

Table 16--U.S. sugar loan rates and support prices, 1977-89

Fiscal year	Loan rate		Raw sugar market price objective	Actual raw sugar market price	Support based on loan rates	
	Raw sugar	Refined beet sugar			Sugarcane <sup>1/</sup>	Sugarbeets
	-----Cents per pound-----			--Dollars per net ton--		
1977/78	13.50	<sup>2/</sup> 15.57	13.50	12.99	18.37	22.84
1978/79	14.73	16.99	15.00	14.99	20.36	24.73
1979/80	13.00	15.15	15.00	25.05	17.92	22.46
1980/81 <sup>3/</sup>	---	---	15.00	24.92	---	---
1981/82 <sup>4/</sup>	16.75	19.70	<sup>5/</sup>	18.84	---	---
1982/83	17.00	20.15	20.73	21.78	23.00	30.60
1983/84	17.50	20.86	21.17	21.84	23.48	31.45
1984/85	17.75	20.76	21.57	20.89	23.89	31.63
1985/86	18.00	21.06	21.50	20.46	24.02	31.81
1986/87	<sup>6/</sup> 18.00	<sup>6/</sup> 21.09	21.78	21.68	<sup>7/</sup> 24.07	<sup>7/</sup> 29.44
1987/88	18.00	21.16	21.76	22.10	24.68	30.57
1988/89	<sup>6/</sup> 18.00	<sup>6/</sup> 21.37	21.80	22.49	<sup>7/</sup> 24.71	<sup>7/</sup> 31.18
1989/90	<sup>6/</sup> 18.00	<sup>6/</sup> 21.54	21.95	NA	<sup>7/</sup> 25.02	<sup>7/</sup> 31.36

NA = Not available.

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<sup>1/</sup> Florida only. <sup>2/</sup> Initially set at 14.24 cents a pound. <sup>3/</sup> No program was established, but market price continued to be supported. <sup>4/</sup> Represents data for price-support purchase program for sugar produced December 22, 1981-March 31, 1982. The sugar was statutorily defined as part of the 1982 crop. <sup>5/</sup> 15 cents October 1-December 23, 1981; 19.08 cents December 24, 1981-May 5, 1982; and 19.88 cents May 6-September 30, 1982. <sup>6/</sup> Loan proceeds were reduced 4.3-percent as result of Balanced Budget and Emergency Deficit Control Act (Gramm-Rudman-Hollings) for 1986/87 and 1.4 percent for 1988/89 and 1989/90. <sup>7/</sup> Based on actual loan proceeds.

Source: U.S. Dept. Agr., Economic Research Service.

Before the loan program took effect, an interim price-support payment program for the 1977 crop was instituted under authority of the Agricultural Act of 1949. Processors received the difference between a price objective of 13.50 cents and the average market price, raw value. The payment program ceased when the loan program began in November 1977. Under the payment program, processors received \$237.5 million for 3.9 million tons of sugar that met the eligibility requirements. The payments were shared with growers according to the terms of their contracts.

The 1979 through 1981 crops were not designated in the Food and Agriculture Act of 1977 to receive price support. Therefore, price support authority reverted to Title III, Section 301, of the Agricultural Act of 1949 ("permanent legislation") which gives the President, through the Secretary of Agriculture, discretionary authority to make available price support at up to 90 percent of parity through loans, purchases, or other operations. A sugar loan program was adopted for the 1979 crop with a basic loan rate of 13 cents a pound, raw value, but no support program was provided for the 1980 and most of the 1981 sugar crops, because world and U.S. market prices were high enough to sustain the industry.

#### Agriculture and Food Act of 1981

Section 201(h) of the Agriculture Act of 1949 was amended to provide a price support program for domestically grown sugarcane

and sugarbeets for the 1982 through 1985 crop years. The act established a purchase-agreement program at 16.75 cents a pound for raw cane sugar processed between December 22, 1981 (the date of enactment), and March 31, 1982. Effective October 1, 1982, a nonrecourse loan program was established. Sugar processed after March 31, 1982, but before July 1, 1983, was supported through a loan rate for raw cane sugar of 17 cents a pound. The loan rate was increased to 17.5 cents in 1983, 17.75 cents in 1984, and 18 cents in 1985 (table 16).

The loan rate for beet sugar was established at a level consistent with the historical relationship between refined beet sugar net selling prices and raw cane sugar prices, the basis used by sugarcane and sugarbeet processors in determining grower returns.

To minimize the risk of the CCC acquiring sugar because of low sugar prices, a market stabilization price was established for raw cane sugar above the purchase or loan rate. The market stabilization price was considered to be the minimum market price required to discourage sale or forfeiture of any sugar to CCC. The difference between the purchase or loan rate and the market stabilization price covered all transportation costs, the interest required to redeem a loan, and an incentive factor to encourage processors to sell sugar in the marketplace rather than to sell or forfeit it to the CCC.

#### Food Security Act of 1985

The Food Security Act of 1985 amends Section 201 of the Agricultural Act of 1949 and mandates a price-support program for domestically produced sugarcane and sugarbeets for the 1986-90 crop years. The act requires the Secretary of Agriculture to support the price of domestically grown sugarcane through nonrecourse loans at such levels as he determines appropriate, but not less than 18 cents a pound for raw cane sugar (table 16). The support for sugarbeets is to be fair and reasonable in relation to that for sugarcane.

The 1985 Act strengthens effective support for sugar in several ways:

- (1) The Secretary may increase the support level for each of the 1986-90 crops based on appropriate factors. These include changes (during the 2 immediately preceding crop years) in the cost of sugar products, in the cost of domestic sugar production, and in other factors that may adversely affect domestic sugar production. If the Secretary does not increase the support price for any crop year, he must submit a report justifying his determination to the Committee on Agriculture of the House of Representatives and the Committee on Agriculture, Nutrition, and Forestry of the Senate. All loans are to be made available during the fiscal year and are to mature during the fiscal year.
- (2) The act requires that the President use all authorities available to enable the Secretary of Agriculture to operate

the sugar program at no cost to the Federal Government by preventing the accumulation of sugar acquired by the CCC.

- (3) Finally, any cane or beet producer who, as a result of a processing firm's insolvency, did not receive maximum entitled benefits under the price-support program is to be paid the maximum through the CCC.

### **Legislative Authorities to Support U.S. Sugar Industry**

The President is authorized to proclaim duties and quotas under Headnote 2 of the Tariff Schedules of the United States (additional U.S. Note 3, Chapter 17 of the Harmonized TSUS). Headnote 2 fixes the rate of duty to countries granted most-favored-nation status by the United States. The minimum rate of duty is 0.625 cent a pound, raw value (sugar testing 96 degrees by the polariscope). According to the headnote, the rate of duty will snap back to the statutory rate of 1.875 cents a pound whenever sugar quota legislation is not in effect in the United States, unless the President acts to impose specific rates of duty and quotas. Any duty rates and quotas proclaimed under Headnote 2 authority must consider the interests of domestic producers and materially affected contracting parties to the General Agreement on Tariffs and Trade (GATT).

The President is also empowered, on the basis of an investigation and report by the International Trade Commission (ITC), to regulate commodity imports whenever he finds that such imports tend to render ineffective or materially interfere with commodity price support or stabilization programs of the USDA. This authority under Section 22 of the Agricultural Adjustment Act of 1933 permits the imposition of fees not in excess of 50-percent ad valorem or quotas not in excess of 50 percent of the quantity imported during a representative period determined by the President. Section 22 provides authority to impose fees or quotas but not both simultaneously. However, if quotas are invoked under other authorities (such as Headnote 2), Section 22 may be used to impose fees while such quotas are in effect.

### **Mechanics of the 1985 U.S. Sugar Program**

The sugar program of the Food Security Act of 1985 provides price support through nonrecourse loans for domestically grown sugarcane and sugarbeets. Unlike other commodity programs, loans are made to processors and not directly to producers. This is because sugarcane and sugarbeets, being bulky and very perishable, must be processed into sugar before they can be traded and stored. Beets are processed directly into refined sugar, while cane is milled into raw sugar and then marketed to cane refiners for further processing. When processors sell the sugar, growers share in the returns.

Raw cane sugar and refined beet sugar are used as collateral for loans obtained from the CCC. To qualify for loans, processors must agree to pay producers the USDA-established minimum price-

support levels based on the loan rates for sugarcane and sugarbeets. Growers generally receive about 60 percent of the loan or sale proceeds of the sugar and processors 40 percent, but the exact arrangements vary by contract.

The 1985 sugar program specifies the minimum national loan rate for sugarcane at 18 cents a pound for raw cane sugar, with sugarbeets to be supported at a level that is "fair and reasonable" in relation to the loan rate for sugarcane. USDA calculates the beet loan rate by using a production-weighted, 10-year ratio of prices received for sugarbeets relative to sugarcane (converted into cents per pound of beet sugar and raw cane sugar). The ratio, multiplied by the cane loan rate, plus fixed marketing expenses for beet sugar, is the national average loan rate for refined beet sugar. This rate usually runs about 3 cents above the loan level for sugarcane.

Loan rates differ by location. The farther a processor is from its markets, the lower the rates. If freight costs for a region are above the national weighted-average, the difference is reflected in a lower loan level. The opposite is also true. For example, Hawaii's loan rate for 1988 crop raw cane sugar is 17.42 cents a pound, while Louisiana's is 18.27 cents. This is done so that the loans do not distort the routine marketing of sugar. In other words, no area will have more of an incentive to default on its loans than any other.

The processing company can either repay its loan with interest or default on it. If the firm defaults, the sugar held as collateral is forfeited to the CCC. The processor (borrower) will be inclined not to default if the market price for sugar is high enough to permit repayment of the loan, interest, freight, and related marketing expenses. (Freight is not part of the formula for beet sugar because the buyer pays the freight.)

Prior to the 1985 Act, part of Florida's 1984 crop was forfeited at a net cost to the Government of \$47 million. But because the current program has to be run "at no cost," the market stabilization price plays a critical role as a reference price which, if attained in the market, would be sufficient to avoid forfeitures.

The market stabilization price (MSP) is comprised of the national average loan rate for raw cane sugar, loan interest for 6 months, transportation and handling costs, and a market incentive of 0.2 cent a pound. Transportation costs are based on average shipping charges from Hawaii to U.S. ports north of Cape Hatteras, NC, so that the MSP will be high enough to cover the processing area with the highest costs. As a result, all the other sugarcane areas are automatically covered from risk of forfeiture. Sugarbeet areas are also protected from forfeiture because the cost of refining raw sugar, including weight loss in the physical refining process, is more than 4 cents a pound; therefore, the price of refined cane sugar would exceed the price at which beet sugar is forfeited. The MSP is announced each September for the next fiscal year. For fiscal 1989, the MSP was 21.8 cents a

pound and actual market prices in New York averaged 22.49 cents (includes insurance and freight charges).

To get U.S. prices up to the MSP, USDA estimates the domestic demand for sugar and then limits supply. No limit is placed on domestic production, but imports are restrained by a quota. Without the quota, low-priced sugar in the world market would flood the U.S. market and undercut the MSP.

Before May 1982, tariffs were used to raise the U.S. sugar price to the desired level. However, the duty could not exceed 50 percent of the price of the U.S. sugar imports. When world prices plunged in the 1980's, tariffs could no longer assure achievement of the MSP and restrictive quotas were imposed. Today, only a nominal duty exists, at the legal minimum of 0.625 cent a pound. Fees are zero for raw sugar and 1 cent a pound for refined. With the restrictive quota in place, the duty and fee do not affect the price of U.S. sugar but serve to capture some of the price premium of sugar marketed in the United States. Most nations eligible to ship sugar to this country receive duty-free status under the Generalized System of Preferences, the Caribbean Basin Initiative, or both (see Glossary for details). All countries are subjected to the fee on refined sugar, little of which is imported.

The size of the import quota each year is determined on the basis of estimated demand for sugar in the U.S. market and domestic supplies. Conditions can change, however, and the quota can be revised. For example, in 1988, the drought reduced sugar production far below the forecast level and, in order to keep prices from skyrocketing, the quota was raised from 758,000 tons to 1.057 million tons.

Allocation of the quota to individual countries is generally based on their share of the U.S. market during 1975-81 when imports were relatively unrestricted. Quotas were extended to 39 countries for 1989. Nicaragua and South Africa, originally quota recipients, have been excluded and their shares reallocated.

The United States actually imports more sugar each year than prescribed by the quota. The extra imports enter under special programs at world prices. (The world price plus charges for delivery to New York averaged about 12 cents a pound in 1988 versus quota sugar priced at 22 cents.) A small amount of quota-exempt sugar comes in for industrial uses as polyhydric alcohol. Sugar also enters the domestic market indirectly through imports of sugar-containing products.

### **Program Effects**

Groups affected by U.S. sugar policy include sugar producers and processors, consumers and users of sugar and products containing sugar, taxpayers, foreign suppliers of raw and refined sugar, manufacturers of sugar-containing products, cane sugar refiners, sugar brokers and traders, employees of sugar processing and

refining firms, and corn sweetener manufacturers. Although several reports have been published that estimate the costs and benefits of U.S. sugar policy, the studies have not received wide acceptance by all segments of the sugar trade. Universal acceptance of cost and benefit estimates is unlikely because of the different interests and objectives of the various segments of the sugar industry.

Moreover, the effects change over time as the industry structure evolves (for example, declining sugar use has reduced foreign suppliers' benefits from the program). Industry structure itself may change because of the program.

While measuring the full effects of the 1985 sugar program is complex, a key element is the price premium provided in the U.S. market.

The premium is the difference between the world price (f.o.b. Caribbean) converted to a New York basis and the actual price of raw sugar in the United States as a result of the import quota. Because the world price represents transactions of a small and residual market and fluctuates considerably, two alternative measures of the world price are used to calculate the U.S. premium: the average for fiscal years (FY's) 1987-89, and a longrun average cost for world sugar estimated at about 15 cents a pound (16.5 cents a pound, New York basis). A cost of production survey for 60 countries (subdivided into regions) by Landell Mills Commodities Studies indicates average cost of production for raw cane sugar during 1979/80-1986/87 ranged between 12.6 and 15.4 cents a pound (about 14-17 cents, New York basis).

### **Producers and Processors**

Protecting domestic producers is a primary objective of most farm programs. For sugar, however, the agricultural and industrial phases of production and processing are inseparable because sugarbeets and sugarcane, being bulky and perishable, must be processed before they can be traded or stored. Thus, growers share in the receipts of sugarcane and sugarbeet processors.

Producers and processors usually benefit from sugar policy through income and wealth effects. The higher U.S. price made possible by the sugar program directly raises the income of producers and processors through higher receipts from the sale of raw cane and beet sugar. Less obvious is the program's effect on the value of capital invested in land being used for sugar crops, specialized harvesting and processing equipment, and processing facilities.

In terms of average production of 6.96 million tons, raw value, in FY's 1987-89, the premium yielded domestic sugar growers and processors an estimated \$1.6 billion a year or \$139 million per 1-cent-a-pound of premium. Cane and beet growers received an estimated \$952 million and processors received the balance, based on the sharing provisions of their contracts. For individual producers, the benefit averaged \$235,000 per sugarcane farm,

including Puerto Rico, and \$50,500 per sugarbeet farm. Using the premium based on the longrun world price would reduce the premium benefits by about 50 percent (table 17).

### Taxpayers

The sugar support program under the 1985 Act has operated without any sugar being forfeited to the CCC. Under the loan program for FY's 1987-89, an average 1.6 million tons or 46 percent of the beet crop was placed under loan at a value of \$602.5 million, and 765,500 tons or 22 percent of the cane crop was placed under loan at a value of \$267.9 million. However, market prices were sufficient to encourage processors to sell their sugar in the marketplace and redeem their sugar held as loan collateral by the CCC. All loans were repaid to the Government with interest. Some revenue was generated by the Government through the import duties on sugar.

### Consumers

Critics of Government sugar policy contend that each 1 cent-a-pound increase in the domestic price of raw sugar caused by sugar price-support programs costs consumers of sugar and products containing sweeteners millions of dollars a year. These costs are usually based on the assumption that there is a direct and equal change in the retail cost for all sweeteners consumed. While there appears to be a close relationship between the price of raw sugar and the wholesale and retail prices of refined sugar, the linkage with prices of various categories of sweetener-containing products is less direct. The prices of inputs like energy, transportation, and wage rates appear to be more important in the short run than changes in the wholesale price of sugar. Factors that may dampen the transmission of sugar price increases into the ultimate retail price of particular sweetener-containing products include (1) product

Table 17--Estimated average annual benefits of import quota price premium on U.S. sugar producers and processors, fiscal years 1986/87-1988/89

Item	Unit	Premium basis	
		FYs 1987-89 average world price (NY) 10.7 cents	Long-run world price (NY) 16.5 cents
U.S. sugar price premium	Cents/pound	11.4	5.6
Sugar growers and processors	Million dollars/year	1,587	780
Sugar growers	do.	952	468
Sugarbeet growers	do.	500	246
Sugarcane growers	do.	452	222
Sugarbeet farms 1987/88	Number	9,893	9,893
Average sugar premium benefits per farm	1,000 dollars/year	50.5	24.9
Sugarcane farms 1987/88	Number	1,921	1,921
Average sugar premium benefits per farm	1,000 dollars/year	235.3	115.6

Source: U.S. Dept. Agr., Economic Research Service.

shelf life, (2) sweetener pricing or markup practices, (3) procedures for procuring sweeteners, (4) sweetener content of food and beverage products, (5) input mix, (6) industry structure and competitiveness, (7) seasonality of demand, and (8) changes in other input costs.

During FY's 1987-89, domestic sugar consumption annually averaged 8.162 million tons, raw value. About 28 percent of this sugar, 2.285 million tons, was consumed in nonindustrial uses in the home, restaurants, hotels, schools, and other institutions. As each 1-cent increase in the raw sugar price changes the retail price about 1.1 cents a pound, the 11.4 cents-a-pound premium estimated for FY's 1987-89 cost consumers of nonindustrial sugar about \$573 million or \$50 million for each cent of premium per pound.

For the annual average amount of sugar used in food and beverage products during FY's 1987-89, a 100-percent pass-through of the 11.4 cents a pound premium in the long term at both the wholesale and retail level would cost consumers about \$1.3 billion or \$118 million for each 1-cent-a-pound of premium. However, it is unlikely that the full premium is passed through. And, as some analysts suggest, the actual pass-through for most products may be quite small.

In addition, HFCS prices are also directly influenced by cane and beet prices, but to a lesser degree. It is estimated that the increased price of HFCS-42, HFCS-55, corn syrup, and dextrose due to the sugar program cost consumers an average \$1.3 billion a year in FY's 1987-89, or \$118 million for each 1 cent of premium in the domestic sugar price.

### **Foreign Suppliers**

Countries that supply raw and refined sugar to the United States benefit from the premium domestic price associated with a price support program. However, to the extent a country pays an import duty and/or fee on sugar imports, the premium is reduced. On the other hand, some countries during a tight market are able to pass part of the cost of the import duty and/or fee on to the buyer.

In FY's 1987-89, only five or six countries were subject to the import duty of 0.625 cent a pound, the other countries being exempted through the Generalized System of Preferences (GSP) or the Caribbean Basin Initiative (CBI). All countries are subject to the import fee, but since April 1985 the fee has been zero for raw sugar and 1-cent-a-pound for refined sugar (little of which is imported by the United States). In FY's 1987-89, based on average quota imports of 1.444 million tons, foreign suppliers received quota premium benefits estimated at \$255 million, compared with about \$530 million in FY's 1982-84 when the imports averaged 3.177 million tons each year. Foreign suppliers' average revenues on U.S. sugar imports fell from an estimated \$1.1 billion in FY's 1982-84 to about \$0.5 billion in FY's 1987-89.

## **Cane Sugar Refiners**

Most of the cane sugar consumed in the United States is refined from raw sugar produced either in the United States or abroad. In addition, the refining companies refine sugar for re-export. Between FY's 1982-84 and FY's 1987-89, refining volume declined over 20 percent as quota imports of raw sugar fell more than 50 percent. Ten refineries have ceased operations since 1981 and refining capacity has declined 35 percent. Only 12 refineries remain, with an annual capacity of about 5.5 million tons of raw sugar. The increase in domestic cane sugar production as a result of the sugar program has provided only a small offset to the decline in raw sugar imports for refining.

Still, the interest of cane sugar refiners in U.S. sugar policy is complicated because some companies own sugarcane acreage and beet and cane processing facilities.

## **Manufacturers of Sugar-Containing Products**

After passage of the 1981 farm act, and particularly after restrictive quotas were imposed in May 1982 and world prices were declining rapidly, the U.S.-world sugar price differential climbed from a 1977-82 average of 5 cents a pound to 14.7 cents during 1983-88 (app. table 29). This dramatically raised the incentive to ship sugar-containing products to the United States because with cheaper sugar, the foreign product could be manufactured for less cost. For every 10-cent U.S. sugar market premium, for example, a product containing 20-percent sugar would have a cost advantage of 2 cents per pound of product.

An analysis of 58 imported food items (app. table 30) with an average sugar content of 40 percent showed that, in the 1980's, imports of confectionery and chewing gum, and bakery and cereal products doubled; miscellaneous food preparations, and flavored sugars, syrups, and molasses almost tripled; and another 36 categories of processed and preserved fruit and other products rose tenfold.

The sugar equivalent of the expansion in imported products was about 175,000 tons a year. Domestic demand for industrial sugar fell by that amount, as U.S. manufactures of the products declined. The losses to U.S. manufacturers would have been greater without the import restrictions placed on selected categories of sugar-containing products and blends and mixtures after 1982.

## **Corn Sweetener Manufacturers and Corn Growers**

Corn sweetener manufacturers benefit from the U.S. sugar program through the higher prices they are able to extract for their products. The program's guarantee of stable prices at long-term minimum levels has also stimulated faster investment in corn wet milling and particularly HFCS facilities, and a more rapid acquisition of share in the U.S. sweetener market. Further, the considerable revenues generated in HFCS have made possible

substantial research, development, and promotion of corn wet milling products.

Expansion of corn sweetener production has increased the demand of corn wet millers for No. 2 yellow corn. The equivalent corn grind for HFCS production increased from 131 million bushels in 1980 to 352 million bushels in 1988 (app. table 19). For all corn sweeteners, the equivalent corn grind increased from 276 million bushels in 1980 to 510 million bushels in 1988. About 7 percent of a normal crop and 10.4 percent of the 1988 crop was used by the wet milling industry to produce corn sweeteners.

### **Traders**

Although cane sugar refiners occasionally contract directly for imports of U.S. raw sugar, most of the imports are obtained through sugar operators and traders, or through brokers. The services of sugar importers include: financing the transaction; chartering the transportation; arranging for loading, import, and export documentation, and delivery to the buyer's dock(s); and, in the case of operators/traders, assuming the risk of price changes while these services are being performed. Sugar importers also engage in significant trading in sugar futures markets and may conduct transactions in the world sugar trade outside the U.S. market. Any change in domestic sugar imports due to the price support program will have an effect on the import activities of sugar operators, traders, and brokers. The need for the services of sugar importers arises because domestic and foreign sugar producers cannot always find refiners willing to buy at the times and locations they have sugar to sell.

### **Issues for the 1990's**

The current U.S. sugar support program began with the 1986/87 crop and extends to the 1990/91 crop. The sugar program, part of the 1985 Food Security Act, continues the long history of U.S. Government involvement in the sugar industry. Legislative support has occurred in the context of a world sugar market which has historically displayed unusual price volatility and long periods of low prices. With only a small part of the world's sugar sold freely in the market and the vast majority sold at prices controlled by central authorities or by preferential or long-term agreements, initiatives toward rationalization of the sugar market have usually been multilateral rather than unilateral.

Various international sugar agreements have been implemented to coordinate supplies and keep world sugar prices at some target levels, but these attempts (most recently the 1977-84 International Sugar Agreement) have not succeeded. A radically different approach to international agricultural trade has been initiated by the GATT in the Uruguay Round of multilateral trade negotiations, with potentially profound implications for the sugar and sweetener industries of the United States and other countries. The negotiations, scheduled to be completed by

December 1990, are aimed at substantial progressive reduction (and ultimate elimination) of all trade-distorting government production supports, import barriers, and export subsidies of agricultural commodities. As a result, the degree of government support for sugar industries, and questions of comparative costs and international competitiveness, are facing sharper scrutiny.

In the United States, more immediate pressures on the shaping of the next U.S. sugar program are being exerted by (1) the need to respond to the GATT Council decision in June 1989 that U.S. sugar import quotas have been implemented against GATT rules, and (2) intense controversy involving diverse interest groups affected by the U.S. sugar program, including growers, processors, consumers, industrial sweetener users, refiners, foreign suppliers, and the corn wet milling industry. Major policy issues include:

- Is the current level of U.S. sugar program support sustainable in terms of assuring stable prices at no budget cost to the U.S. Government?
- Are the effects of the current sugar program on sugar and sweetener users, cane refiners, and foreign suppliers acceptable? If not, what would be acceptable in order to ensure a domestic supply of sugar?
- Should refiners be safeguarded from the effects of a continuation of the price support program and, if so, how?
- What is the effect of a sugar price-support program on the competitive position of other industries which use sugar as an input in the manufacturing of food and beverage products?
- What would be the effect of changes in the sugar price-support program on U.S. sugarcane and sugarbeet growers and processors? On consumers and industrial sugar users? On foreign suppliers? On cane refiners? On the corn wet milling industry?
- Should limitations be placed on the amount of farm program benefits received by individual sugar growers and processors?
- To what extent should U.S. sugar support levels equitably reflect the declining supports provided to other domestic crops as a result of U.S. budget limitations?
- Should U.S. Government budget expenditures (direct payments) play a larger role in supporting U.S. sugar producers as an economically more efficient means of gaining the same result and as a means of reducing consumer costs?
- Should production or marketing controls be considered as policy instruments to achieve program ends?
- To what extent can tariffs (duties and fees) be feasible as replacement for restrictive U.S. sugar import quotas?

- o Should U.S. import quotas be auctioned off?
- o How should the United States program be changed to conform to the GATT Council finding that import quota operations have been in violation of GATT?

Important industry factors to consider in developing sugar policy are:

- o U.S. sugar production reached a record 7.331 million tons in crop year 1987/88, up 21 percent from 1979/80-1981/82. At current levels of support relative to other crops, beet sugar output is likely to exceed its 1987/88 record of 4 million tons, and cane sugar could break its 1988/89 record of 3.4 million.
- o U.S. consumption of refined sugar recovered from a low of 7.2 million tons in 1986 to an estimated 7.6 million tons in 1989 (in raw value, from 7.7 million tons to 8.1 million tons) and can be expected to continue to increase slowly, despite some potential per capita loss to alternative sweeteners over the next few years.
- o Beet sugar has increased its share of U.S. sugar consumption from about 30 percent in 1979-81 to nearly 45 percent in 1988. This implies a greater ability for beet sugar to dominate refined sugar prices than in earlier years.
- o World sugar consumption exceeded production for the fourth consecutive year in 1988/89 and the subsequent drawdown on world stocks is forecast to continue into 1989/90. Prices are expected to continue strong at above 14 cents a pound, and possibly "spike" at above 20 cents. However, prices typically fall rapidly after a spike to very low levels and stay cyclically low for years. Without a U.S. sugar program in a global sugar market where most countries continue to intervene, domestic sugar production would unilaterally be subject to a long period of artificially low prices. And, once sugar crop processing facilities close, they are unlikely to be reopened when world prices recover because the prices do not stay high for long and because substantial investment and timelags would be involved.
- o On the other hand, if U.S. price supports are set too high and raw cane imports decline, more U.S. refineries could close. Once closed, cane refineries are unlikely to be reopened even if import requirements increase as a result of domestic output shortfalls or a change in policy such as could follow from successful negotiations in the Uruguay Round of the GATT.

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### Glossary

**Bagasse** -- Fibrous residue remaining after sugarcane has been crushed to extract the sugar-containing juices.

**Base import quota** -- The number which is multiplied by the country percentage allocations found in Paragraph (c) of Headnote 3, Subpart A, Part 10, Schedule 1 of the Tariff Schedules of the United States (19 U.S.C. 1202) to provide the base quota allocation for each country with a percentage quota allocation.

**Base quota allocation** -- That part of a country's import quota allocation which is derived by multiplying its percentage allocation by the base import quota.

**Blends** -- Generic term usually referring to certain liquid and dry mixtures of sugar and other ingredients which were either embargoed by Presidential Proclamation No. 5071 of June 28, 1983, treated as commingled merchandise pursuant to a U.S. Customs Service ruling of November 7, 1984, or subjected to emergency import quotas established by Presidential Proclamation No. 5294, as amended by Presidential Proclamation No. 5340 of May 17, 1985.

**Caribbean Basin Initiative (CBI)** -- Popular name for the 1983 Caribbean Basin Economic Recovery Act, which eliminates duties on imports of products from designated Caribbean countries until September 30, 1995. The CBI also provides for import relief to U.S. industries injured or threatened by increased imports from CBI countries.

**Commodity Credit Corporation (CCC)** -- USDA agency responsible for directing and financing major USDA "action programs," including price support, production stabilization, commodity distribution, and related programs. CCC also directs and finances certain agricultural export activities. CCC activities are implemented by the Agricultural Stabilization and Conservation Service.

**Corn syrup** -- A purified concentrated solution of nutritive saccharides obtained from corn starch by partial hydrolysis, clarification, decolorization, and evaporation to syrup density. Many people consider the expression "glucose" synonymous with corn syrup.

**Cost of production** -- The sum, measured in dollars or cents, of all purchased inputs, allowances for management, investment, and rent necessary to produce farm products. Cost of production statistics may be expressed as an average per acre, per bushel, or per pound.

**Crop year** -- In the sugarbeet areas, the crop year is defined as the year of intended harvest. The only exception is for spring-

planted beets in California that are intended to be overwintered and harvested the following year. In the mainland cane areas, the crop year corresponds with the calendar year in which harvest normally starts. In Hawaii, the crop year corresponds with the year of harvest.

**Dextrose** -- A monosaccharide produced commercially by the complete hydrolysis or conversion of starch. Since dextrose historically has been produced largely from corn starch, it is commonly called "refined corn syrup." To the chemist, the name "glucose" is synonymous with "dextrose," but to the layman glucose usually means corn syrup or a glucose-type syrup produced from sorghum, wheat, or potato starch. Dextrose is of two principal types, hydrate and anhydrous. The larger share of the dextrose is of the hydrate type which contains approximately 8-percent moisture; the anhydrous type contains less than 0.5-percent moisture.

**Direct-consumption sugar** -- The term "direct consumption" means any sugars which are principally of crystalline structure and any liquid sugar which are not to be further refined or otherwise improved in quality.

**Drawback** -- A practice authorized by the U.S. Customs Service whereby an exporter of a product may claim for refund up to 99 percent of any duties and fees paid to import the components of the product. Under regulations dealing with drawback, an export of a product is eligible for drawback if the product was made within 3 years of the date of importation of the components of the product, if the product was then exported within 2 years of the time the product was made, and if documents are to U.S. Customs within 3 years of the date the product was exported.

**European Community (EC)** -- An organization established by the Treaty of Rome in 1957 and also known as the European Economic Community and the Common Market. The EC attempts to unify and integrate member economies by establishing a customs union and common economic policies. Member nations include the original six countries of Belgium, West Germany, France, Italy, Luxembourg, and the Netherlands, as well as Denmark, Greece, Ireland, Portugal, Spain, and the United Kingdom.

**Extraction rate** -- The percentage relationship of the sucrose recovered in sugar to the sucrose content in sugarbeets or sugarcane processed.

**Free market** -- A system in which the market forces of supply and demand determine prices and allocate available supplies. A free market approach in agriculture would eliminate price and income support programs and barriers to international trade.

**Free trade** -- Exchange of goods between countries with no trade barriers or restrictions such as tariffs or import quotas.

**Food Security Act of 1985 (PL 99-198)** -- The omnibus food and agriculture legislation signed into law on December 23, 1985,

that provides a 5-year framework for the Secretary of Agriculture to administer various agriculture and food programs. The act amends permanent legislation--the Agricultural Adjustment Act of 1938 and the Agricultural Act of 1949--for the 1986 through 1990 crops.

**Fructose** -- A highly soluble, simple sugar generally considered sweeter than sucrose, and present in considerable quantities in combination with dextrose and sucrose in invert sugars.

**Futures** -- Contracts which are legally binding commitments to deliver or take delivery of a given quantity and quality of a commodity at a specified price, during a specific month, and at a specified location.

**Futures contract** -- A standardized fixed-price forward contract entered into on an exchange (organized center for trading in commodities). The contract is subject to all terms and conditions included in the rules of that exchange.

**General Agreement on Tariffs and Trade (GATT)** -- An agreement, originally negotiated in Geneva, Switzerland, in 1947 among 23 countries, including the United States, to increase international trade by reducing tariffs and other trade barriers. This multi-lateral agreement provides a code of conduct for international commerce. GATT also provides a framework for periodic multi-lateral negotiations on trade liberalization and expansion. The eighth and most recent round of negotiations began in Punta del Este, Uruguay, in 1986. Currently, 105 nations are participating in the talks, including most of the industrialized market economies, most of the developing countries, and several centrally planned economies in Eastern Europe.

**Generalized System of Preferences (GSP)** -- A policy that permits duty-free entry of certain imports from designated developing countries, for the purpose of increasing economic growth, helping maintain favorable foreign relations with free world developing countries, and providing low-cost aid.

**Glucose** -- Chemically, another name for dextrose. Commercially, another name for corn syrup. Glucose or glucose corn syrup is obtained by the action of acids and/or enzymes on cornstarch. Commercial corn syrups are nearly colorless and very viscous. They consist principally of dextrose and small amounts of maltose, combined with gummy organic materials known as dextrans, in water solution.

**Glucose isomerase** -- An enzyme capable of converting dextrose to fructose.

**Gross returns** -- The measure of returns used for all sugarcane areas where the principal product of the mills is raw sugar. Gross returns from sales contained herein include the values of raw sugar and molasses at mainland ports of entry or market locations, based on the average market price for sugar and

molasses during the applicable settlement periods, and, in addition, include CCC payments.

**High fructose corn syrup** -- HFCS is produced by the enzymatic conversion of a portion of the glucose in corn syrup to fructose. The product is roughly comparable to invert syrup made from sucrose in terms of sweetness and physical properties.

**Typical composition of commercially available HFCS products:**

	HFCS-42	HFCS-55	HFCS-80-90
	<u>Percent</u>		
Fructose	42	55	80-90
Dextrose	52	40	7-19
Higher saccharides	6	5	1-3

**Industrial users** -- Sugar users who receive sugar directly from primary distributors, except hotels, restaurants, wholesalers, and retailers.

**Invert or invert sugar** -- The mixture of equal parts of dextrose and fructose produced by the action of acid or enzymes on solutions of sucrose.

**Invisible stocks** -- Stocks of sugar held by wholesalers, retailers, and users of sugar as distinct from stocks of primary distributors.

**Market stabilization price (MSP)** -- The market stabilization price has served numerous purposes. It is a reference price in the sense that if domestic prices for raw cane sugar are less than the MSP, there is a risk of forfeiture of sugar to the CCC. From December 22, 1981, to May 5, 1982, import fees and duties were applied to imported sugar to raise the price of imported sugar to the level of the MSP. The import fee system was subsequently adjusted (May 5, 1982) so that import fees and duties were applied to imported sugar in an amount equivalent to the difference between the MSP and the domestic market price. Finally, when the import fee system was suspended on an emergency basis by Presidential Proclamation No. 5313 of March 29, 1985, the calculation of the MSP was also suspended. For that reason, the calculation of the MSP was put in regulations on September 5, 1985. The MSP now serves not only as a reference price for the risk of forfeiture of sugar to the CCC, but also for calculating certain bonds and penalties under regulations governing quota-exempt programs.

**Molasses** -- The edible byproduct of the manufacture of sugar when some, but usually not all, of the crystallizable sugar in the sugarcane juice is removed by the crystallization process.

**Net returns** -- The measure of returns to be shared by growers and processors in the domestic beet area. The output of the beet

processors in the domestic beet area. The output of the beet sugar factories consists of refined sugar which moves directly into marketing channels. The net returns from sales of refined sugar are total returns minus delivery and marketing expenses as defined in the sugarbeet purchase contract.

**(New York) Coffee, Sugar & Cocoa Exchange, Inc.** -- World and domestic raw cane sugar contracts are traded daily on the exchange. The world price is the No. 11 contract price for raw cane sugar (f.o.b. Caribbean) and the domestic price is the No. 14 contract price for raw cane sugar (c.i.f., duty/fee-paid, New York).

**Ninety-six degree basis (96<sup>0</sup>)** -- A computed weight of sugar determined by dividing the weight of its sucrose content by 96 percent.

**No cost** -- A provision of the Food Security Act of 1985 requiring the President to use all available authorities to enable the Secretary of Agriculture to operate the sugar program at no cost to the Government. By "no cost," it is meant that the sugar price support program is operated so that there are no forfeitures of sugar to the CCC. In Conference Report language to the act, the conferees explain that "no cost" means the import quota on raw and refined sugar be adjusted to such level that there are no forfeitures and thus no cost to the Government.

**Noncentrifugal sugars** -- Crude sugars made from the sugarcane juice by evaporation and draining off the molasses. Among local names are "gur," "muscovado," "panocha," and "papelon."

**No net cost** -- Often used interchangeably with the term no cost. However, the Food Security Act of 1985 refers specifically to no cost rather than no net cost.

**Nonrecourse loan (program)** -- The loan program for sugarcane and sugarbeets is a nonrecourse loan program. This means that if the sugar processor chooses not to redeem (pay back) the loan, the sugar used as collateral for loans from the Commodity Credit Corporation, can be forfeited as full compensation for the loan, without penalty.

**No. 11 contract price** -- As traded on the (New York) Coffee, Sugar & Cocoa Exchange, this is an f.o.b., Caribbean price for raw cane sugar, and usually referred to as the world price. It is traded in both spot and futures. The No. 11 is used under quota-exempt programs in conjunction with the market stabilization price to calculate bonding requirements and penalties.

**No. 12 contract price** -- As traded on the (New York) Coffee, Sugar & Cocoa Exchange, this was the c.i.f. duty/fee-paid New York price for imported raw cane sugar. It stopped being traded on the spot market on May 31, 1985, and it stopped being traded on the futures market on October 8, 1986. It had been used in conjunction with the market stabilization price to calculate

**No. 14 contract price** -- As traded on the (New York) Coffee, Sugar & Cocoa Exchange, this is the c.i.f. duty/fee-paid New York price for imported raw cane sugar. It is traded only on the futures market, and commenced on July 8, 1985. It trades at a premium (higher grade sugar) of about 0.25 cent a pound to the old No. 12 Contract, and is now usually referred to as the domestic price (for raw cane sugar).

**Parity** -- The price per pound of sugar produced that would be equivalent to the purchasing power of a pound of sugar in the 1910-14 base year. The concept of parity was originally defined in the Agricultural Adjustment Act of 1933. The 1910-14 purchasing power is not adjusted for subsequent productivity growth. In 1986-88, the parity price for sugar approximated 1.9 times the 10-year average of the sugar price.

**Polarization** -- A measure of sucrose concentration based on its ability to rotate the plane of polarized light. Degree of polarization is determined by means of a saccharimeter (commonly referred to as a polariscope) and is indicative of the percentage of sucrose in high-purity products such as raw cane sugar and white refined sugar.

**Primary distributors** -- Primary distributors consist of continental cane sugar refiners, domestic beet processors, importers of direct-consumption sugar, and mainland cane processors.

**Quota-exempt sugar** -- That sugar imported into the United States which is exempt from quota charge. This sugar is entered under bond for the purpose of re-exportation or for use as livestock feed, or production of polyhydric alcohol.

**Ratoon** -- Second and subsequent crops grown from the root systems of previous plantings of sugarcane. Usually one or more ratoon crops are harvested before the fields are plowed and replanted.

**Raw sugar** -- The term "raw sugar" means any sugars whether or not principally of crystalline structure, which are to be further refined or improved in quality to produce any sugars principally of crystalline structure or liquid sugar.

**Receipts** -- Sugar receipts as reported by primary distributors, including quota sugar, quota-exempt sugar for livestock feed, polyhydric alcohol, and export and over-quota sugar held in bond to be charged to a subsequent year's quota.

**Re-export sugar** -- Refers to the process, under regulations governing "Sugar to be Re-Exported in Sugar Containing Products" (7 C.F.R. 1520.200-1520.214) and "Sugar to be Re-Exported in Refined Form" (7 C.F.R. 6.100-6.113) whereby program participants import sugar exempt from quota and subsequently process the sugar for export either as refined sugar or in a sugar-containing product.