was also allocated 90 percent of the SCP TRQ (59,250 metric tons) under the same agreement.

[106] United States Trade Representative, press release No. 97-82, Sept. 8, 1997.

Exports of Canadian refined sugar to the United States are limited by TRQs and the higher over-quota tariff rates; however, there is one product imported into the United States from Canada that is not technically "refined sugar," but from which refined sugar (or a refined sugar syrup) can be extracted. The importation of this product has been a major point of contention between the U.S. sugar industry and the Michigan-based company that extracts the sugar from the Canadian sugar syrup. The refined SCP is imported under tariff line 1702.90.40 of the HTS (see table A-1), and is not subject to the refined sugar TRQ. The product is imported as a sugar syrup, derived from sugar cane or sugar beets, not containing added flavoring or coloring, that contains 6 percent or more by weight of total soluble non-sugar solids. The sugar syrup has been coined "stuffed molasses" and is essentially raw sugar mixed with molasses and water. Once imported into the United States, the molasses is extracted, leaving the refined sugar syrup that competes with domestically produced refined sugar. The molasses is then re-exported to Canada where sugar and water are once again added, beginning the process over again. The USDA estimates a 113,000 metric ton raw value increase in the U.S. sugar supply as a result of the sugar syrup exports from Canada.[107]

U.S. Customs reclassified the sugar syrup so as to be counted toward the TRQ; however, the United States Court of International Trade (USCIT) overruled the reclassification by Customs, claiming that the product's initial classification was accurate. The outcome of the decision by the USCIT was that an act of the U.S. Congress would be required to reclassify the sugar syrup. The U.S. sugar industry appealed the ruling to the U.S. Court of Appeals for the Federal Circuit, and has actively lobbied members of Congress to close what they see as a "loophole" in the TRQ provisions. Legislation was drafted for inclusion in the Trade and Development Act of 2000, reclassifying the syrup, but was omitted from the final bill that was passed on the floor. Thus, to date, Canada is able to export the refined sugar-containing syrup free of duty to the United States in unlimited quantities, while the U.S. sugar industry argues Canada is circumventing the refined sugar TRQ.[108]

Australia

Australia was the eighth-largest producer of sugar in the world in 1999, capturing 3.7 percent of world production quantity (table 10). The major role of Australia's sugar industry in the world market is that of a raw sugar exporter. Approximately 96 percent of the quantity of Australia's exports are in the form of raw cane sugar. In 1999, Australia placed third in world exports of sugar, trailing Brazil and the EU, and exported slightly over 11 percent of total world exports (table 10). Table 10 shows that Australia experienced a slight overall decline in exports from 1995 to 1999; however, for part of that period exports increased (i.e., from 1996 to 1998). Major importers of Australia's sugar include the Republic of Korea, Malaysia, Japan, Canada, and Iran.[109] Rapid growth in sugar consumption in Asia has lead Australia to focus its marketing efforts on these economies in recent years.[110] In 1999, Australia's exports to Asia comprised 60 percent of the country's total exports, for an increase from 57 percent in 1998.

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[107] USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Sept. 2000.

[108] *Sugar Letter*, "U.S. Beet Industry to Appeal Heartland Sugar Syrup Ruling," Vol. 8, No. 13, Feb 11, 2000.

[109] USDA, FAS, Global Agriculture Information Network Report, #AS9017, Apr. 12, 1999.

[110] Ibid.

Although production of sugar in 1999 in Australia is shown to have declined from 1995 levels in table 10, the country's sugar industry has actually been expanding in recent years owing to significant increases in acreage assigned to cane growing and to new growers entering the industry.[111] Milling capacity has increased in conjunction with increases in sugarcane production and the average mill is able to crush approximately 500 metric tons per hour, up 127 percent since 1970.[112]

Australia maintains no import protection for sugar whatsoever. The country abolished its import tariffs on sugar in July 1997, and does not administer any TRQs. Australian sugar producers receive world market prices for their product.[113] The OECD estimates that Australian sugar producers receive limited support from the government through administered policies. In 1999, Australia's percentage PSE for sugar was an estimated 4 percent.

All raw sugar in Australia is marketed both domestically and internationally by Queensland Sugar Corp. (Queensland). Queensland acquires all raw sugar in the State of Queensland and from Western Australia under a commercial arrangement and sells it to domestic refineries and foreign markets. Queensland markets the sugar on behalf of the cane growers and mill owners, pools the revenues from sales, adjusts for marketing costs, and issues net payments to the growers and mill owners.[114]

Brazil

Sugar is of vital importance to the Brazilian economy. The commodity contributes 2 percent of the value to the country's GDP, accounts for 17 percent of the value of Brazil's agricultural product, and employs over one million people.[115] Brazil is the largest producer and exporter, and third-largest consumer of sugar in the world. Brazil does not import any sugar. In 1999, Brazil's world production share hovered just above 14 percent (table 10). Sugar production and exports have increased significantly in the last 5 years. Since 1995, Brazil has increased its production of sugar by 46 percent. In 1999, sugar production in Brazil totaled 18.3 mmt (table 10), of which nearly 48 percent was exported. Exports of Brazilian sugar rose by 103 percent from 1995 to 1999. Brazil is by far the largest world exporter, accounting for 25 percent in 1999 (table 10). In comparison, the next closest competitor, the EU, holds only 15 percent of the export market. Not only are production and exports soaring, consumption has been climbing in Brazil since the early 1960s and has increased by 14 percent since 1995. Increases in consumer incomes, population growth, and high-sugar diets have been responsible for the steady rise in consumption levels.[116]

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[111] Ibid.

[112] USDA, FAS, Global Agriculture Information Network Report, #AS0013, Mar. 31, 2000.

[113] T.C. Sheales, "Australia's sugar industry: operating in a free market environment," ABARE, Canberra, Australia, 1999.

[114] Ibid.

[115] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[116] Ibid.

The rapid expansion of the Brazilian sugar market can be attributed to grower expansion of cane area.[117] Sugarcane production has increased by nearly 25 percent since 1995, reaching 308 mmt in 1999. Several reasons have been cited as to why the expansion of cane area has occurred, such as the devaluation of the Real by 40 percent in January 1999, elimination of export taxes, debt cancellation by the government, increases in cane quality, inexpensive labor costs, low land prices, partial mechanization of harvesting, and the indirect subsidization of the fuel alcohol industry.[118] The last reason is the most contentious among competing countries.

Approximately 58 percent of the cane produced in Brazil was converted into fuel alcohol in 1999, down from 64 percent in 1998.[119] The fuel alcohol and sugar industries are closely linked by policies and market factors. Although the sugar industry is no longer supported by policies such as price supports, production controls, and production subsidies, the fuel alcohol industry receives subsidies.[120] Fuel alcohol subsidies have provided production incentives, implicitly subsidizing cane producers, and forcing surplus sugar onto the world market.[121] In 1999 an oversupply of alcohol resulted, and the government purchased some of the excess supply from the market in an effort to provide assistance to the producers.[122] Lately, world sugar prices have remained high relative to alcohol prices and the cost of production has remained extremely low (about 5 cents per pound),[123] which has encouraged production of sugar over alcohol, and which has resulted in higher export levels for sugar.[124]

Brazil chiefly exports raw sugar to markets with refining capacity. Primary markets for Brazil's raw sugar are Russia, Egypt, Iran, and the United Arab Emirates, in that order. Brazil owns a portion of the preferential EU sugar quota and of the U.S. raw sugar TRQ. Exports to the United States total only 2 percent of Brazil's raw sugar exports and are sourced solely from the Northeast region of the country.[125] Brazil produces two types of refined sugar, crystalline (granulated) and *amorfo* (powdery colored sugar), but only the crystalline is exported. The *amorfo* is sold on the domestic market. Egypt, Nigeria, India, Sri Lanka, and Yemen are the primary markets for refined sugar exports.

In the years to come, Brazil is likely to remain a tough competitor in global markets. Costs of production are low due to large scale farming and processing operations making Brazilian sugar attractive on the world market at lower prices, producers have room to expand, and

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[117] P. Buzzanell, "Latin America's Big Three Sugar Producers in Transition: Cuba, Mexico, Brazil," USDA, ERS, Agriculture Information Bulletin Number 656, Sept. 1992.

[118] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[119] USDA, FAS, Global Agriculture Information Network Report #BR9022, Oct. 1, 1999 and #BR0008, May 17, 2000.

[120] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[121] F.O. Licht, "Leaders and Laggards in the World Sugar Markets," *International Sugar and Sweetener Report*, Vol. 132, No. 19, June 28, 2000.

[122] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[123] 2000 Agra Europe (London) Ltd., *Agra Europe*, "Brazil Driving Need for Sugar Policy Reform," May 19, 2000.

[124] F.O. Licht,"Leaders and Laggards in the World Sugar Markets," *International Sugar and Sweetener Report*, Vol. 132, No. 19, June 28, 2000.

[125] USDA, FAS, Global Agriculture Information Network Report, #BR0008, May 17, 2000.

technological advances in harvesting and production are being made.[126] Much depends upon access to foreign markets and the country's fuel alcohol policy.[127]

European Union

The EU is the second-largest producer of sugar in the world and in 1999 produced nearly 14 percent of total world output (table 10). In 1999, the EU produced approximately 17.8 mmt of sugar, roughly 135 percent more than what was produced in the United States in that year. Most of the production is from sugar beets; however, minimal amounts of cane are produced in Spain and in the French Overseas Departments of Guadeloupe, Martinique and Réunion.[128] The five major producers of beet sugar in the EU are France, Germany, Italy, the UK, and Spain–they are responsible together for approximately 75 percent of total EU production.[129]

The EU sugar regime has been internationally scrutinized and is alleged to provide production incentives that discourage consumption and create surplus stocks that, when released onto the world market, depress prices.[130] In 1999, the percentage PSE for sugar in the EU was 58 percent, up 32 percent from 1997 levels. The EU sugar regime is composed of an intricate set of policy tools: (1) a TRQ regime; (2) price supports (price guarantees); (3) production quotas; and (4) export subsidies.[131,132]

The EU regime for sugar involves four types of TRQs (preferential, special preferential, Most-favored-nation (MFN), and Overseas Country and Territories (OCT)); low or duty-free in-quota tariffs; highly prohibitive over-quota tariffs; and an import licensing scheme with short periods of validity.[133] "Preferential" import quotas guarantee 1,304,700 metric tons of duty-free access for Asian, Caribbean, Pacific (ACP) countries that are beneficiaries of the Lomé Protocol on Sugar (Protocol 8) and 10,000 metric tons of duty-free access for India (under a special bilateral agreement).[134] In 1999, the EU imported 1.87 mmt of sugar, approximately 1.7 mmt of which entered as "preferential sugar" exported from ACP countries under Protocol 8. The major ACP beneficiaries of duty-free access to the EU sugar quota were Mauritius, Fiji, Guyana, Jamaica, and Swaziland.[135] Once the ACP sugar is imported into the EU, it is freely circulated and is eligible for the same subsidies as EU produced sugar. If an ACP country does not fill its allocation of the preferential TRQ, then the size of its quota is reduced by the undelivered quantity in the following year. "Special preferential" TRQ provide access at special reduced rates of duty for imports of raw cane sugar that originate in ACP states or India and that are designated for processing into refined sugar. Entities in only four EU countries (Finland, continental France, mainland Portugal, and the UK) are

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[126] 2000 Agra Europe (London) Ltd., *Agra Europe*, "Brazil Driving Need for Sugar Policy Reforms," May 19, 2000.

[127] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[128] Ibid.

[129] USDA, FAS, Global Agriculture Information Network Report #E20041, Apr. 10, 2000.

[130] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[131] B. Vrolijk, "Sugar Regime of the European Union,"paper presented at the Cuba/FAO International Sugar Conference, Havana, Cuba, 7-9 Dec. 1999.

[132] Agra Europe, *CAPMONITOR*, 2000.

[133] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[134] USDA, FAS, Global Agriculture Information Network Report #E20041, Apr.10, 2000.

[135] Ibid.

permitted to import under this "special preferential" TRQ. "MFN" TRQs are annual quotas that are designed for imports of raw cane sugar from third countries (i.e., not ACP countries or India) that supply EU refineries. In 1999, the "MFN" TRQ was fixed at 85,465 metric tons, of which Cuba received 69 percent, Brazil 28 percent, and other third countries received 3 percent.[136] The fourth and final sugar TRQ is the "OCT" TRQ that applies to shipments of sugar that originate in ACP countries, are processed in OCT, and then exported to the EU.

The EU's internal price support program guarantees a fixed price for a fixed quantity of production to processors of refined sugar. The quantity of production that receives the price support is limited by production quotas–"A" and "B" quotas–that were implemented on July 1, 1968. EU member states allocate "A" and "B" quota amounts to each sugar-producing operation in their country.[137] In 1999, the "A" quota for sugar was 11.98 mmt and the "B" quota was 2.61 mmt. The "intervention price" (IP) is then used to determine the effective price support for each production quota category. "A" quota sugar production receives the highest price support and "B" quota sugar production receives a lower price support. The producers of "A" quota sugar are levied a tax equal to 2 percent of the IP; thus, their effective price support is 98 percent of the IP. Producers of "B" quota sugar are levied a tax equal to 32 percent of the IP, so their effective price support is equal to 68 percent of the IP. Any sugar produced beyond the "A" and "B" sugar quotas is considered "C" sugar production and receives no price support. "C" sugar must be sold on the world market without an export subsidy or carried over in inventory to the following marketing year.[138]

The IP operates similarly to the CCC loan rate program in the United States in that the price is set at a level above the world price and in that it serves as a guaranteed purchase price (price floor) for producers so that when (or if) the domestic market price falls below the IP, government agencies will purchase the sugar at the IP and store the sugar. The IP is maintained through limiting imports via high tariffs and import quotas and via subsidizing exports (i.e., offering refunds/restitution to EU exporters of sugar) to prevent excess stocks from accruing and driving down the domestic market price.[139]

In 1999, the EU exported about 5.3 mmt of sugar onto the world market (table 10).[140] Primary export markets for the EU are Algeria, Syria, Israel, United Arab Emirates, and Iraq, in that order.[141] Both production surplus in the EU (i.e., EU production minus overall EU consumption) and the amount of ACP imports under the preferential import quota are exported onto the world market with export subsidies, while "C" sugar is exported without EU assistance.[142] Production surplus sugar and ACP sugar is granted a refund equal to the difference between the domestic market price in the EU and the world market price. Each week exporters bid for the level of restitution needed in order to make their sugar competitive on the world market. In accordance with the URAA, the EU could export 1.3863 mmt of sugar plus an amount equivalent to the quantity of ACP imports under subsidy in 1999;

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[136] USDA, FAS, Global Agriculture Information Network Report #E29036, Mar. 29, 1999.

[137] "A" and "B" quota amounts are also allocated to each isoglucose-producing (corn syrup) operation and each inulin syrup-producing operation in member countries.

[138] Agra Europe, *CAPMONITOR*, 2000.

[139] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[140] USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.

[141] USDA, FAS, Global Agriculture Information Network Report #E20041, Apr. 10, 2000.

[142] Agra Europe, *CAPMONITOR*, 2000.

however, 1.5461 mmt plus the ACP quantity were exported under subsidy instead.[143] Also, the URAA limited the EU to spending 592.7 million euros in 1999, whereas 794.8 million euros were spent. Thus, the EU exceeded its quantity and budget outlay commitments to the WTO for subsidized exports by 11.5 and 31.4 percent in 1999.[144] The current EU sugar policy calls for an automatic reduction of "A" and "B" production quotas by member states if the EU becomes constrained by URAA export subsidy commitments.[145]

Cuba

Cuba has long been an active participant in world sugar markets, serving as a producer and net exporter of raw and refined cane sugar. In the years preceding the 1959 revolution, Cuba exported an average of 5 mmt of sugar per year and dominated almost one-third of the global export market for sugar.[146] After the United States revoked Cuba's access to the U.S. sugar market in July 1960, Cuba needed to find alternative markets for what equated to about one-half of its yearly production. Cuba turned to the Soviet Union (USSR) as a market for the country's exports. A barter agreement was made where Cuba shipped raw sugar to the USSR in exchange for oil, which, in essence, subsidized Cuban sugar. In 1961, Cuban exports of sugar to the USSR increased by nearly 110 percent. In the 5 years prior to 1960, average exports to the USSR averaged around 298,000 metric tons and in the 5 years after 1960, they averaged about 2.2 mmt.[147] With access to oil and other needed inputs from the USSR, Cuba was able to maintain average yearly production levels at 5.5, 6.35, and 7.74 mmt during the 1960s, 1970s, and 1980s, respectively. Until 1991, Cuba maintained approximately 20 percent of the world export share.[148] Cuba suffered as a result of the collapse of the Soviet Union in the early 1990s. Without access to necessary resources such as oil and fertilizer, both Cuban production and exports fell. From 1992 to 1993, production fell by almost 40 percent (from 7 to 4.3 mmt) and Cuba's export market share dropped to 12.9 percent. From 1993 to 1999, sugar production in Cuba has not surpassed 4.5 mmt.

Today, Cuba no longer dominates world sugar markets. In 1999, Cuba fell to the tenth-largest producer of sugar in the world, with production levels at just around 3.8 mmt and world production share at 2.9 percent (table 10). Exports of Cuban sugar in 1999 were at 3.2 mmt, down 36 percent from pre-revolution years. Even though Cuba no longer leads the world in production and exports, exported sugar still remains the main source of foreign

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[143] The restriction does not apply to exports of sugar that are displaced by preferential quota imports, which in 1999, were equal to 1.68 mmt.

[144] USDA, FAS, Global Agriculture Information Network Report #E20041, Apr. 10, 2000.

[145] B. Vrolijk, "Sugar regime of the European Union," Paper presented at Cuba/FAO 1999 International Sugar Conference, Dec. 1999.

[146] P. Buzanell, " Latin America's Big Three Sugar Producers in Transition: Cuba, Mexico, Brazil," 1992.

[147] Ibid.

[148] USDA, FAS, *Sugar: World Markets and Trade*, June 1994.

earnings for the Cuban economy.[149] On average, from 1995 to 1999 Cuba exported approximately 84 percent of its overall sugar production at an average yearly value of $781 million.[150]

Cubazucar is the state owned company that is responsible for the sale and export of all Cuban sugar. The STE is also responsible for the importation of sugar, but even with low tariffs on raw and refined sugar (15 percent), Cubazucar serves as a nontariff barrier to imports of sugar from external markets. Cuba has three distinct markets for its sugar: (1) the world market, where Cuban sugar trades at a discount to the New York No. 11 raw sugar futures contract price; (2) communist or ex-communist countries with which Cuba generally barters sugar for other items; and (3) the EU, where Cuba is granted access to128,195 metric tons of the EU MFN sugar quota at a preferential rate. In general, Cuba has exported the bulk of its sugar to group (2) above. In 1999, Cuba shipped 78 percent of its total exports to Russia and China. Russia was the leading importer of Cuban sugar, purchasing 67 percent of total Cuban sugar exports in 1999. Cuba was, at one time, a principal supplier of sugar to Japan but, unable to meet Japan's needs, was replaced by Australia and Thailand.

The Cuban sugar industry operates under strict government control. The state almost totally controls production and processing of sugar cane through the Ministry of Sugar (MINAZ). There is some privatization of farming operations that account for about 30 percent of the total cane supply.[151] The three types of private/independent growers are Agricultural Production Cooperatives (CPAs) where a number of growers tend to the land, making it a quasi-private operation; Basic Units of Cooperative Production (UBPCs) where the land is owned by the state, but sugarcane producers are granted usufruct of the land so as to collectively produce and market their cane; and Cooperatives of Credit and Service (CSS) where individual owners hold the land, which is true private sector ownership. Private/independent farming operations, while somewhat more independent than state-run farming operations, still heavily rely on state owned and operated mills (to whom they sell their cane) for production inputs such as fertilizers and chemicals and for contracting. State control is practically absolute at the milling and processing level. As of 1998, MINAZ operated 155 sugar mills and 16 refineries.[152] The state operated sugar mills, in cooperation with MINAZ, control all important decisions dealing with production, input use, harvesting, irrigation, and the like.

MINAZ administers a price support system that offers a basic cane price paid to growers throughout the country. In 1998, the basic cane price was increased for a period of 3 years from approximately $14.17 to $21.65 per metric ton, a 52.8 percent increase.[153] Beginning in 1999, the price received by farmers started to take into account the amount of sucrose in

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[149] L.P. Castellanos and J. Alvarez, 2000. "The Cuban Sugar Agroindustry and the International Sweetener Market in the 1990's: Implications for the Future," University of Florida, Institute of Food and Agricultural Sciences, International Working Paper Series, IW00-1.

[150] USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000. Exports are reported on a raw sugar equivalent and are thus valued at the world price of raw sugar.

[151] F.O. Licht,"Cuba Decrees 50 Per Cent Cane Price Increase," *International Sugar and Sweetener Report*, Vol. 130, No. 22, July 9, 1998.

[152] LMC International, "Sugar Industries and Government Policies in the Free Trade Area of the Americas," 1998.

[153] F.O. Licht, "Cuba Decrees 50 Per Cent Cane Price Increase," *International Sugar and Sweetener Report*, Vol. 130, No. 22, July, 9, 1998.

their canes. The internal sugar price is also determined by the government. Retail prices for sugar are set for state producers, but there also exists a higher free-market price for private producers. In 1998 the state price was estimated to be approximately 8 cents per pound, wholesale, and 8.1 cents per pound, retail[154]–this is lower than the reported world price of sugar in 1998 (table 12), and the free market price was estimated to be about 14.2 cents per pound.[155] The internal price for sugar in Cuba is not of much relevance, because most of the country's production is exported.

China

China is the world's fourth-largest producer of sugar, producing almost 9 mmt or 6.9 percent of total world output in 1999 (table 10). China produces both sugar beets and sugarcane. The three major cane producing provinces are Guangxi, Guangdong, and Yunnan, in that order, and the three main beet producing provinces are Heilongjiang, Xinjiang, and Inner Mongolia. China produces and processes most of its own sugar, importing minimal amounts of raw sugar primarily from Cuba, Brazil, Thailand, and Australia and refined sugar from South Korea, the EU, and Japan.[156] China has strictly limited imports of sugar since 1996. Overall sugar imports have fallen from 1.94 mmt in 1995 to 0.54 mmt in 1999. In 1999, China imported roughly 483,000 metric tons of raw sugar, 375,000 of which was imported from Cuba at a price above the average world price under a special bilateral agreement between the two governments.[157] Refined sugar imports were barely 55,000 metric tons in 1999. China, a net importer of sugar, exports sugar as well and shipped around 573,000 metric tons in 1999, 90 percent of which was refined sugar. Indonesia, India, Saudi Arabia, and Hong Kong are the main recipients of refined sugar produced in China.

Sugar production has been climbing in China since 1995.[158] Overproduction has been due to high internal prices, resulting from domestic price supports and limitations on imports (import quotas).[159] In 1996, high sugar prices prompted increases in output and led to the building of new refineries. Increased capacity, coupled with illegal smuggling of sugar imports and increased use of artificial sweeteners has pushed the Chinese sugar market to the point of saturation, prompting the government to purchase and store large amounts of excess sugar in an attempt to maintain high prices for producers and processors.[160] Even with government purchases of excess production, there has been a sharp decline in domestic prices in recent years. During 1995 to 1999, prices received by producers fell by 46 percent for cane and 19 percent for beets, while retail prices of sugar fell by 21 percent.[161] With

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[154] LMC International, "Sugar Industries and Government Policies in the Free Trade Area of the Americas," 1998.

[155] Any price estimates are subject to error, as there exists no accepted exchange rate for the Cuban peso.

[156] F.O. Licht, "Sugar Statistics," *International Sugar and Sweetener Report*, Vol. 132, No. 14, May 5, 2000.

[157] F.O. Licht, "Sugar Statistics," *International Sugar and Sweetener Report*, Vol. 132, No. 14, May 5, 2000 and Vol. 132, No 9, Mar. 20, 2000.

[158] USDA, FAS, Global Agriculture Information Network Report #CH9020, Apr. 12, 1999.

[159] Ibid.

[160] Ibid.

[161] USDA, FAS, Global Agriculture Information Network Report #CH0016, Apr. 12, 2000.

lower prices, processors have been unable to pay producers of cane and beets and have issued IOU's in the place of actual payments.

In response to the difficulties faced by the sugar industry, the Chinese Government began a major restructuring of the market in early 1999. The government reduced support to cane and beet producers and increased support for other cash crops such as fruits and vegetables. The number of refineries in operation was reduced by 38 percent, from 539 to 392, and small-scale processing facilities will be closed.[162] Also, in 1999, the government closed 9 of the 14 artificial sweetener factories (possibly reducing production by 50 percent), placed a limit of 3,000 metric tons on domestic consumption of artificial sweeteners, and instituted mandatory labeling of artificial sweeteners for food processors and drink manufacturers to curb substitution of sugar with artificial sweeteners. In regard to smuggled sugar, the government has taken measures to sharply reduce illegal imports.[163]

The restructuring has come at a time when China will also be making changes in its sugar trade policy as a result of its pending accession into the WTO. China has agreed to provide more access to its market by lowering tariffs from the current level of 30 percent *ad valorem* to 15 percent after its entry, and to 10 percent after an implementation period.[164] Also, China will allow 800,000 metric tons of raw sugar imports in addition to imports from Cuba.[165]

India

In 1999, India produced 13 percent of the world sugar supply, making it the third-largest producer in the world (table 10). India produces raw, refined, and noncentrifugal cane sugars. The noncentrifugal sugars (pan sugars), *gur* and *khandsari*, are produced in villages and use between 34 and 47 percent of the cane grown in India.[166] Although India is one of the largest sugar producers, the country is not a major player when it comes to world markets, as it imports below 3 percent of world imports and exports zero percent of world exports (table 10). India is the largest consumer of sugar in the world, consuming 16.9 mmt in 1999, and is a potential market for the world's sugar; however, in 1999, the country imported only 6 percent of its domestic consumption requirements (table 10). Essentially, India produces for its own internal needs and protects its domestic market from foreign competition through complicated domestic and trade policies.

The sugar market is regulated on the production, processing, and marketing levels.[167] On the production level, the supply of cane is regulated through a system of zoning. Cane farming areas are divided into production zones by a state official in each state. The state government then allocates zones to individual mills. Each sugar mill is granted exclusive rights to the cane supplies within the zone they have been allotted. On the processing level, the government determines the capacity and the location of the mills through a licensing system. Each new mill, or each expanding mill, must apply for a license from the state. On the marketing level,

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[162] Ibid.
[163] Ibid.
[164] F.O. Licht, "Sugar Smuggling is Biggest Problem in China, Not WTO-CSA," *International Sugar and Sweetener Report*, Vol. 132, No 9, Mar. 20, 2000.
[165] Ibid.
[166] LMC International, "A Study of Sugar Policies in Selected Countries," Aug. 25, 1997.
[167] Ibid.

mills may market their domestically produced sugar independently or through cooperative mills; however the state intervenes with the marketing of imports and exports of sugar. Imports are chiefly marketed through the Indian Sugar and General Industries Export Import Corporation, which is a joint venture between the government and milling companies. Releases of the imported sugar are controlled by the government. The level of exports is determined by the government and regulated by the government through the issuance of export licenses.

The government operates an intricate set of domestic policy tools in conjunction with the production, processing, and marketing regulations.[168] First, the government administers a fixed minimum cane price, the Statutory Minimum Price (SMP), which the mills are required to pay for cane to growers. Then, based upon the SMP, each state sets a State Advised Price (SAP) that usually exceeds the SMP by 20 to 50 percent, and which serves as the required minimum price for cane in that state.

Though the government supports the price of cane, its objective is to keep the price of sugar to consumers low. Thus, the government requires mills to supply 30 percent of their output to the state below the market price as "levy sugar."[169] The government then sells this sugar through a public distribution system. The remaining 70 percent of the sugar may be sold at the market price subject to monthly quantitative restrictions. The market price is influenced by the government, as it controls the level of the monthly releases of free sale domestic sugar and of imported sugar.[170] Imported sugar is not permitted for sale except under the directions of the government. The government further influences the market price by limiting the amount of imports that enter the country.[171] In late 1999, the government raised the tariff on sugar from 27.5 to 40 percent *ad valorem*. In February, 2000 the tariff was raised once again to 60 percent *ad valorem*. The new import duty, as it stands, is 60 percent *ad valorem* plus a countervailing duty of $20 per metric ton.[172] The tariff is still well within its commitment to the WTO, as in 2004, India is committed to be at a final rate of 150 percent *ad valorem*.[173] Thus, India may raise its tariff on sugar even further if it is deemed necessary. As it is, the current tariff is so exceedingly high that it has been predicted that imports will be nonexistent for 2000 and 2001.[174] India claims that it is in compliance with the WTO on market access and that the country is exempt from WTO access commitments for agriculture because of its balance of payments situation.[175]

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[168] Ibid.
[169] Ibid.
[170] Ibid.
[171] USDA, FAS, Global Agriculture Information Network Report #IN0019, Apr. 10, 2000.
[172] Ibid.
[173] URAA schedule of Commitments: Schedule XX-India, Part 1, Section 1-A.
[174] USDA, FAS, Global Agriculture Information Network Report #IN0019, Apr. 10, 2000.
[175] LMC International, "A Study of Sugar Policies in Selected Countries," Aug. 25, 1997.

Japan

Japan produced approximately 846,000 metric tons of sugar–just over one-half of one percent of the world sugar output–in 1999.[176] Approximately 80 percent of Japan's domestic production comprises of beet sugar. Beets are grown primarily on the island of Hokkaido while sugar cane is grown mainly on the southern islands.[177] Incapable of meeting domestic consumption requirements with low domestic production levels, Japan imports most of its sugar. Japan is a net importer of sugar, the fifth-largest importer in the world behind the Russia, EU, Indonesia, and the United States, in that order. Raw sugar comprises nearly 100 percent of the country's sugar imports. Japan has 26 cane refineries (mostly on the east coast of Honshu Island) to process the raw sugar for domestic use. In 1999, Japan imported close to 1.5 mmt of raw sugar, down 10 percent from 1995 levels.[178] Falling import levels are attributed to the downward trend in sugar consumption that has occurred throughout the 1990s as a result of changes in consumer preferences and direct substitution out of sugar into HFCS.[179] Also, imports of refined sugar have fallen owing to an increase in imports of SCPs in an effort by exporters to avoid high tariffs on sugar.[180]

The Japanese sugar producers received one of the highest levels of support among OECD sugar-producing countries in 1999.[181] In 1999, Japan's percentage PSE for sugar was 67 percent, up from 61 percent in 1998.[182] The domestic sugar policy includes price supports for sugarcane, sugar beet, and sugar; production controls on sugar beets; and indirect government assistance (i.e., loans, credit subsidies, and grants).[183]

Support prices are maintained for cane, beets, and sugar through a price stabilization mechanism.[184] The Sugar Price Stabilization Agency (SPSA) establishes an internal price for sugar and a required purchase price (price support) that processors must pay for sugarcane and sugar beets. Once the cane or beets are processed, the sugar is sold to the SPSA by the processor, and then the SPSA resells it back to the processor or miller at a lower price, which in turn, provides a direct subsidy to the processor. The subsidy is partly funded by the tariffs collected on imports of raw sugar and HFCS.[185] In fiscal year 1999, the average internal price for refined sugar was approximately 60 cents per pound,[186] compared with a world refined sugar price of 9.13 cents per pound. The SPSA maintains the high

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[176] USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.

[177] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[178] USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.

[179] Japan is the second-largest producer of HFCS in the world, behind the United States.

[180] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999, and USDA, ERS, *Sugar and Sweetener Situation and Outlook Report*, Jan. 2000.

[181] OECD, "Agricultural Policies in OECD Countries: Measurement of Support and Background Information," 2000.

[182] Ibid.

[183] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.

[184] Ibid.

[185] LMC International, "A Study of Sugar Policies in Selected Countries," Aug. 25, 1997.

[186] Calculated from price data in USDA, FAS, Global Agriculture Information Network Report #JA0039, Apr. 18, 2000.

internal price for sugar through the imposition of high tariffs and through taxation of producers of HFCS and sugar refiners.[187]

High domestic prices create production incentives for producers that would otherwise not exist.[188] The incentives are greater for sugar beet producers than for cane. Therefore, to curtail the over-expansion of sugar beet production, the government has placed a ceiling of 72,000 hectares on yearly beet area planted.

Although the primary assistance provided to the sugar industry is through price supports, the industry does receive indirect assistance through loans, credit subsidies and grants.[189] The government provides noninterest loans to those entering agriculture as well as credit subsidies to farmers that have taken loans for land improvements or who have displayed good management practices. Also, each year the government allocates funds for research and for structural improvements within the industry.

[187] LMC International, "A Study of Sugar Policies in Selected Countries," Aug. 25, 1997.
[188] ABARE, *Sugar: International Policies Affecting Market Expansion*, 1999.
[189] LMC International, "A Study of Sugar Policies in Selected Countries," Aug. 25, 1997.

APPENDIX A
HARMONIZED TARIFF SCHEDULE SUBHEADINGS

Table A-1
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1212.91.00	00	Sugar beet	39.7¢/ton	Free (A+,CA,E,IL,J,MX)	287	0
1212.92.00	00	Sugarcane	$1.24/ton	Free (A,CA,E,IL,J,MX)	173	168
1701.11.05	00	Cane sugar, raw, in solid form, no added flavoring or coloring, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	1.4606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 0.943854¢/kg	Free (A*,CA,E*,IL,J,MX)	([5])	80
1701.11.10	00	Cane sugar, raw, in solid form, no added flavoring or coloring, counted toward tariff-rate quota amount of 1,117,195 metric tons[3]	1.4606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 0.943854¢/kg	Free (A*,CA,E*,IL,J,MX)	([5])	424,960
1701.11.20	00	Cane sugar, raw, in solid form, no added flavoring or coloring, to be used for the production of polyhydric alcohols, or to be refined and re-exported in refined form in sugar-containing products, or to be substituted for domestically produced raw cane sugar that has been or will be re-exported, not counted toward tariff-rate quota .	1.4606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 0.943854¢/kg	Free (A*,CA,E*,IL,J,MX)	([5])	103,120

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Col. 1 rate of duty as of Jan. 1, 2000 Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1701.11.50	00	Cane sugar, raw, in solid form, no added flavoring or coloring, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.01-9904.17.07	33.87¢/kg	28.247¢/kg less 0.4¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 18.256¢/kg (MX)	([5])	14,558
1701.12.05	00	Beet sugar, refined, in solid form, no added flavoring or coloring, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	3.6606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 3.143854¢/kg	Free (A*,CA,E*,IL,J,MX)	([6])	0
1701.12.10	00	Beet sugar, refined, in solid form, no added flavoring or coloring, counted toward tariff-rate quota of 22,000 metric tons[3]	3.6606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 3.143854¢/kg	Free (A*,CA,E*,IL,J,MX)	([6])	136

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Col. 1 rate of duty as of Jan. 1, 2000 Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1701.12.50	00	Beet sugar, refined, in solid form, no added flavoring or coloring, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.08-9904.17.16	35.74¢/kg	28.247¢/kg less 0.4¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 18.256¢/kg (MX)	([6])	0
1701.91.05	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing added coloring, no added flavoring, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	3.6606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 3.143854¢/kg	Free (A*,CA,E*,IL,J,MX)	([7])	3
1701.91.10	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing added coloring, no added flavoring, counted toward tariff-rate quota of 22,000 metric tons[3] . . .	3.6606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 3.143854¢/kg	Free (A*,CA,E*,IL,J,MX)	([7])	23

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Col. 1 rate of duty as of Jan. 1, 2000 Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1701.91.30	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing added coloring, no added flavoring, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.08-9904.17.16	35.74¢/kg	28.247¢/kg less 0.4¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 18.256¢/kg (MX)	([7])	371
1701.91.42	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing over 65 percent by dry weight of sugar, containing added flavoring whether or not containing added coloring, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	6%	Free (A*,CA,E,IL,J,MX)	([8])	11
1701.91.44	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing over 65 percent by dry weight of sugar, containing added flavoring whether or not containing added coloring, counted toward tariff-rate quota of “none”	6%		([8])	0
1701.91.48	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing over 65 percent by dry weight of sugar, containing added flavoring whether or not containing added coloring, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.17-9904.17.48	33.9¢/kg + 5.1%	See 9906.17.03-9906.17.05 (MX)	([8])	2,078
1701.91.52	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing over 10 percent by dry weight of sugar, containing added flavoring whether or not containing added coloring, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	6%	Free (A,CA,E,IL,J,MX)	([9])	0

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Col. 1 rate of duty as of Jan. 1, 2000 Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1701.91.54	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing over 10 percent by dry weight of sugar, containing added flavoring whether or not containing added coloring, counted toward tariff-rate quota of 64,709 metric tons	6%	Free (A*,CA,E,IL,J)	([9])	13,573
1701.91.58	00	Cane or beet sugar and chemically pure sucrose, in solid form, containing over 10 percent by dry weight of sugar, containing added flavoring whether or not containing added coloring, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.49-9904.17.65	33.9¢/kg + 5.1%	See 9906.17.39-9906.17.41 (MX)	([9])	4,168
1701.91.80	00	Other cane or beet sugar and chemically pure sucrose, in solid form, containing added flavoring whether or not containing added coloring, not counted toward tariff-rate quota	5.1%	Free (A,CA,E,IL,J,MX)	2,832	227
1701.99.05	00	Other cane or beet sugar and chemically pure sucrose, in solid form, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	3.6606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 3.143854¢/kg	Free (A*,CA,E*,IL,J,MX)	1,186	27

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Col. 1 rate of duty as of Jan. 1, 2000 Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1701.99.10	00	Other cane or beet sugar and chemically pure sucrose, in solid form, counted toward tariff-rate quota of 22,000 metric tons[3]	3.6606¢/kg less 0.020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 3.143854¢/kg	Free (A*,CA,E*,IL,J,MX)	26,230	22,246
1701.99.50	00	Other cane or beet sugar and chemically pure sucrose, in solid form, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.08-9904.17.16	35.74¢/kg	28.247¢/kg less 0.4¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 18.256¢/kg (MX)	12,453	2,111
1702.90.05	00	Other sugars, derived from sugar cane or sugar beets, containing non-sugar solids (excluding any foreign substances that may have been added or developed in the product) equal to 6 percent or less by weight of total soluble solids, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	3.6606¢/kg of total sugars	Free (A,CA,E*,IL,J,MX)	([10])	42
1702.90.10	00	Other sugars, derived from sugar cane or sugar beets, containing non-sugar solids (excluding any foreign substances that may have been added or developed in the product) equal to 6 percent or less by weight of total soluble solids, counted toward tariff-rate quota of 22,000 metric tons[3]	3.6606¢/kg of total sugars	Free (A,CA,E*,IL,J,MX)	([10])	0

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Col. 1 rate of duty as of Jan. 1, 2000 Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1702.90.20	00	Other sugars, derived from sugar cane or sugar beets, containing non-sugar solids (excluding any foreign substances that may have been added or developed in the product) equal to 6 percent or less by weight of total soluble solids, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.08-9904.17.16	35.74¢/kg	28.247¢/kg (MX)	([10])	6
1702.90.35	00	Invert molasses, derived from sugar cane or sugar beets containing non-sugar solids (excluding any foreign substances that may have been added or developed in the product) equal to 6 percent or less by weight of total soluble solids	0.35¢/liter	Free (A*,CA,E,IL,J,MX)	([10])	3,258
1702.90.40	00	Other sugars, derived from sugar cane or sugar beets, containing non-sugar solids (excluding any foreign substances that may have been added or developed in the product) equal to 6 percent or less by weight of total soluble solids	0.35¢/liter	Free (A*,CA,E,IL,J,MX)	([10])	39,954
1702.90.52	00	Other sugars, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	6%	Free (A,CA,E,IL,J,MX)	([11])	28
1702.90.54	00	Sugar syrups, blended, not containing added flavoring or coloring matter, blended syrups, counted toward tariff-rate quota of “none”	6%		([11])	0
1702.90.58	00	Sugar syrups, blended, not containing added flavoring or coloring matter, over tariff-rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.66-9904.17.84	33.9¢/kg of total sugars + 5.1%	See 9906.17.21-9906.17.24 (MX)	([11])	0
1702.90.64	00	Other sugars, containing over 65 percent by dry weight of sugar, counted toward tariff-rate quota of “none”	6%		([11])	0

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

HTS subheading	Suffix	Brief description	Col. 1 rate of duty as of Jan. 1, 2000 General	Col. 1 rate of duty as of Jan. 1, 2000 Special[2]	Exports 1999	Imports 1999
					Value *(1,000 dollars)*	
1702.90.68	00	Other sugars, containing over 65 percent by dry weight of sugar, out-of tariff rate quota, subject to special safeguard duty rates[4] in subheadings 9904.17.17-9904.17.48	33.9¢/kg of total sugars + 5.1%	See 9906.17.18-9906.17.20 (MX)	([11])	25
1702.90.90	00	Other sugars; sugar syrups not containing added flavoring and coloring matter; artificial honey, whether or not mixed with natural honey; caramel	5.1%	Free (A,CA,E,IL,J,MX)	([11])	8,245
2106.90.42	00	Syrups derived from cane or beet sugar, containing added coloring but not added flavoring matter, described in general note 15 of the HTS and entered pursuant to its provisions, not counted toward tariff-rate quota	3.6606¢/kg of total sugars	Free (A,CA,E*,IL,J,MX)	0	24
2106.90.44	00	Syrups derived from cane or beet sugar, containing added coloring but not added flavoring matter, counted toward tariff-rate quota of 22,000 metric tons[3]	3.6606¢/kg of total sugars	Free(A,CA,E*,IL,J,MX)	0	24
2106.90.46	00	Syrups derived from cane or beet sugar, containing added coloring but not added flavoring matter, out-of tariff-rate quota, subject to special safeguard duty rates[4] subheadings 9904.17.08-9904.17.16	35.74¢/kg	28.247¢/kg on total sugars (MX)	0	24

See footnotes at end of table.

Table A-1—*Continued*
Sugar: *Harmonized Tariff Schedule* subheadings; description;[1] U.S. column 1 rate of duty as of January 1, 2000; U.S. exports, 1999; and U.S. imports, 1999

[1] Some tariff descriptions have been condensed. For the precise legal tariff description see HTS Chapters 12, 17, and 21.

[2] Programs under which special tariff treatment may be provided and the corresponding symbols for such programs as they are indicated in the "Special" subcolumn are as follows: North American Free Trade Agreement: Goods of Canada (CA); North American Free Trade Agreement, Goods of Mexico (MX); Caribbean Basin Economic Recovery Act (E) or (E*); United States-Israel Free Trade Act (IL); Andean Trade Preference Act (J); General System of Preferences (A), (A*), or (A+).

[3] TRQ levels for raw cane sugar and refined sugar, as provided for in additional note 5(a)(i) to chapter 17 of the HTS, differ from (are in excess of) annual TRQ levels announced by the United States Trade Representative. Additional note 5(a)(ii) grants the Secretary of Agriculture the ability to modify any quantitative limitations which have previously been established under note 5(a)(i) but does not allow the Secretary to reduce the total amount of the TRQ below the amounts provided for in 5(a)(i).

[4] Special safeguard measures were established pursuant to Article 5 of the Uruguay Round Agreement on Agriculture. Section 101 of the Uruguay Round Agreements Act allows for the imposition of additional duties based upon the value or quantity of goods imported into the United States for certain agricultural products. Value-based special safeguards are applied automatically to out-of quota imports of (i) raw and refined sugar, (ii) blended syrups and (iii) sugar-containing products. Quantity-based safeguards apply only if imports reach the trigger level of imports announced in the *Federal Register* on March 9, 2000. Only one safeguard, value or quantity, may be applied at a time. Value- and quantity-based special safeguard rates are provided for in chapter 99, subchapter IV of the HTS.

[5] The value of U.S. exports is not available for this individual subheading, however the value of exports for raw cane sugar, in solid form, without added flavoring or coloring (schedule B subheading 1701.11) was $3.9 million in 1999.

[6] The value of U.S. exports is not available for this individual subheading, however the value of exports for refined sugar, in solid form, without added flavoring or coloring (schedule B subheading 1701.12) was $0.47 million in 1999.

[7] The value of U.S. exports is not available for this individual subheading, however the value of exports for cane or beet sugar and chemically pure sucrose in solid form, containing added coloring, without added flavoring (schedule B subheading 1701.91.1020) was $1.5 million in 1999.

[8] The value of U.S. exports is not available for this individual subheading, however the value of exports for products containing over 65 percent by dry weight of sugar and containing added flavoring, whether or not containing added coloring (schedule B subheading 1701.91.1040) was $0.5 million in 1999.

[9] The value of U.S. exports is not available for this individual subheading, however the value of exports for products containing over 10 percent by dry weight of sugar, containing added flavoring, whether or not containing added coloring (schedule B subheading 1701.91.3020) was $0.6 million in 1999.

[10] The value of U.S. exports is not available for this individual subheading, however the value of exports for other sugars derived from sugarcane or sugar beets, containing non-sugar solids equal to 6 percent or less by weight of total soluble solids (schedule B subheading 1702.90.45) was $3.8 million in 1999.

[11] The value of U.S. exports is not available for this individual subheading, however the value of exports for other sugars (schedule B subheading 1702.90.50) was $16.6 million in 1999.

Table A-2
Sugar: *Harmonized Tariff Schedule* preferential NAFTA rates for goods of Mexico[1] as of January 1, 2000

HTS subheading	Brief description	Special rate of duty
	Cane or beet sugar and chemically pure sucrose, in solid form:	
	Provided for in 1701.91.48:	
9906.17.03	Subject to quantitative limitations specified in U.S. note 18 to this subchapter[2]	Free (MX)[3]
	Other:	
9906.17.04	Valued not over 31.5¢/kg	11.4¢/kg (MX)[4]
9906.17.05	Other	31.6% (MX)[4]
	Provided for in 1701.91.58:	
9906.17.39	Subject to quantitative limitations specified in U.S. note 20 to this subchapter[5]	Free (MX)[3]
	Other:	
9906.17.40	Valued not over 31.5¢/kg	11.4¢/kg (MX)[4]
9906.17.41	Other	31.6% (MX)[4]
	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel:	
	Provided for in subheading 1702.20.28 or 1702.30.28:	
9906.17.07	Goods of a type described in U.S. note 19 to this subchapter:	
	Subject to the quantitative limits specified in U.S. note 19 to this subchapter[6]	Free (MX)[3]
9906.17.08	Other:	5.7¢/kg (MX)[4]
9906.17.09	Valued not over 15.8¢/kg	36.1% (MX)[4]
9906.17.10	Other	Free (MX)[7]
	Other	
	Provided for in subheading 1702.40.28 or 1702.60.28:	
9906.17.12	Goods of a type described in U.S. note 19 to this subchapter:	
	Subject to the quantitative limits specified in U.S. note 19 to this subchapter[6]	Free (MX)[3]
9906.17.13	Other:	11.4¢/kg (MX)[4]
9906.17.14	Valued not over 31.5¢/kg	36.1% (MX)[4]
9906.17.15	Other	Free (MX)[7]
	Other	

See footnotes at end of table

Table A-2—*Continued*
Sugar: *Harmonized Tariff Schedule* preferential NAFTA rates for goods of Mexico[1] as of January 1, 2000

HTS subheading	Brief description	Special rate of duty
	Provided for in subheading 1702.90.68:	
9906.17.18	Subject to the quantitative limits specified in U.S. note 18 to this subchapter[2]	Free (MX)[3]
	Other:	
9906.17.19	Valued not over 31.5¢/kg	11.4¢/kg (MX)[4]
9906.17.20	Other	36.1% (MX)[4]
	Provided for in subheading 1702.90.58:	
	Goods of a type described in U.S. note 19 to this subchapter:	
9906.17.21	Subject to the quantitative limits specified in U.S. note 19 to this subchapter[6]	Free (MX)[3]
	Other:	
9906.17.22	Valued not over 31.5¢/kg	11.4¢/kg (MX)[4]
9906.17.23	Other	36.1% (MX)[4]
9906.17.24	Other	Free (MX)[7]

[1] Refers to goods of Mexico under the terms of general note 12 of the HTS.
[2] U.S. note 18 to chapter 99, subchapter 6 sets the following quantitative limits on imports under these tariff lines: 1,739,000 kilograms in 1999; 1,791,000 kilograms in 2000; 1,845,000 kilograms in 2001; 1,900,000 kilograms in 2002. Beginning in calendar year 2003, quantitative limits cease to apply for these items.
[3] In-quota tariff rate for Mexico.
[4] Over-quota tariff rate for Mexico
[5] U.S. note 20 to chapter 99, subchapter VI sets the following quantitative limits on imports under these tariff lines: 14,828,000 kilograms in 1999; 15,273,000 kilograms in 2000; 15,731,000 kilograms in 2001; and 16,203,000 kilograms in 2002. Beginning in calendar year 2003, quantitative limits cease to apply for these items.
[6] U.S. note 19 to chapter 99, subchapter VI sets the following quantitative limits on imports under these tariff lines: 1,739,000 kilograms in 1999; 1,791,000 kilograms in 2000; 1,845,000 kilograms in 2001; 1,900,000 kilograms in 2002. Beginning in calendar year 2003, quantitative limits cease to apply for these items.
[7] Preferential tariff rate for Mexico for products not subject to the TRQ.

Note.—Preferential in-quota and over-quota tariff rates and quantitative limits (TRQs) are not provided for in chapter 99, subchapter VI of the HTS for raw and refined sugar. Instead, the preferential tariff rates applied to Mexico for raw and refined sugar are provided for in chapter 17 under tariff lines 1701.11.10 and 1701.12.10, respectively. The preferential over-quota tariff rates for raw and refined sugar are provided for under tariff lines 1701.11.50 and 1701.12.50, respectively. The TRQs for Mexico are not published in the HTS, but rather in a “side-letter” to the NAFTA. Mexico is permitted to ship raw or refined sugar under its TRQ. The quantitative limits for raw and refined sugar are as follows: In years 1-6 (1994-99), 7,258 metric tons or “other country” share of the TRQ if Mexico is not a surplus producer and 25,000 metric tons if Mexico is a surplus producer. In years 7-14 (2000-07), 7,258 metric tons or “other country” share of the TRQ if Mexico is not a surplus producer and up to 250,000 metric tons if Mexico is a surplus producer. The actual amount Mexico will import in years 7-14 is still under negotiation. In 2008, quantitative limits cease to apply for raw and refined sugar.

Table A-3
Sugar: *Harmonized Tariff Schedule* value-based and quantity-based special safeguard subheadings;[1] description; and U.S. additional rate of duty as of January 1, 2000

HTS subheading	Brief description	Additional duties[2]
	Sugars, syrups and molasses, provided for in subheading 1701.11.50:	
	If entered during the effective period of safeguards based upon *value*:	
9904.17.01	Valued less than 5¢/kg	12.9¢/kg
9904.17.02	Valued 5¢/kg or more but less than 10¢/kg	8.7¢/kg
9904.17.03	Valued 10¢/kg or more but less than 15¢/kg	5.5¢/kg
9904.17.04	Valued 15¢/kg or more but less than 20¢/kg	3¢/kg
9904.17.05	Valued 20¢/kg or more but less than 25¢/kg	1.5¢/kg
9904.17.06	Valued 25¢/kg or more	No additional duty
9904.17.07	If entered during the effective period of safeguards based upon *quantity* announced by the Secretary of Agriculture	11.3¢/kg
	Sugars, syrups and molasses, provided for in subheadings 1701.12.50, 1701.91.30, 1701.99.50, 1702.90.20	
	If entered during the effective period of safeguards based upon *value*:	
9904.17.08	Valued less than 5¢/kg	21.6¢/kg
9904.17.09	Valued 5¢/kg or more but less than 10¢/kg	17.1¢/kg
9904.17.10	Valued 10¢/kg or more but less than 15¢/kg	13.1¢/kg
9904.17.11	Valued 15¢/kg or more but less than 20¢/kg	9.6¢/kg
9904.17.12	Valued 20¢/kg or more but less than 25¢/kg	7.1¢/kg
9904.17.13	Valued 25¢/kg or more but less than 30¢/kg	4.6¢/kg
9904.17.14	Valued 30¢/kg or more but less than 35¢/kg	3.1¢/kg
9904.17.15	Valued 35¢/kg or more	No additional duty
9904.17.16	If entered during the effective period of safeguards based upon *quantity* announced by the Secretary of Agriculture	11.9¢/kg
	Articles containing over 65 percent by dry weight of sugars described in additional U.S. note 2 to chapter 17, provided for in subheadings 1701.91.48 and 1702.90.68	
	If entered during the effective period of safeguards based upon *value*:	
9904.17.31	Valued less than 5¢/kg	20.7¢/kg
9904.17.32	Valued 5¢/kg or more but less than 10¢/kg	16.2¢/kg
9904.17.33	Valued 10¢/kg or more but less than 15¢/kg	12.2¢/kg
9904.17.34	Valued 15¢/kg or more but less than 20¢/kg	8.9¢/kg
9904.17.35	Valued 20¢/kg or more but less than 25¢/kg	6.4¢/kg
9904.17.36	Valued 25¢/kg or more but less than 30¢/kg	4.1¢/kg
9904.17.37	Valued 30¢/kg or more but less than 35¢/kg	2.6¢/kg
9904.17.38	Valued 35¢/kg or more	No additional duty
9904.17.39	If entered during the effective period of safeguards based upon *quantity* announced by the Secretary of Agriculture	11.3¢/kg + 1.7%

See footnotes at end of table.

Table A-3—*Continued*
Sugar: *Harmonized Tariff Schedule* value-based and quantity-based special safeguard subheadings;[1] description; and U.S. additional rate of duty as of January 1, 2000

HTS subheading	Brief description	Additional duties[2]
	Articles containing over 10 percent by dry weight of sugars described in additional U.S. note 3 to chapter 17, provided for in subheading 1701.91.58	
	If entered during the effective period of safeguards based upon *value*:	
9904.17.49	Valued less than 5¢/kg	20.7¢/kg
9904.17.50	Valued 5¢/kg or more but less than 10¢/kg	16.2¢/kg
9904.17.51	Valued 10¢/kg or more but less than 15¢/kg	12.2¢/kg
9904.17.52	Valued 15¢/kg or more but less than 20¢/kg	8.9¢/kg
9904.17.53	Valued 20¢/kg or more but less than 25¢/kg	6.4¢/kg
9904.17.54	Valued 25¢/kg or more but less than 30¢/kg	4.1¢/kg
9904.17.55	Valued 30¢/kg or more but less than 35¢/kg	2.6¢/kg
9904.17.56	Valued 35¢/kg or more	No additional duty
9904.17.57	If entered during the effective period of safeguards based upon *quantity* announced by the Secretary of Agriculture	11.3¢/kg + 1.7%
	Blended syrups containing sugars derived from sugarcane or sugar beets, capable of being further processed or mixed with similar or other ingredients, and not prepared for marketing to the ultimate consumer in the identical form and package which imported, provided for in subheadings 1702.20.28, 1702.30.28, 1702.40.28, 1702.60.28 or 1704.90.28:	
	If entered during the effective period of safeguards based upon *value*:	
9904.17.66	Valued less than 5¢/kg	18.1¢/kg
9904.17.67	Valued 5¢/kg or more but less than 10¢/kg	13.6¢/kg
9904.17.68	Valued 10¢/kg or more but less than 15¢/kg	9.9¢/kg
9904.17.69	Valued 15¢/kg or more but less than 20¢/kg	7¢/kg
9904.17.70	Valued 20¢/kg or more but less than 25¢/kg	4.5¢/kg
9904.17.71	Valued 25¢/kg or more but less than 30¢/kg	2.7¢/kg
9904.17.72	Valued 30¢/kg or more	No additional duty
	If entered during the effective period of safeguards based upon *quantity* announced by the Secretary of Agriculture:	
9904.17.73	Provided for in subheading 1702.20.28	5.6¢/kg of total sugars + 1.7%
9904.17.74	Provided for in subheading 1702.30.28	5.6¢/kg of total sugars + 1.7%
9904.17.75	Provided for in subheading 1702.40.28	11.3¢/kg of total sugars + 1.7%
9904.17.76	Provided for in subheading 1702.60.28	11.3¢/kg of total sugars + 1.7%
9904.17.77	Provided for in subheading 1702.90.28	11.3¢/kg of total sugars + 1.7%

[1] Special safeguard measures were established pursuant to Article 5 of the Uruguay Round Agreement on Agriculture. Section 101 of the Uruguay Round Agreements Act allows for the imposition of additional duties based upon the value or quantity of goods imported into the United States for certain agricultural products. Value-based special safeguards are applied automatically to out-of quota imports of (i) raw and refined sugar, (ii) blended syrups and (iii) sugar-containing products. Quantity-based safeguards apply only if imports reach the trigger level of imports announced in the *Federal Register* on Mar. 9, 2000. Only one safeguard, value or quantity, may be applied at a time. Value- and quantity-based special safeguard rates are provided for in chapter 99, subchapter IV of the HTS.

[2] Additional safeguard duties do not apply to Canada or Mexico.

APPENDIX B
UNDERSTANDING THE STRUCTURE OF THE HARMONIZED TARIFF SCHEDULE FOR SUGAR

Understanding the structure of the *Harmonized Tariff Schedule* for Sugar

The purpose of this document is to provide a detailed understanding of the structure of the *Harmonized Tariff Schedule* (HTS) for Sugar–found in chapter 17. The HTS for sugar is highly complicated due to policy structure (e.g., tariff-rate quotas (TRQs) and special safeguards (SSGs)), varying tariff-types (i.e., *ad valorem*, specific, compound and technical tariffs), preferential agreements (e.g., NAFTA, CBERA), product identity, and an intricate footnote scheme, to name a few. In the following pages, issues pertaining to sugar will be covered and examples will be given to clarify the process by which tariff rates and import quantities are determined.

Prior to detailing each chapter, a basic orientation is needed. First, the HTS comprises:

(1) General Notes (GN);
(2) General Rules of Interpretation;
(3) General Statistical Notes;
(4) Chapters 1 through 99 (includes U.S. notes, subheading notes, and additional U.S. notes);
(5) Appendices;
(6) Alphabetic Index; and
(7) Change Records.

When determining appropriate tariff lines, the starting point is the chapter specific to the commodity of interest. It should be noted that the HTS is based upon a hierarchical structure that, once understood, is fairly simple to follow. A tariff line can be traced from the heading to the subheading by correctly interpreting the article description. To begin, the imported commodity of interest is determined to be provided for in a general chapter heading (i.e., the 4-digit product category). Once, the commodity's 4-digit category is found, the subheading is determined (i.e., 6-digit product category). After the appropriate subheading based upon the article descriptions is identified, the good can then be further categorized into an additional subheading–an 8-digit category. 10-digit categories exist, but tariff rates are only assigned at the 8-digit level. The 10-digit tariff levels are called "statistical reporting numbers."

Finding the appropriate tariff heading and subheading within the chapter is the first step. Once it is determined that the imported product falls under the tariff line, the tariff rate must then be identified correctly. There may be quantity, country, or commodity-based restrictions, or there may be preferential rates available. The HTS is very complex, and it is for this reason that the rate should not simply be read at face value without in-depth investigation. Determining the tariff rate (and often the allowable quantity) may require referring to GN's, other chapters, U.S. and additional U.S. notes, subheading notes, and appendices. It is for the aforementioned reasons that explanations and examples are given in this document. It is meant as a resource and guide, nothing else. **The HTS should be consulted for tariff rates and article descriptions.**

Chapter 17–Sugars and Sugar Confectionary

Chapter 17 is where the bulk of the tariff rates for sugar are found. Covered in this chapter are: sugars (both void of and including flavoring and coloring) such as sucrose, lactose, maltose, glucose and fructose; sugar syrups; artificial honey; caramel; and molasses resulting from the extraction or refining of sugar or sugar confectionery.

Table B-1
HTS subheadings 1701.11.05-1701.11.50

Heading/ Subheading	Stat. Suffix	Article Description	Unit of Quantity	Rates of Duty 1 General	Rates of Duty 1 Special	Rates of Duty 2
1701		Cane or beet sugar and chemically pure sucrose in solid form:				
		Raw sugar not containing added flavoring or coloring matter:				
1701.11		Cane sugar:				
1701.11.05	00	Described in general note 15 of the tariff schedule and entered pursuant to its provisions	kg	1.4606¢/kg less .020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than .943854¢/kg	Free (A*, CA, E*, IL, J, MX)	4.3817¢/kg less .0622005¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 2.831562¢/kg
1701.11.10	00	Described in additional U.S. note 5 to this chapter and entered pursuant to its provisions	kg	1.4606¢/kg less .020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than .943854¢/kg	Free (A*, CA, E*, IL, J, MX)	4.3817¢/kg less .0622005¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 2.831562¢/kg
1701.11.20	00	Other sugar to be used for the production (other than by distillation) of polyhydric alcohols for use as a substitute for sugar in human food consumption, or to be refined and re-exported in refined form or in sugar-containing products, or to be substituted for domestically produced raw cane sugar that has been, or will be exported	kg	1.4606¢/kg less .020668¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than .943854¢/kg 33.87¢/kg	Free (A*, CA, E*, IL, J, MX)	4.3817¢/kg less .0622005¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 2.831562¢/kg
1701.11.50	00	Other 1/	kg		28.247¢/kg less .4¢/kg for each degree under 100 degrees and fractions of a degree in proportion, but not less than 18.256¢/kg (MX)	39.85¢/kg

1/ See subheadings 9904.17.01-9904.17.07.

The four headings in Chapter 17 are as follows:

1701–Cane or beet sugar and chemically pure sucrose, in solid form;

1702–Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid form; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel;

1703–Molasses resulting from the extraction or refining of sugar; and

1704–Sugar confectionery (including white chocolate), not containing cocoa.

The structure of the HTS for sugar and confectionery is quite complicated in chapter 17 because of TRQs, varying tariff types, and preferential NAFTA rates for Mexico in particular. Because of these intricacies, examples are provided on how to trace 8-digit tariff lines through the HTS.

Subheading 1701.11 applies to raw, cane sugar without added coloring and flavoring. There are four 8-digit tariff lines that are included under this subheading. For clarity, an explanation of each subheading under subheading 1701.11 is given below:

1. *Subheading 1701.11.05–Described in general note 15 and entered pursuant to its provision.*
   - This tariff item is for products that are subject to general note 15. GN 15 is particular to agricultural products that are (1) subject to a TRQ, and (2) subject to safeguard measures.
   - Amounts imported under this tariff line DO NOT count against TRQ imports.
   - GN 15 includes products that enter for government use; personal use; samples for taking orders or for use at exhibitions, etc.; and blended syrups that enter through a Foreign Trade Zone.
   - The "General" rates of duty in Column 1 for countries with NTR status is 1.4606¢/kg minus .020668¢/kg for each degree (and fractions of thereof) under 100 degrees[1]; however, if the calculated amount is less than .943854¢/kg, then the tariff rate applied is .943854¢/kg. This tariff rate is classified as a "technical" rate of duty.
   - "Special" rates in Column 1 are the preferential rates offered to those countries listed. NAFTA countries, Canada and Mexico, import duty-free along with GSP countries (excluding India and Brazil)[2], CBERA countries, Israel, and ATPA countries.
   - Column 2 is the tariff rate that applies to Afghanistan, Laos, Vietnam, North Korea, Serbia, Montenegro, and Cuba. If no sanctions are in place, these countries pay 4.3817¢/kg minus .0622005¢/kg for each degree (and fractions of thereof) under 100 degrees; however, if the calculated amount is less than 2.831562¢/kg, then the tariff rate applied is 2.831562¢/kg. As mentioned above, this is a technical rate of duty.

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[1] Most sugar enters above 96 International Sugar Degrees.

[2] In determining which GSP countries are given the preferential tariff rate, first consult General Note 4 (a) and then consult General Note 4 (d) to confirm whether or not the country on the list in GN 4 (a) is not ineligible for GSP rates for the particular tariff line in question.

2. *Subheading 1701.11.10–Described in additional note 5 to this chapter and entered pursuant to its provisions.*
   - This subheading refers to the amount of raw, cane sugar that can be entered or withdrawn from stocks for consumption during the current fiscal year.
   - No less than 1,117,195 metric tons can be imported under this tariff line.
   - The above amount can be allocated to individual countries by the USTR (additional note 5 (b) (i)).
   - Imports under this subheading are counted toward the current year's TRQ, but can be counted toward the previous or subsequent year's TRQ with special approval from the Secretary of Agriculture (hereafter "Secretary").
   - The "General", "Special", and column 2 rates of duty are identical to those in subheading 1701.11.05.
   - It should be noted that in additional note 5 (b) (ii), the Secretary is given the right to modify (increase, but not reduce) the quantitative restriction if domestic supply is inadequate in meeting domestic demand at reasonable prices.

3. *Subheading 1701.11.20–Other sugar to be used for the production (other than by distillation) of polyhydric alcohols for use as a substitute for sugar in human food consumption, or to be refined and re-exported in refined form or in sugar containing products, or to be substituted for domestically produced raw cane sugar that has been, or will be exported.*
   - This tariff line is essentially an end-use provision requiring re-exportation of the product.[3]
   - Imports that enter under this tariff line DO NOT count toward TRQ imports.
   - Tariff rates are identical to the rates in the two subheadings above.

4. *Subheading 1701.11.50–Other*
   - This tariff rate applies to out-of quota imports, often known as the 2nd tier tariff rate. Those who do not own the rights to import at the within quota tariff rate in subheading 1701.11.10, pay this higher tariff rate.[4]
   - These imports DO NOT count toward TRQ imports.
   - The rates of duty are substantially higher than the within quota rates. In fact, the rates listed under 1701.11.50 are not the sole rates of duty because the imports under this tariff line are also subject to special safeguards, as signified by footnote 1/: "see subheadings 9904.17.01-9904.17.07."
   - MFN rates are 33.87¢/kg plus the additional safeguard duty. Safeguard rates DO NOT apply to sugar imports from Canada and Mexico.
   - Special rates that apply to Mexico are 28.247¢/kg minus 0.4¢/kg for each degree below 100 degrees (and a fraction of thereof), but the minimum rate that applies is 18.256¢/kg.
   - Table 2 below shows the additional duties that apply to imports under this subheading.

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[3] Consult the *Federal Register*, Vol. 64, No. 29/Friday, February 12, 1999, 7 CFR PART 1530 for the Final Action on the Re-export Program.

[4] TRQs are not allocated specifically to countries in chapter 17, but the quota amounts may be (and generally is) allocated among supplying countries by the USTR. See USTR homepage for allocation amounts.

- This table of safeguard rates is found in chapter 99, subchapter IV of the HTS.[5]
- Table 1 and Table 2 should be used in conjunction to determine the appropriate rate of duty for out-of quota imports.
- As dictated by the *Agreement on Agriculture*, safeguards can apply based upon price or volume.[6] Price-based safeguards are automatically effective for U.S. sugar products unless the Secretary chooses to switch to volume-based safeguards. Currently, the safeguards that apply are the price-based safeguards (9904.17.01-9904.17.06) and are determined by the value of the imported product.
- Notice that the additional safeguard duty decreases as the value of the product being imported increases.
- Footnote 1/ in Table 2 simply requires that the rates apply on the 8-digit levels and that the units are the same as those in chapter 17.

Table B-2
Special safeguard rates for subheading 1701.11.50

Heading/ Subheading	Stat. Suffix	Article Description	Unit of Quantity	Additional Duties
		Sugars, syrups and molasses, provided for in subheading 1701.11.50:		
		If entered during the effective period of safeguards based upon value:		
9904.17.01	1/	Valued less than 5¢/kg	1/	12.9¢/kg
9904.17.02	1/	Valued 5¢/kg or more but less than 10¢/kg	1/	8.7¢/kg
9904.17.03	1/	Valued 10¢/kg or more but less than 15¢/kg	1/	5.5¢/kg
9904.17.04	1/	Valued 15¢/kg or more but less than 20¢/kg	1/	3¢/kg
9904.17.05	1/	Valued 20¢/kg or more but less than 25¢/kg	1/	1.5¢/kg
9904.17.06	1/	Valued 25¢/kg or more	1/	No additional duty
9904.17.07	1/	If entered during the effective period of safeguards based upon quantity announced by the Secretary of Agriculture	1/	11.3¢/kg

1/ See chapter 99 statistical note 1.

Subheading 1701.12 for raw, beet sugar is structured like to subheading 1701.11. Of course the tariff rates are different, but the same TRQ and safeguard issues apply. 1701.11 and 1701.12 do not provide an example of how to determine the preferential tariff rates under the NAFTA agreement, and so, subheading 1701.91.52-1701.91.58 is detailed below to provide for an understanding.

[5] The numbering of special safeguard tariff lines is as follows: Heading 9904 refers to HTS chapter 99, subchapter 4; Subheading: refers to HTS chapter and order of tariff line. For example, the first safeguard tariff line footnoted in HTS chapter 17 can be found in chapter 99, subchapter 4, subheading 1701. Thus, the special safeguard tariff line is: 9904.17.01.

[6] The safeguards were negotiated during the Uruguay Round *Agreement on Agriculture*. They can be applied if price falls below the set "trigger price" or if import volume goes above the set "trigger volume" initially notified to the WTO by the importing country.

Table B-3
HTS subheadings 1701.91.52-1701.91.58

Heading/ Subheading	Stat. Suffix	Article Description	Unit of Quantity	Rates of Duty 1 General	Rates of Duty 1 Special	Rates of Duty 2
1701.91		Other: Containing added flavoring or coloring matter: Containing added flavoring matter whether or not containing added coloring: Articles containing over 10 percent by dry weight of sugar described in additional U.S. note 3 to chapter 17:				
1701.91.52	00	Described in general note 15 of the tariff schedule and entered pursuant to its provisions	kg	6%	Free (A, CA, E, IL, J, MX)	20%
1701.91.54	00	Described in additional U.S. note 8 to this chapter and entered pursuant to its provisions	kg	6%	Free (A, CA, E, IL, J)	20%
1701.91.58	00	Other 2/	kg	33.9¢/kg + 5.1%	See 9906.17.39 - 99.06.17.41 (MX)	33.9¢/kg + 6%

2/ See subheadings 9904.17.49 - 9904.17.65

1. *Subheading 1701.91.52–Described in general note 15 of the tariff schedule and pursuant to its provisions*
   - This tariff item is for products that are subject to general note 15, as described earlier.
   - The tariff rate for countries with NTR status is an *ad valorem* rate of 6%.
   - "Special" rates of "Free" are offered to GSP countries (A), Canada (CA), CBERA countries (E), Israel (IL), ATPA (J) countries and Mexico (MX).
   - Column 2 is the tariff rate that applies to Afghanistan, Laos, Vietnam, North Korea, Serbia, Montenegro, and Cuba. If no sanctions are in place, these countries pay a 20% *ad valorem* rate of duty.

2. *Subheading 1701.91.54–Described in additional U.S. note 8 to this chapter and entered pursuant to its provisions*
   - The products entering under this subheading are subject to a TRQ of 64,709 metric tons for a 12-month period from October 1 in any year to the following September 30.
   - Those countries that own the right to ship under this tariff line pay a 1st tier *ad valorem* tariff rate of 6%.
   - "Special" duty-free rates are offered to GSP countries (A), Canada (CA), CBERA countries (E), Israel (IL), and ATPA (J) countries.
   - Products of Mexico are not permitted or included under this tariff line, but rather under subheading 1701.91.58 at a preferential NAFTA rate.

Table B-4 below specifies the preferential NAFTA rates for Mexico under subheading 1701.91.58. Both Tables B-3 and B-4 should be read in conjunction with one another along with the table that outlines additional safeguard duties (not depicted here).[7]

Table B-4
Preferential NAFTA rates for Mexico for HTS subheading 1701.91.58

Heading/ Subheading	Stat. Suffix	Article Description	Unit of Quantity	Rates of Duty 1 General	Rates of Duty 1 Special	Rates of Duty 2
		Cane or beet sugar and chemically pure sucrose, in solid form:				
		Provided for in subheading 1701.91.58:				
9906.17.39	1/	Subject to the quantitative limits specified in U.S. note 20 to this subchapter	1/		Free (MX)	
		Other:				
9906.17.40	1/	Valued not over 31.5¢/kg	1/		11.4¢/kg (MX)	
9906.17.41	1/	Other	1/		36.1% (MX)	

1/ See chapter 99 statistical note 1.

3. *Subheading 1701.91.58–Other*

- This subheading pertains to the out-of quota imports in this product category.
- The 2nd tier tariff rate applied to countries with MFN status (including Canada, excluding Mexico) is the compound rate of 33.9¢/kg plus a 5% *ad valorem* tariff rate plus the additional safeguard rates.
- Safeguards apply to this tariff line as signified by footnote 2/ which refers to subheadings 9904.17.49 - 9904.17.65 noted in subchapter IV. These are price-based safeguards similar to those mentioned earlier in which the additional duty decreases as the value of the product increases.
- Mexico receives a "Special" preferential tariff rate and has its own TRQ applied to this product category. This is signified in the "Special" column by referring to 9906.17.39 - 9906.17.41 found in subchapter VI, the subchapter which provides for NAFTA provisions.
- 9906.17.39 refers to U.S. note 20 in subchapter VI where Mexico's TRQ level can be found. This tariff rate in 9906.17.39 is the 1st tier tariff rate for Mexico's individual TRQ. The rate Mexico pays for its within quota imports is "Free."
- 9906.17.40 and 9906.17.41 are the out-of quota tariff rates Mexico pays if it exceeds the specified level of TRQ imports in the given year, and are based upon the value of the product.
- 9906.17.40 is the 2nd tier tariff rate if the imports are not valued at over 31.5¢/kg. The rate is 11.4¢/kg. 9906.17.41 is the 2nd tier tariff rate for imports valued over 31.5¢/kg. This out-of quota rate is an *ad valorem* rate of 36.1%. Note that no additional safeguard duties apply to Mexico.

[7] The numbering of NAFTA tariff lines is as follows: Heading 9906 refers to HTS chapter 99, subchapter 6; Subheading: refers to HTS chapter and order of tariff line. For example, the first NAFTA tariff line footnoted in HTS chapter 18 can be found in chapter 99, subchapter 66, Subheading 1801. Thus, the NAFTA tariff line is: 9906.18.01.

These examples from chapter 17 provide clarity in understanding the hierarchical structure of the HTS. Other headings could be covered such as 1702, 1703 and 1704, but the process of reading the schedule is the same as in those described prior. It should be noted that some of the tariff lines in chapter 17 have TRQs applied whose quantities are zero. This means that the within quota rate is not valid and that all suppliers pay the over quota rate.

APPENDIX C
EXPLANATION OF TARIFF AND TRADE AGREEMENT TERMS

TARIFF AND TRADE AGREEMENT TERMS

In the ***Harmonized Tariff Schedule of the United States*** (HTS), chapters 1 through 97 cover all goods in trade and incorporate in the tariff nomenclature the internationally adopted Harmonized Commodity Description and Coding System through the 6-digit level of product description. Subordinate 8-digit product subdivisions, either enacted by Congress or proclaimed by the President, allow more narrowly applicable duty rates; 10-digit administrative statistical reporting numbers provide data of national interest. Chapters 98 and 99 contain special U.S. classifications and temporary rate provisions, respectively. The HTS replaced the *Tariff Schedules of the United States* (TSUS) effective January 1, 1989.

Duty rates in the ***general*** subcolumn of HTS column 1 are normal trade relations rates, many of which have been eliminated or are being reduced as concessions resulting from the Uruguay Round of Multilateral Trade Negotiations. Column 1-general duty rates apply to all countries except those listed in HTS general note 3(b) (Afghanistan, Cuba, Laos, North Korea, and Vietnam) plus Serbia and Montenegro, which are subject to the statutory rates set forth in ***column 2***. Specified goods from designated general-rate countries may be eligible for reduced rates of duty or for duty-free entry under one or more preferential tariff programs. Such tariff treatment is set forth in the ***special*** subcolumn of HTS rate of duty column 1 or in the general notes. If eligibility for special tariff rates is not claimed or established, goods are dutiable at column 1-general rates. The HTS does not enumerate those countries as to which a total or partial embargo has been declared.

The ***Generalized System of Preferences*** (GSP) affords nonreciprocal tariff preferences to developing countries to aid their economic development and to diversify and expand their production and exports. The U.S. GSP, enacted in title V of the Trade Act of 1974 for 10 years and extended several times thereafter, applies to merchandise imported on or after January 1, 1976 and before the close of September 30, 2001. Indicated by the symbol "A", "A*", or "A+" in the special subcolumn, the GSP provides duty-free entry to eligible articles the product of and imported directly from designated beneficiary developing countries, as set forth in general note 4 to the HTS.

The ***Caribbean Basin Economic Recovery Act*** (CBERA) affords nonreciprocal tariff preferences to developing countries in the Caribbean Basin area to aid their economic development and to diversify and expand their production and exports. The CBERA, enacted in title II of Public Law 98-67, implemented by Presidential Proclamation 5133 of November 30, 1983, and amended by the Customs and Trade Act of 1990, applies to merchandise entered, or withdrawn from warehouse for consumption, on or after January 1, 1984. Indicated by the symbol "E" or "E*" in the special subcolumn, the CBERA provides duty-free entry to eligible articles, and reduced-duty treatment to certain other articles, which are the product of and imported directly from designated countries, as set forth in general note 7 to the HTS.

Free rates of duty in the special subcolumn followed by the symbol "IL" are applicable to products of Israel under the ***United States-Israel Free Trade Area Implementation Act*** of 1985 (IFTA), as provided in general note 8 to the HTS.

Preferential nonreciprocal duty-free or reduced-duty treatment in the special subcolumn followed by the symbol "J" or "J*" in parentheses is afforded to eligible articles the product of designated beneficiary countries under the ***Andean Trade Preference Act*** (ATPA), enacted as title II of Public Law 102-182 and implemented by Presidential Proclamation 6455 of July 2, 1992 (effective July 22, 1992), as set forth in general note 11 to the HTS.

Preferential free rates of duty in the special subcolumn followed by the symbol "CA" are applicable to eligible goods of Canada, and rates followed by the symbol "MX" are applicable to eligible goods of Mexico, under the ***North American Free Trade Agreement***, as provided in general note 12 to the HTS and implemented effective January 1, 1994 by Presidential Proclamation 6641 of December 15, 1993. Goods must originate in the NAFTA region under rules set forth in general note 12(t) and meet other requirements of the note and applicable regulations.

Other special tariff treatment applies to particular ***products of insular possessions*** (general note 3(a)(iv)), ***products of the West Bank and Gaza Strip*** (general note 3(a)(v)), goods covered by the ***Automotive Products Trade Act*** (APTA) (general note 5) and the ***Agreement on Trade in Civil Aircraft*** (ATCA) (general note 6), ***articles imported from freely associated states*** (general note 10), ***pharmaceutical products*** (general note 13), and ***intermediate chemicals for dyes*** (general note 14).

The ***General Agreement on Tariffs and Trade 1994*** (GATT 1994), pursuant to the Agreement Establishing the World Trade Organization, is based upon the earlier GATT 1947 (61 Stat. (pt. 5) A58; 8 UST (pt. 2) 1786) as the primary multilateral system of disciplines and principles governing international trade. Signatories' obligations under both the 1994 and 1947 agreements focus upon most-favored-nation treatment, the maintenance of scheduled concession rates of duty, and national treatment for imported products; the GATT also provides the legal framework for customs valuation standards, "escape clause" (emergency) actions, antidumping and countervailing duties, dispute settlement, and other measures. The results of the Uruguay Round of multilateral tariff negotiations are set forth by way of separate schedules of concessions for each participating contracting party, with the U.S. schedule designated as Schedule XX. Pursuant to the **Agreement on Textiles and Clothing** (ATC) of the GATT 1994, member countries are phasing out restrictions on imports under the prior "Arrangement Regarding International Trade in Textiles" (known as the **Multifiber Arrangement** (MFA)). Under the MFA, which was a departure from GATT 1947 provisions, importing and exporting countries negotiated bilateral agreements limiting textile and apparel shipments, and importing countries could take unilateral action in the absence or violation of an agreement. Quantitative limits had been established on imported textiles and apparel of cotton, other vegetable fibers, wool, man-made fibers or silk blends in an effort to prevent or limit market disruption in the importing countries. The ATC establishes notification and safeguard procedures, along with other rules concerning the customs treatment of textile and apparel shipments, and calls for the eventual complete integration of this sector into the GATT 1994 over a ten-year period, or by Jan. 1, 2005.