**United States
Department
of Agriculture**

SSS-M-270

Feb. 14, 2011

Outlook

Electronic Outlook Report from the Economic Research Service

Sugar and Sweeteners Outlook

Stephen Haley, coordinator
shaley@ers.usda.gov

Websites
WASDE
Sugar Briefing Room

The next release is
March 15, 2011

U.S. Sugar February 2011

In the *World Agricultural Demand and Supply Estimates* (WASDE) were released on February 9, 2011.

Projected U.S. sugar supply for fiscal year (FY) 2011 is increased 139,000 short tons, raw value (STRV) from last month. Total imports are increased 239,000 STRV. Higher imports both from Mexico (214,000 STRV) and under the re-export program (75,000 STRV) more than offset reduced imports under the tariff rate quota (increased shortfall of 50,000 STRV). Cane sugar production in Florida is reduced 100,000 STRV from last month, based on processor forecasts. In all, Florida processors have reduced their production forecast from 1.7 million STRV in December before the freezing weather mid-month to 1.5 million STRV in February.

Projected U.S. sugar use is increased 200,000 STRV based on the pace established in the first quarter of FY 2011. Domestic use (the sum of deliveries and miscellaneous categories) is increased by 125,000 STRV. Domestic demand for sugar appears to be strong. Exports, most of which occur under the Refined Sugar Re-export program, are projected 75,000 STRV higher than last month at 225,000 STRV.

Ending year sugar stocks are projected at 1.348 million STRV. This projection is the difference between projected total supply (12.758 million STRV) and projected total use (11.410 million STRV). The implied ending year stocks-to-use ratio is 11.8 percent.

For Mexico, consumption of high fructose corn syrup (HFCS) is expected to constitute 30 percent of the combined sugar and HFCS market, up from 24.6 percent in FY 2010. HFCS consumption is projected at 1.75 million metric tons, dry basis, up 100,000 metric tons from last month. Increased HFCS use implies lower sugar consumption in Mexico, now projected at 4.329 million MTRV, a decrease of 106,000 MTRV from last month. Projected imports are increased by 65,000 MTRV. This increase reflects increased U.S. exports to Mexico of re-export import sugar. This is sugar destined for use in Mexico's sugar-containing re-export program (IMMEX). Ending year stocks are projected at 22 percent of total-year sugar consumption, or 952,000 MTRV. Sugar exports projected at 1.332 million MTRV bring total supply and use into balance.

U.S. Sugar

In the February 2011 *World Agricultural Supply and Demand Estimates* (WASDE), the U.S. Department of Agriculture (USDA) published its latest sugar supply and use projections for fiscal year (FY) 2011. U.S. beet sugar production is projected at 4.800 million short tons, raw value (STRV), and U.S. cane sugar production is projected at 3.210 million STRV.

Production in Florida is projected at 1.50 million STRV -- 100,000 STRV less than last month and 200,000 STRV less than in December. Reduced production stems from severe freezing conditions in the Florida cane growing area in mid-December. The National Agricultural Statistics Service (NASS) reduced its Florida sugarcane for sugar yield from 35.9 tons to 32.7 tons per acre. Projected sugar per acre is projected at 3.99 STRV, the lowest level since FY 2006. Although no changes were made to cane sugar production in the other producing States, freezing conditions earlier this month in Texas may have affected production.

Sugar imports are projected at 3.245 million STRV, an increase of 239,000 STRV over last month. Imports from Mexico are projected at 1.459 million STRV. The increase of 214,000 STRV over last month's projected level stems from a larger exportable sugar surplus in Mexico. Mexican demand for sugar is expected to decrease over 100,000 tons due to increased consumption of lower priced high fructose corn syrup. Also, increased imports of sugar into Mexico, an increase projected at 65,000 metric tons, expands the supply of Mexican sugar available for export.

Additional adjustments to import projections are an increase in imports from the USDA re-export program of 75,000 STRV and a reduction of 50,000 STRV for the raw sugar tariff-rate quota. Table 1 lists all the import components of the 3.245 million STRV.

U.S. sugar exports are projected at 225,000 STRV, an increase of 75,000 STRV. The upward adjustment was made on the basis of stronger-than-expected exports in the first quarter of the fiscal year. Most of this sugar goes to Mexico under the USDA Refined Sugar Re-export Program.[1]

Domestic use (the sum of deliveries and miscellaneous categories) is increased by 125,000 STRV to 11.185 million STRV. The sum of deliveries for human consumption and miscellaneous adjustments is projected at 11.0 million STRV. This is an indicator of continuing strong demand for sugar. Other components of domestic use were unchanged: sugar-containing re-export products – 145,000 STRV; sugar for the production of polyhydric alcohol – 20,000 STRV; and sugar for feeding to livestock – 20,000 STRV.

Ending year sugar stocks are projected at 1.348 million STRV. This figure is the difference between projected total supply (12.758 million STRV) and projected total use (11.410 million STRV). The implied ending year stocks-to-use ratio is 11.8 percent (table 9).

---

[1] Only a very small amount, if any, of this sugar is made available for consumption in Mexico. The sugar is used instead in Mexico's sugar-containing product re-export program, or IMMEX. Almost all of these products are in turn, exported to the United States.

Table 1--USDA estimate of sugar imports in FY 2011

	Metric tons, raw value	Short tons, raw value
Raw sugar TRQ	1,117,195	1,231,497
Less shortfall attributable to Mexico 1/	-7,258	-8,001
Less other shortfall	-89,811	-99,000
Total raw sugar TRQ	**1,020,126**	**1,124,496**
Refined sugar TRQ		
Allocation to Canada	10,300	11,354
Allocation to Mexico	2,954	3,256
Less Mexican shortfall 1/	-2,954	-3,256
Global	7,090	7,815
Specialty		
Base	1,656	1,825
Additional	77,111	85,000
Total refined sugar TRQ	**96,157**	**105,994**
CAFTA/DR TRQ - calendar 2011	**125,700**	**138,559**
Other:		
Singapore, Bahrain, Jordan	54	60
Peru	2,000	2,205
Total estimate TRQ entries	**1,244,036**	**1,371,314**
Mexico	**1,323,596**	**1,459,000**
Re-export program imports	**340,198**	**375,000**
Sugar syrups, high-tier	**36,288**	**40,000**
Total projected imports	**2,944,118**	**3,245,314**

1/ Total entries from Mexico, quota and non-quota, reflected below.
Source: USDA, Foreign Agricultural Service.

Mexico Sugar and HFCS

Mexico sugar production for fiscal year (FY) 2011 is forecast at 5.650 million metric tons, raw value (MTRV). The harvest season through February 6, 2011 has been better than the previous two seasons. Area harvested to date is estimated at 243,479 hectares, about 36.2 percent of the total expected to be harvested this year. This percentage compares with 31.8 percent in 2008/09 and 32.6 percent in 2009/10. Sugar production through the end of January has totaled 2.068 million MTRV, implying 2010/11 sugar yield per hectare to date of 9.005 MTRV. This is considerably above sugar yield of 8.180 MTRV last year for the corresponding period. Figure 1 shows sustained high early-season sucrose recovery in 2010/11 compared with other recent harvests.

Imports of sugar for 2010/11 are projected to increase by 65,000 MTRV from last month's projected level to 290,000 MTRV. This increased sugar is sourced from the United States and is expected to be used in Mexico's sugar-containing product re-export program (IMMEX). The increase was made on the basis of pace-to-date sugar exports from the United States to Mexico. These U.S. exports occur as a result of the U.S. Refined Sugar Re-export Program. Overall, about 75 percent of all sugar imports into Mexico are for IMMEX, leaving approximately 75,000 MTRV for domestic consumption. For the first 3 months of the crop year, the *Comite Nacional Para El Desarrollo Sustentable de la Cana de Azucar* (CNDSCA) estimates imports for consumption at 55,750 MTRV.

Sources in Mexico indicate that high fructose corn syrup (HFCS) will likely constitute 30 percent of the combined 2010/11 sugar-HFCS consumption in Mexico. The USDA assumes that 2010/11 per capita sweetener consumption in Mexico will be close to the level for 2009/10, or 51.3 kilograms. This assumption implies aggregate consumption of 5.836 million metric tons, tel quel sugar equivalent. Thirty percent of this total rounds to 1.75 million metric tons, the new USDA projection. This is 100,000 metric tons more than the 1.65 million metric ton estimate carried previously by the USDA. Sugar consumption for 2010/11 is projected at 4.329 million MTRV, about 6.2 percent less than in 2009/10.

The CNDSCA estimates October-December 2010 HFCS consumption at 373,577 metric tons, or about 28.5 percent of total sweetener consumption of 1.288 million metric tons (fig. 2). This represents a 30.1 percent increase from the same period last year. For the same period, sugar consumption decreased 17.2 percent.

The USDA assumes that ending sugar stocks will equal 22 percent of projected sugar consumption, or 952,000 MTRV. Exports are projected at a level that achieves a supply-use balance. This yields a projected level of 1.332 million MTRV, an increase of 17.0 percent from last month's projected level. The new projection is about 80 percent more than last year's level of 737,000 MTRV and just below the record level of 1.367 million MTRV in 2008/09.

Mexican refined sugar prices are currently much lower than U.S. prices for comparable sugar products. The wholesale price of refinado sugar in Mexico City averaged 42.6 cents per pound in January, while the low range of U.S. refined beet sugar price quoted in *Milling and Baking News* averaged 54.5 cents per pound in January. This price differential serves to attract refinado sugar shipments to the United States. At the same time, U.S. Census unit export value data show U.S. HFCS-55 exports to Mexico priced between 18 and 19 cents per pound, dry basis, in November 2010, considerably less than refinado sugar or estandar sugar (37.8 cents in Mexico City in January). Lower price HFCS substituting for Mexican sugar serves to make more of the Mexican sugar product available for export.

Figure 1

Intra-seasonal, cumulative sugar recovery rates in Mexico, recent crop years

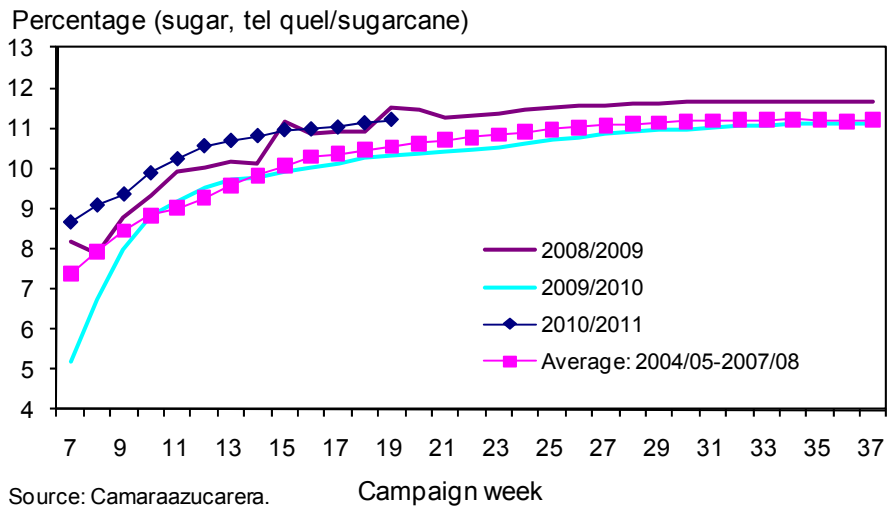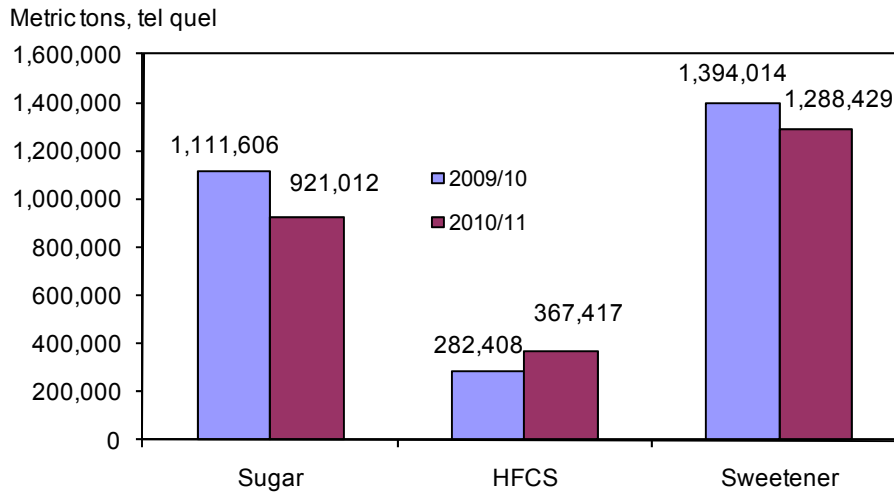Percentage (sugar, tel quel/sugarcane)

Source: Camaraazucarera.

Figure 2

Sweetener consumption in Mexico, Oct-Dec, 2009/10 and 2010/11

Metric tons, tel quel

Source: CNDSCA.

Sugar and Sweeteners Outlook/SSS-M-270
Economic Research Service

New Proposed Added Sugars Loss Coefficients in Calculating Per Capita Consumption

The Food Availability (per capita) Data System developed by USDA's Economic Research Service (ERS) tracks annual food and nutrient availability in the United States, beginning with 1909 data, for several hundred commodities, including sugar and other added sweeteners.[2] Because the core Food Availability data series in the system overstates actual consumption, ERS added another series to the system—the Loss-Adjusted Food Availability data—which adjusts the Food Availability data for nonedible food parts and food losses, including losses from farm to retail, at retail, and at the consumer level. This second data series more closely estimates per capita food intake.[3]

New Coefficients Proposed by RTI International

Under an agreement with ERS, RTI International has proposed new estimates for the data series loss of the edible share of food at the consumer level.[4] These proposed estimates cover food loss both at home and away from home for most of the commodities included in the series, including losses during cooking and preparation; discards due to preparation of too much food; disposal of food packages with expired use-by dates; spoilage; and plate waste.

RTI conducted the first of two phases in this study by comparing estimates of total U.S. retail household purchases with total U.S. at-home consumption for each food in ERS's Loss-Adjusted Food Availability series. The main data sources included The Nielsen Company's Homescan® data for 2004 (food purchases from retail outlets) and the National Health and Nutrition Examination Survey (NHANES) for 2003-04 (food consumption). RTI also calculated alternative estimates of food loss by comparing the total quantity available at the consumer level in the Loss-Adjusted Food Availability series with total reported consumption in NHANES. RTI relied on several supplemental data sources to adjust the purchase data to facilitate comparisons with the consumption data. In addition, RTI took direct measurements of count data (e.g., produce sold by count rather than weight), inedible percentages of food, and moisture gains for foods when data were not available from one of the data sources.

RTI derived loss estimates for refined sugar and for honey using the available data series (Table 2). The loss estimate for refined sugar increased substantially from 20 percent to 34 percent, while the estimate for honey decreased from the 20 percent currently used by ERS to 15 percent. RTI did not estimate loss coefficients for the corn sweeteners—high-fructose corn syrup (HFCS), glucose, and dextrose—because these sweeteners are used only as ingredients in other products. RTI proposed using the same estimate as that calculated for honey. Although a preliminary estimate of 8 percent was made for edible syrups, an expert panel thought this too low because edible syrup use as an ingredient was not analyzed. Therefore, RTI proposed using the estimate for honey for this category as well.

Implications for Calculated Sweetener Per Capita Consumption

Table 3 shows the calculation of per capita sweetener consumption (pounds per year and calories per day) for the existing ERS series and the proposed RTI series. The starting point is per capita availability of added sugars,

---

[2] See tables 49 and 50 at www.ers.usda.gov/briefing/sugar/data.htm.

[3] See tables 51-53 at the Briefing Room site,as follows: Table 51 – Refined sugar; Table 52 – High fructose corn syrup; Table 53 – All other added sugars.

[4] Mary K. Muth, Shawn A. Karns, Samara Joy Nielsen, Jean C. Buzby, and Hodan Farah Wells. *Consumer-Level Food Loss Estimates and Their Use in the ERS Loss-Adjusted Food Availability Data,* USDA, ERS, Technical Bulletin Number 1927, January 2011, http://www.ers.usda.gov/Publications/TB1927/ .

Table 2--Consumer loss estimates for added sugars and sweeteners

Food	Current ERS consumer food loss estimate	Proposed RTI food loss estimate	Basis for RTI estimate
	Percent		
Refined sugar	20	34	Estimated from available data
High fructose corn syrup	20	15	Used same value as honey
Glucose	20	15	Used same value as honey
Dextrose	20	15	Used same value as honey
Honey	20	15	Estimated from available data
Edible syrups	20	15	Used same value as honey

Source: RTI International.

Table 3--Added sugars and sweeteners: estimated per capita consumption, comparison of current ERS consumer losses and proposed RTI losses

Year	Primary weight (market level)	Loss from primary to retail weight	Weight at retail level	Loss from Retail/institutional to consumer level	Weight at consumer level	Current ERS consumer loss estimate	Per capita consumption, adjusted for loss	Current ERS Calories consumed daily	Proposed RTI consumer loss estimate	Per capita consumption, adjusted for loss	Proposed RTI Calories consumed daily
	lb/yr	percent	lb/yr	percent	lb/yr	percent	lb/yr	number	percent	lb/yr	number
1970	119.1	0.0	119.1	11.0	106.0	20.0	84.8	401.6	31.2	72.9	345.3
1971	120.2	0.0	120.2	11.0	107.0	20.0	85.6	405.1	31.1	73.6	348.7
1972	121.5	0.0	121.5	11.0	108.2	20.0	86.5	409.7	31.0	74.6	353.4
1973	122.0	0.0	122.0	11.0	108.5	20.0	86.8	411.1	30.7	75.2	356.1
1974	117.9	0.0	117.9	11.0	105.0	20.0	84.0	397.5	30.4	73.0	345.7
1975	113.8	0.0	113.8	11.0	101.3	20.0	81.1	383.7	29.9	71.0	336.3
1976	119.9	0.0	119.9	11.0	106.7	20.0	85.4	404.2	29.8	74.9	354.7
1977	122.8	0.0	122.8	11.0	109.3	20.0	87.4	413.8	29.6	76.9	364.3
1978	121.3	0.0	121.3	11.0	108.0	20.0	86.4	408.9	29.3	76.3	361.3
1979	122.6	0.0	122.6	11.0	109.1	20.0	87.3	413.1	28.8	77.6	367.4
1980	120.2	0.0	120.2	11.0	107.0	20.0	85.6	405.2	28.2	76.8	363.6
1981	119.8	0.0	119.8	11.0	106.6	20.0	85.3	403.8	27.6	77.2	365.4
1982	117.7	0.0	117.7	11.0	104.8	20.0	83.8	396.8	26.9	76.6	362.6
1983	119.3	0.0	119.3	11.0	106.2	20.0	84.9	402.1	26.2	78.4	371.0
1984	121.8	0.0	121.8	11.0	108.4	20.0	86.7	410.5	25.4	80.9	382.8
1985	126.2	0.0	126.2	11.0	112.3	20.0	89.8	425.3	24.4	84.8	401.7
1986	124.3	0.0	124.3	11.0	110.6	20.0	88.5	419.0	24.2	83.9	397.1
1987	128.8	0.0	128.8	11.0	114.6	20.0	91.7	434.2	24.2	86.9	411.4
1988	130.2	0.0	130.2	11.0	115.9	20.0	92.7	438.9	24.1	88.0	416.6
1989	128.5	0.0	128.5	11.0	114.4	20.0	91.5	433.1	24.3	86.6	410.0
1990	132.4	0.0	132.4	11.0	117.9	20.0	94.3	446.4	24.2	89.3	422.8
1991	132.9	0.0	132.9	11.0	118.2	20.0	94.6	447.8	24.1	89.8	424.9
1992	136.1	0.0	136.1	11.0	121.1	20.0	96.9	458.8	24.0	92.1	436.0
1993	139.2	0.0	139.2	11.0	123.9	20.0	99.1	469.1	23.7	94.5	447.3
1994	141.6	0.0	141.6	11.0	126.0	20.0	100.8	477.3	23.6	96.2	455.6
1995	144.1	0.0	144.1	11.0	128.3	20.0	102.6	485.8	23.6	98.0	464.2
1996	144.7	0.0	144.7	11.0	128.8	20.0	103.0	487.8	23.6	98.5	466.1
1997	147.8	0.0	147.8	11.0	131.5	20.0	105.2	498.0	23.3	100.8	477.2
1998	149.0	0.0	149.0	11.0	132.6	20.0	106.1	502.1	23.3	101.7	481.5
1999	151.4	0.0	151.4	11.0	134.7	20.0	107.8	510.2	23.3	103.3	489.0
2000	148.9	0.0	148.9	11.0	132.5	20.0	106.0	501.9	23.4	101.6	480.8
2001	147.2	0.0	147.2	11.0	131.0	20.0	104.8	496.3	23.3	100.5	475.6
2002	146.4	0.0	146.4	11.0	130.3	20.0	104.2	493.5	23.2	100.1	473.7
2003	141.7	0.0	141.7	11.0	126.1	20.0	100.9	477.7	23.2	96.9	458.7
2004	141.9	0.0	141.9	11.0	126.3	20.0	101.1	478.5	23.3	96.9	458.9
2005	142.5	0.0	142.5	11.0	126.8	20.0	101.4	480.3	23.4	97.1	459.7
2006	139.5	0.0	139.5	11.0	124.1	20.0	99.3	470.1	23.5	94.9	449.3
2007	136.7	0.0	136.7	11.0	121.7	20.0	97.3	460.8	23.7	92.9	439.8
2008	136.2	0.0	136.2	11.0	121.2	20.0	97.0	459.1	24.1	92.0	435.4
2009	130.7	0.0	130.7	11.0	116.3	20.0	93.1	440.6	24.2	88.1	417.3

Source: USDA, Economic Research Service, Sugar and Sweeteners Team.

measured in pounds. These amounts are estimated deliveries from sugar refiners, sweetener processors, and/or traders to food/beverage manufacturers, wholesalers, and retailers. The series starts in 1970 and runs through 2009. Calculations proceed through three steps, the first two of which were not part of the RTI study. The first is a loss calculation from primary to retail weight. For all added sugars, this is zero. The second step is an adjustment for loss from the retail/institutional level to the consumer level. The existing ERS coefficient is 11 percent for all added sugars. These adjustments yield product weight (pounds per year) at the consumer level, against which the consumption loss coefficients are applied.

The ERS loss coefficient is the uniform 20 percent for all added sugars. Based on this figure, there are three distinct stages of per-capita added sugar consumption in the United States, illustrated in figure 3. There was choppy annual growth from 1970 to 1989—from 84.8 pounds to 91.5 pounds, an increase of 7.9 percent. There was sustained annual growth from 1990 to 1999— up to 107.8 pounds, an increase of 17.8 percent. In the final stage, there has been a steady decline from 2000 to 2009 to 93.1 pounds, a decrease of 13.6 percent from the preceding decade.

The annual RTI loss coefficient for all sweeteners, unlike the ERS coefficient, is not a constant because of varying consumption of the various sweeteners with differing coefficient values. Because corn sweeteners constituted a relatively small portion of total sweetener consumption in 1970 (about 14 percent), the total loss coefficient in 1970 was a high 31.2 percent, reflecting the large refined sugar coefficient proposed by RTI. As corn sweetener consumption grew and accounted for proportionally more of total sweetener consumption (56 percent in 2003, down to 50 percent in 2009), the aggregate coefficient became less. For 2009, the coefficient is calculated at 24.2 percent.

The RTI loss adjustment yields lower sweetener consumption in all years, but the difference is largest at the beginning when sugar consumption is the highest proportion of the total—14.0 percent in 1970 (72.9 pounds compared with 84.8 pounds). As corn sweetener consumption increases over the period, the difference between the series becomes less: 10.2 percent in 1980; 5.3 percent in 1990; and 4.2 percent in 2000. Between 2000 and 2009, the corn sweetener share reversed trend and its share value became less. The per capita difference, in turn, grew to 5.3 percent in 2009 (88.1 pounds compared with 93.1 pounds).

The three growth trends discussed earlier are still in evidence; however, the RTI-implied increase from 1970 to 1989 is a much larger 18.8 percent, compared with 7.9 percent in the existing ERS series. Increased corn sweetener consumption, with a smaller loss coefficient, is the reason.

Figure 3

Per capita added sugars and sweeteners consumption intake, implications from comparison of current ERS and proposed RTI consumer loss

Pounds, refined value
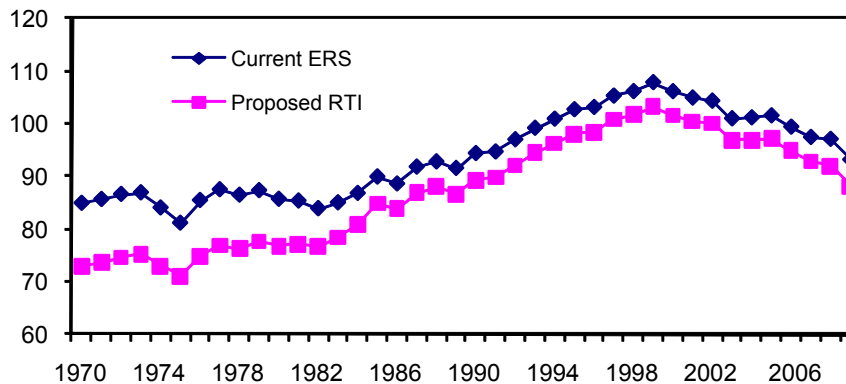
Source: Calculations by Economic Research Service, Sugar and Sweeteners Team.

Prospects for Adoption of New Coefficients

No decision has been made on whether to adopt the new coefficients. ERS is asking for comments on the coefficients proposed by RTI.[5]

For added sugars and sweeteners, one can question whether corn sweetener consumption closely enough resembles honey consumption to warrant using its loss coefficient value. Honey is a relatively minor sweetener—its share of total added sugar availability is less than 1 percent. HFCS and refined sugar, especially in liquid form, are far closer substitutes. Over 70 percent of HFCS is consumed in beverages.[6] Most U.S. beverage manufacturers and bottlers switched from liquid sugar to HFCS during the early-to-mid 1980s. HFCS-42 and sugar are considered to be close substitutes in many food preparations as well. One difference, however, is that unlike sugar, corn sweeteners—HFCS, dextrose, and glucose syrup—are not products that consumers can generally purchase directly for household use. Any differential in the loss of refined sugar attributable to home use would have to be taken into account.

---

[5] Send comments to ERS's Jean Buzby -- jbuzby@ers.usda.gov.

[6] RTI did not examine losses in carbonated beverages, the primary end user of HFCS.

Sugar Long-Term Projections through Fiscal Year 2021

The two primary determinants of U.S. sugar supply and use over the long-term projection period are the sugar and energy provisions of the Food, Conservation, and Energy Act of 2008 (2008 Farm Act) and reliance on sugar imports from Mexico to maintain a balance in the U.S. sugar market.

The 2008 Farm Act made domestic marketing allotments permanent at a level to be not less than 85 percent of estimated sugar deliveries for human consumption. The 2008 Act increases the raw sugar loan rate incrementally from 18 cents/pound (lb) in FY 2010 to 18.75 cents/lb by FY 2012. The refined beet sugar loan rate is specified to equal 128.5 percent of the raw cane sugar loan rate. The 2008 Act introduced the Feedstock Flexibility Program, which requires diverting sugar from food use to ethanol producers at the beginning of September, if needed, to keep sugar prices above levels at which sugar processors might otherwise forfeit sugar under loan to the Commodity Credit Corporation (CCC). The 2008 Farm Act states that raw and refined sugar Tariff Rate Quotas (TRQs) be established at the beginning of the marketing year at the minimum levels required to comply with international trade agreements approved by the U.S. Congress, with an exception for imported specialty sugar. During the first half of the fiscal year (October 1 – March 31), the 2008 Farm Act states that the sugar TRQ must be increased above the minimum levels by the Secretary of Agriculture if a sugar shortage occurs due to an emergency situation such as a natural disaster, war, or similar event. The 2008 Farm Act further states that after April 1, the sugar TRQ can be increased by the Secretary to provide an adequate supply, but only to a level that does not threaten sugar forfeitures to the CCC.

The sugar provisions of the North American Free Trade Agreement (NAFTA) removed all duties and quantitative restrictions on sweetener trade between Mexico and the United States as of January 1, 2008. For FY 2008 and FY 2009, sugar exports from Mexico to the United States averaged over 1.0 million short tons, raw value (STRV). Large initial sugar stocks in Mexico made exports cost competitive against higher priced U.S. sugar and also facilitated the continuing shift away from high fructose corn syrup (HFCS) use by U.S. food and beverage manufacturers. Sugar prices in Mexico rose as domestic supplies were exported. Exports were also sizable in FY 2010, but new patterns emerged in Mexico that are expected to be permanent. First, beverage and food manufacturers in Mexico substituted lower cost HFCS (mostly imported from the United States) for now more expensive domestic sugar. Second, Mexico showed a willingness to import sugar from third countries to replenish low sugar supplies caused by its large exports to the U.S. market. Another export determinant for Mexican processors was the certainty of high returns from selling to the U.S. market compared with uncertain returns from holding inventory for sale to the Mexican market later in the season.

U.S. sugar supply and use over the long-term projection period (FY 2012-2021) are specified to resemble events and policy choices made in FY 2009-10, the first 2 years of the 2008 Farm Act. Specifically, the projections assume that U.S. producers do not expand area to keep pace with increases in domestic demand; that U.S. policymakers are conservative in making increases in the sugar TRQs above initially mandated levels; and that U.S. policymakers aim for an ending year stocks-to-use ratio close to the average for FY 2009-10: 13.5 percent (the 2-year average was 13.8 percent)[7]. Mexico is assumed to export sugar to the United States to meet this level. When necessary, Mexico is assumed to import sugar from the world market late in the fiscal year to assure sufficient supplies to meet its domestic consumption requirements. Historically, optimum fiscal year ending stocks in Mexico have been at about 22.0 percent of total year deliveries for human consumption.

Imports from Mexico

It is assumed that beverage manufacturers in Mexico will continue their strong demand for HFCS, to the extent that HFCS constitutes 75 percent of total sweetener demand over FY 2012-21. The projections further assume that average HFCS demand (including demand by food manufacturers) over FY 2012-21 is 1.727 million metric tons,

---

[7] U.S. policymakers did not raise the sugar TRQ in FY 2009. Although policymakers increased the TRQ twice in FY 2010, the increases were insufficient to forestall a record level of high-tier tariff imports.

dry weight (table 4). Mexican sugar consumption is projected at a low of 4.435 million metric tons, raw value (MTRV), in FY 2011 and expands proportionate to population and real income growth to 5.281 million MTRV in FY 2021. Average Mexican consumption for the projections period is 4.913 million MTRV (table 5). There is no assumed net investment growth in the Mexican sugar industry, and production averages only 5.924 million MTRV. Average Mexican imports for human consumption are 737,000 MTRV and rise over the projections period (fig. 4). U.S. imports from Mexico are assumed to average 1.905 million STRV and constitute about 16.5 percent of U.S. domestic consumption (table 6).

U.S. Sugar Production and Use

Growth in U.S. beet and cane sugar production is projected low (table 7). Producers focus on margins between domestic prices and unit costs rather than competing against Mexican imports with increased acreage and investment in processing capacity. Beet sugar production averages 4.715 million STRV over FY 2012-2021, and cane sugar production averages 3.567 million STRV. Over the period, production averages out to only 72 percent of domestic consumption, far below the 85-percent minimum allotment level.

Over the projections period, sweetener availability (the sum of refined sugar, sugar in imported products, and HFCS) is assumed at 120 pounds per capita annually. Sugar in imported products (constituting 6.2 percent of sweetener demand in FY 2011) grows at 1 percent per year. It is assumed that the long-term decline in HFCS use ends in FY 2012. Sugar gains market share only if the margin between refined sugar prices and the cost of producing HFCS is narrow. Sugar deliveries for human use average 11.562 million STRV over the projections period. Annual growth is just under 1 percent a year.

Expected Economic Effects of the 2008 Act

No sugar loan forfeitures and no CCC purchases of sugar for ethanol are specified because raw cane and refined beet sugar prices are assumed to be above the minimum prices to avoid forfeiture for the entire projections period. With a yearly stocks-to-use ratio at 13.5 percent, the raw cane sugar price in the third quarter of the calendar year is 22.92 cents/lb, and the corresponding refined beet sugar price is 28.86 cents/lb. There is sufficient refining capacity to keep upward pressure off refined sugar prices. The world long-term equilibrium price for raw sugar is assumed to equal to 16 cents/lb—historically high, but not high enough, as in FY 2010, to exert upward pressure on U.S. raw and refined sugar prices.

Alternative Scenario of Increased Sugar Imports from Mexico

An alternative to the base assumptions is increased investment in the Mexican sugar industry that would expand area by 75,000 hectares, or 9.9 percent, by 2015/16 [8/]. This is an estimate made by the Sugar and Sweetener Team of additional area that could be brought into sugarcane production within a short-to-medium time frame. Another change from the base is for HFCS to comprise 95 percent of the beverage sector's sweetener demand by 2014/15, as it does in the United States. This is an increase from 75 percent in the base.

Mexico is assumed to export sugar only to the United States. Mexican exportable surplus is increased by the growth in production and by the reduced sugar demand from increased HFCS use. Initially, Mexico is assumed to export sugar to the United States to keep the U.S. stocks-to-use ratio at or above the 13.5 percent level. The 13.5-percent level is maintained if an inadequate Mexican production surplus above domestic requirements requires imports from third countries, as in the base. If the production surplus is sufficiently large, then the U.S. sugar stocks-to-use ratio can rise above the 13.5 level. Later in the projections period, if the exportable surplus is no longer large enough to keep the U.S. stocks-to-use ratio at or above 13.5 percent, it is not assumed that Mexico will resume imports, meaning that the U.S. stocks-to-use can go below the 13.5-percent level.

[8/] Results of the alternative scenario are not part of USDA's official long-term agricultural commodities projections. This analysis was undertaken independently by the Sugar and Sweeteners Team of the Economic Research Service.

Table 4--Mexico supply and use projections, 2011/12-2020/21, base and alternative scenario

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Base scenario										
Raw equivalent - 1,000 metric tons										
Beginning stocks	975	1,005	1,022	1,036	1,052	1,070	1,088	1,106	1,125	1,143
Area: hectares	686	694	696	697	701	705	719	703	685	681
Sugar yield	8.286	8.372	8.396	8.439	8.483	8.520	8.555	8.625	8.658	8.695
Production	5,684	5,814	5,840	5,884	5,944	6,009	6,151	6,059	5,934	5,918
Imports	250	547	574	597	639	695	686	912	1,157	1,310
Supply	6,908	7,366	7,436	7,516	7,635	7,774	7,924	8,077	8,216	8,370
Disappearance	4,566	4,645	4,708	4,784	4,865	4,946	5,029	5,115	5,194	5,281
Consumption	4,566	4,645	4,708	4,784	4,865	4,946	5,029	5,115	5,194	5,281
Other disappearance	0	0	0	0	0	0	0	0	0	0
Exports	1,337	1,699	1,692	1,680	1,701	1,740	1,789	1,838	1,879	1,928
Ending stocks	1,005	1,022	1,036	1,052	1,070	1,088	1,106	1,125	1,143	1,162
Stocks-to-consumption	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
Consumption of high fructose corn syrup - dry weight, 1,000 metric tons	1,638	1,651	1,680	1,700	1,717	1,736	1,754	1,773	1,799	1,820
Alternative scenario 1/										
Raw equivalent - 1,000 metric tons										
Beginning stocks	975	991	988	980	976	993	1,010	1,027	1,045	1,062
Area: hectares	686	713	732	753	775	799	814	796	776	771
Sugar yield	8.287	8.375	8.399	8.440	8.482	8.515	8.546	8.614	8.643	8.677
Sugar production	5,684	5,971	6,152	6,354	6,575	6,804	6,960	6,856	6,710	6,688
Imports	176	215	0	0	0	0	0	0	0	0
Supply	6,834	7,177	7,140	7,335	7,551	7,797	7,970	7,884	7,756	7,750
Disappearance	4,506	4,490	4,457	4,435	4,512	4,591	4,670	4,752	4,827	4,909
Consumption	4,506	4,490	4,457	4,435	4,512	4,591	4,670	4,752	4,827	4,909
Other disappearance	0	0	0	0	0	0	0	0	0	0
Exports	1,337	1,699	1,703	1,925	2,046	2,196	2,272	2,086	1,867	1,760
Ending stocks	991	988	980	976	993	1,010	1,027	1,045	1,062	1,080
Stocks-to-consumption	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220	0.220
Consumption of high fructose corn syrup - dry weight, 1,000 metric tons	1,695	1,797	1,917	2,030	2,050	2,071	2,093	2,115	2,146	2,170

1/ Sugarcane area expands by 75,000 hectares by 2015/16, and HFCS comprises 95 percent of beverage sweetener demand, up from 75 percent in base.

Source: USDA, ERS, projections made by Sugar and Sweeteners Team.

Table 5--Mexico sugar supply and use, comparison of average values of long term projections, base and alternative scenario

Supply and use (1,000 metric tons, raw value)	Base	Alternative scenario
Beginning stocks	1,062	1,005
Area: hectares	697	762
Sugar yield	8.503	8.498
Production	5,924	6,476
Imports	737	39
Total supply	7,722	7,519
Consumption	4,913	4,615
Exports	1,728	1,889
Ending stocks	1,081	1,015
High fructose corn syrup consumption	1,727	2,008
Ending year stocks-to-consumption (percent)	22.0	22.0

Source: USDA, ERS, Sugar and Sweeteners Team.

Figure 4
Mexico supply and use, base results
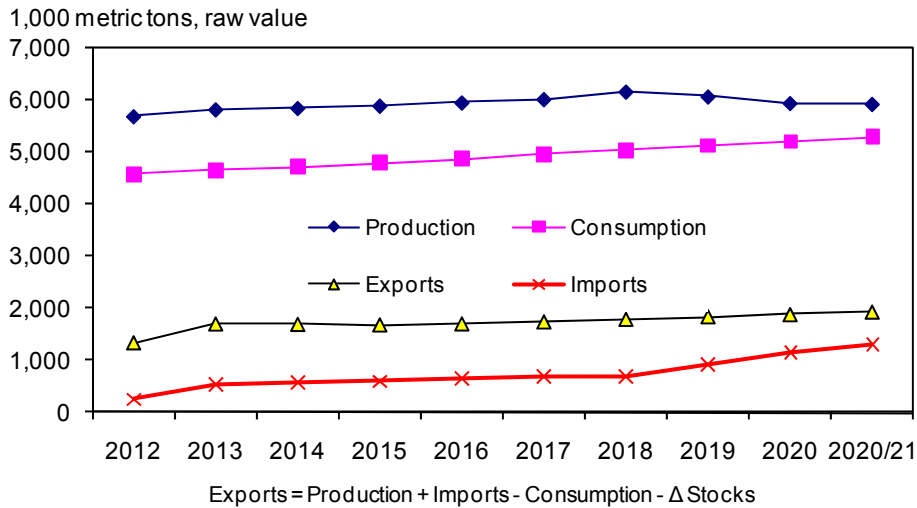
1,000 metric tons, raw value

Exports = Production + Imports - Consumption - Δ Stocks

Source: USDA, Economic Research Service, model results from Sugar and Sweeteners Team.

Table 6--U.S. sugar supply and use, comparison of average values of long term projections, base and alternative scenario

Supply and use (1,000 short tons, raw value)	Base	Alternative scenario
Beginning stocks	1,566	1,860
Production	8,282	8,235
Imports	3,654	3,832
from Mexico	1,905	2,082
TRQ	1,424	1,424
Other	325	325
Total supply	13,503	13,927
Exports	150	150
Deliveries	11,747	11,793
for human consumption	11,562	11,608
other	185	185
CCC purchases for sale to		
ethanol producers	0	81
Total Use	11,897	11,943
Ending stocks	1,606	1,984
Ending year stocks-to-use (percent)	13.5	16.6

Source: USDA, ERS, Sugar and Sweeteners Team.

The lower panel of table 4 and the right-hand column of table 5 show results for Mexico. Under the alternative scenario, average sugar production increases 9.3 percent and HFCS consumption increases 16 percent. After 2012/13, imports are zero. With the assumption that the Mexican sugar stocks-to-consumption ratio is 22 percent, the exportable surplus is a sole function of production exceeding domestic consumption. Exportable surplus reaches a high of 2.272 million MTRV in 2017/18 and then starts to decline as demand growth exceeds changes in production these effects are shown in figure 5.

Table 8 shows annual U.S. sugar supply and use for the alternative scenario, and the right-hand column of table 6 shows average supply and use variables. Imports from Mexico increase 9.3 percent compared with the base. Mexican imports comprise an average 17.9 percent of U.S. sugar deliveries for human use, up from 16.4 percent in the base. The U.S. sugar stocks-to-use ratio rises above 13.5 percent in FY 2014 and reaches 18.3 percent in FYs 2016-18. The CCC purchases sugar in FYs 2016-19 for resale to ethanol producers in order to prevent loan forfeitures. Figure 6 shows annual expenditures. The present net value of total CCC expenditures is $138.25 million.

Table 7--U.S. sugar long term projections, model base: supply, disappearance, and prices, fiscal years

Item	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Sugarbeets											
Planted area	1,000 acres	1,186	1,100	1,107	1,119	1,121	1,119	1,115	1,110	1,106	1,102
Harvested area	1,000 acres	1,138	1,055	1,062	1,073	1,075	1,073	1,069	1,065	1,060	1,057
Yield	Tons/acre	26.07	26.27	26.36	26.41	26.50	26.59	26.68	26.76	26.85	26.94
Production	Mil. s.ton	29.66	27.72	28.00	28.34	28.49	28.53	28.52	28.50	28.47	28.47
Sugarcane											
Harvested area	1,000 acres	818	815	815	816	816	816	816	816	816	816
Yield	Tons/acre	34.1	34.2	34.4	34.6	34.8	34.9	35.1	35.3	35.5	35.7
Production	Mil. s.ton	27.84	27.90	28.04	28.21	28.37	28.52	28.67	28.81	28.96	29.10
Supply:											
Beginning stocks	1,000 s tons	1,265	1,522	1,564	1,578	1,591	1,603	1,616	1,629	1,641	1,652
Production	1,000 s tons	8,321	8,013	8,098	8,201	8,268	8,313	8,349	8,385	8,418	8,457
Beet sugar	1,000 s tons	4,845	4,525	4,589	4,668	4,712	4,735	4,749	4,764	4,775	4,793
Cane sugar	1,000 s tons	3,476	3,488	3,510	3,533	3,556	3,578	3,600	3,621	3,643	3,664
Total imports	1,000 s tons	3,208	3,613	3,607	3,597	3,622	3,670	3,726	3,783	3,831	3,886
TRQ imports	1,000 s tons	1,409	1,415	1,417	1,420	1,422	1,427	1,430	1,432	1,435	1,436
Mexico 1/	1,000 s tons	1,474	1,873	1,865	1,852	1,874	1,918	1,972	2,026	2,071	2,125
Other imports	1,000 s tons	325	325	325	325	325	325	325	325	325	325
Total supply	1,000 s tons	12,794	13,148	13,269	13,376	13,480	13,586	13,691	13,797	13,890	13,995
Use:											
Exports	1,000 s tons	150	150	150	150	150	150	150	150	150	150
Domestic deliveries	1,000 s tons	11,122	11,434	11,541	11,635	11,727	11,820	11,913	12,006	12,088	12,181
Miscellaneous	1,000 s tons	0	0	0	0	0	0	0	0	0	0
Total use	1,000 s tons	11,272	11,584	11,691	11,785	11,877	11,970	12,063	12,156	12,238	12,331
CCC surplus disbursements	1,000 s tons	0	0	0	0	0	0	0	0	0	0
Ending stocks	1,000 s tons	1,522	1,564	1,578	1,591	1,603	1,616	1,629	1,641	1,652	1,665
Ending stocks-to-use	Percent	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
Raw sugar price:											
No. 16 New York contract	Cents/lb.	22.92	22.92	22.92	22.92	22.92	22.92	22.92	22.92	22.92	22.92
Raw sugar loan rate	Cents/lb.	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Beet sugar loan rate	Cents/lb.	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09
Grower prices:											
Sugarbeets	Dol./ton	41.83	41.09	41.09	41.09	41.09	41.09	41.09	41.09	41.09	41.09
Sugarcane	Dol./ton	29.54	29.49	29.51	29.53	29.55	29.57	29.59	29.61	29.63	29.65

Fiscal year is Oct. 1 through September 30.

1/ Does not include imports under quota prior to full implementation of sugar trade provisions of the North American Free Trade Agreement on January 1, 2008.

Source: USDA, Interagency Commodity Estimates Committee for sugar.

Figure 5

Mexico supply and use, alternative scenario results

1,000 metric tons, raw value

Sugarcane area expands 75,000 ha, or 9.9% by 2015/16
HFCS captures 95% of beverage sweetener demand, up from 75%

- Sugar production
- Consumption
- Exports
- Imports

Source: USDA, Economic Research Service, model results from Sugar and Sweeteners Team.

Table 8--U.S. sugar long term projections, alternative scenario: supply, disappearance, and prices, fiscal years

Item	Units	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Sugarbeets											
Planted area	1,000 acres	1,186	1,100	1,107	1,118	1,117	1,106	1,095	1,090	1,084	1,084
Harvested area	1,000 acres	1,138	1,055	1,062	1,073	1,071	1,060	1,051	1,045	1,040	1,039
Yield	Tons/acre	26.07	26.27	26.36	26.41	26.49	26.56	26.62	26.68	26.75	26.84
Production	Mil. s.ton	29.66	27.72	28.00	28.33	28.38	28.17	27.97	27.88	27.82	27.90
Sugarcane											
Harvested area	1,000 acres	818	815	815	815	815	814	814	814	814	814
Yield	Tons/acre	34.1	34.2	34.4	34.6	34.8	35.0	35.1	35.3	35.5	35.7
Production	Mil. s.ton	27.84	27.90	28.04	28.21	28.33	28.45	28.58	28.72	28.87	29.04
Supply:											
Beginning stocks	1,000 s tons	1,265	1,522	1,564	1,590	1,871	2,173	2,199	2,220	2,201	2,000
Production	1,000 s tons	8,321	8,013	8,098	8,200	8,246	8,247	8,257	8,285	8,316	8,369
Beet sugar	1,000 s tons	4,845	4,525	4,589	4,667	4,694	4,678	4,667	4,674	4,683	4,712
Cane sugar	1,000 s tons	3,476	3,488	3,510	3,533	3,551	3,569	3,589	3,610	3,632	3,657
Total imports	1,000 s tons	3,208	3,613	3,619	3,866	4,002	4,173	4,260	4,057	3,819	3,701
TRQ imports	1,000 s tons	1,409	1,415	1,417	1,420	1,422	1,427	1,430	1,432	1,435	1,436
Mexico 1/	1,000 s tons	1,474	1,873	1,877	2,122	2,255	2,421	2,505	2,300	2,058	1,941
Other imports	1,000 s tons	325	325	325	325	325	325	325	325	325	325
Total supply	1,000 s tons	12,794	13,148	13,281	13,656	14,118	14,594	14,715	14,562	14,335	14,070
Use:											
Exports	1,000 s tons	150	150	150	150	150	150	150	150	150	150
Domestic deliveries	1,000 s tons	11,122	11,434	11,541	11,636	11,750	11,890	12,008	12,102	12,185	12,264
Miscellaneous	1,000 s tons	0	0	0	0	0	0	0	0	0	0
Total use	1,000 s tons	11,272	11,584	11,691	11,786	11,900	12,040	12,158	12,252	12,335	12,414
CCC surplus disbursements	1,000 s tons	0	0	0	0	45	354	336	73	0	0
Ending stocks	1,000 s tons	1,522	1,564	1,590	1,871	2,173	2,199	2,220	2,201	2,000	1,656
Ending stocks-to-use	Percent	13.5	13.5	13.6	15.9	18.3	18.3	18.3	18.0	16.2	13.3
Raw sugar price:											
No. 16 New York contract	Cents/lb.	22.92	22.92	22.88	22.00	21.23	21.23	21.23	21.32	21.88	22.99
Raw sugar loan rate	Cents/lb.	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Beet sugar loan rate	Cents/lb.	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09
Grower prices:											
Sugarbeets	Dol./ton	41.83	41.09	41.07	40.48	39.26	38.64	38.64	38.64	39.01	40.25
Sugarcane	Dol./ton	29.54	29.49	29.49	28.97	28.45	28.41	28.43	28.50	28.88	29.63

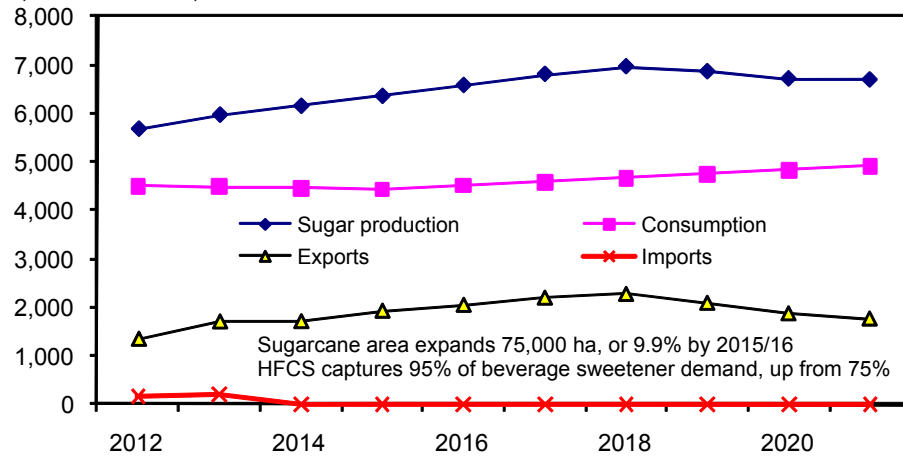Fiscal year is Oct. 1 through September 30.

1/ Does not include imports under quota prior to full implementation of sugar trade provisions of the North American Free Trade Agreement on January 1, 2008.

Source: USDA, Interagency Commodity Estimates Committee for sugar.

Figure 6
Alternative scenario: Federal Budget expenditure and stocks-to-use ratios

1,000 dollars   Percent
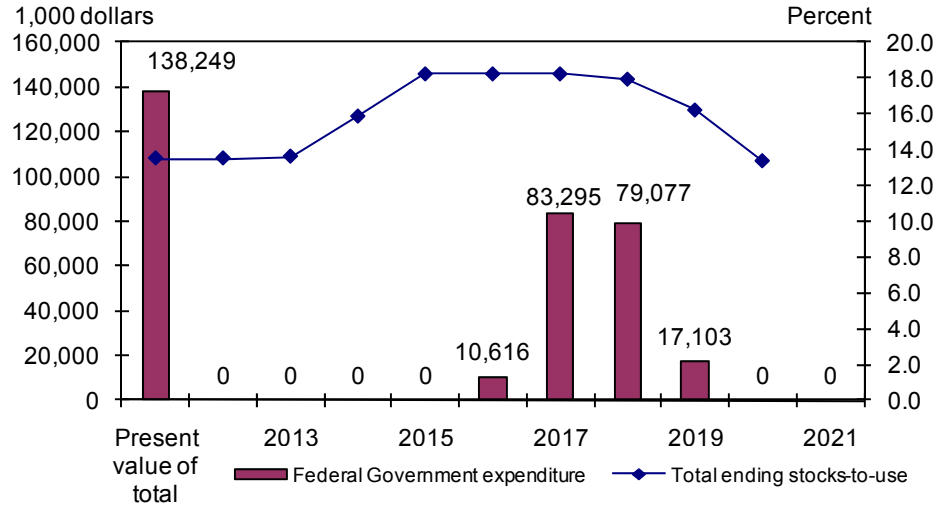
Source: USDA, Economic Research Service, Sugar and Sweeteners Team.

Conclusion

The base scenario described in this chapter is the U.S. Department of Agriculture's long-term sugar supply and use projections for February 2011. One of the chief uses of the long-term projections is to estimate Federal Government budget expenses from U.S. sugar program operations. In the base scenario, there are no sugar loan forfeitures and there are no CCC purchases of sugar for ethanol, because raw cane and refined beet sugar prices are above the minimum prices to avoid forfeiture for the entire projections period. The base scenario assumes no significant sugarcane area expansion in Mexico and specifies HFCS consumption as a proportion of total sweetener consumption only slightly above projected FY 2011 levels.

The alternative scenario has shown that budget expense could become sizable – more than $100 million in present value – if Mexican sugarcane producing area increases by 9.9 percent and Mexico's beverage demand for HFCS increases to 95 percent of total sweetener demand, as it has in the United States. Neither one of these outcomes seems unreasonable.

Table 9--U.S. sugar: supply and use, by fiscal year 1/, 2/14/11

Items	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
					1,000 short tons, raw value						
Beginning stocks 2/	2,216	2,180	1,528	1,670	1,897	1,332	1,698	1,799	1,664	1,534	1,503
Total production 3/ 4/	8,769	7,900	8,426	8,649	7,876	7,399	8,445	8,152	7,531	7,968	8,010
Beet sugar	4,680	3,915	4,462	4,692	4,611	4,444	5,008	4,721	4,214	4,575	4,800
Cane sugar	4,089	3,985	3,964	3,957	3,265	2,955	3,438	3,431	3,317	3,392	3,210
Florida	2,057	1,980	2,129	2,154	1,693	1,367	1,719	1,645	1,577	1,638	1,500
Louisiana	1,585	1,580	1,367	1,377	1,157	1,190	1,320	1,446	1,397	1,481	1,400
Texas	206	174	191	175	158	175	177	158	152	112	140
Hawaii	241	251	276	251	258	223	222	182	192	161	170
Puerto Rico	0	0	0	0	0	0	0	0	0	0	
Total imports	1,590	1,535	1,730	1,750	2,100	3,443	2,080	2,620	3,082	3,319	3,245
Tariff-rate quota imports 5/	1,277	1,158	1,210	1,226	1,408	2,588	1,624	1,354	1,370	1,854	1,371
Other program imports	238	296	488	464	500	349	390	565	308	450	375
Nonprogram imports	76	81	32	60	192	506	66	701	1,404	1,014	1,499
Mexico 6/							60	694	1,402	807	1,459
Total supply	12,575	11,615	11,684	12,070	11,873	12,174	12,223	12,571	12,277	12,821	12,758
Total exports 3/	141	137	142	288	259	203	422	203	136	211	225
Quota-exempt for re-export	141	137	142	288	259	203	422	203	136	211	225
Other exports	0	0	0	0	0	0					
CCC disposal, for export	0	0	0	0	0	0					
Miscellaneous	123	-24	161	23	94	-67	-132	0	0	-46	0
CCC disposal, for domestic non-food use	10	0	0	0	0	0	0	0	0	0	0
Refining loss adjustment	0	0	0	0	0	0	0	0	0	-46	0
Statistical adjustment 7/	113	-24	161	23	94	-67	-132	0	0	0	0
Deliveries for domestic use	10,132	9,974	9,711	9,862	10,188	10,340	10,135	10,704	10,607	11,152	11,185
Transfer to sugar-containing products											
for exports under re-export program	98	156	183	142	121	106	169	141	120	201	145
Transfer to polyhydric alcohol, feed	33	33	24	41	48	51	53	61	46	35	40
Deliveries for domestic food and beverage use 8/	10,000	9,785	9,504	9,678	10,019	10,184	9,913	10,501	10,441	10,917	11,000
Total use	10,396	10,087	10,014	10,172	10,542	10,476	10,424	10,907	10,743	11,318	11,410
Ending stocks 2/	2,180	1,528	1,670	1,897	1,332	1,698	1,799	1,664	1,534	1,503	1,348
Privately owned	1,395	1,316									
CCC	784	212									
						Percent						
Stocks-to-use ratio	20.97	15.15	16.68	18.65	12.63	16.21	17.25	15.26	14.28	13.28	11.82

Note: Numbers may not add due to rounding.

CCC=Commodity Credit Corporation.

1/ Fiscal year beginning October 1. 2/ Stocks in hands of primary distributors and CCC. 3/ Historical data are from USDA Farm Service Agency (FSA) formerly Agricultural Stabilization and Conservation Service) for *Sweetener Market Data* (SMD) and USDA, National Agricultural Statistics prior to 1992. 4/ Production reflects processors' projection compiled by FSA. 5/ Actual arrivals under the tariff-rate quota (TRQ) with late entries, early entries, and TRQ overfills assigned to the fiscal year in which they actually arrived. The 2010/11 available TRQ assumes shortfall of 60, 257 tons. 6/ Starting in 2007/08, total includes imports under Mexico's World Trade Organization TRQ allocation for raw and refined sugar. 7/ Calculated as a residual. Largely consists of invisible stocks change. 8/ For FY 2008/09, combines SMD deliveries for domestic human use, SMD miscellaneous uses, and the difference between SMD imports and *World Agricultural Supply and Demand Estimates* imports.

Table 10--U.S. sugar: Supply and use (including Puerto Rico), by fiscal year, 1/ metric tonnes, 2/14/11

Items	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
					1,000 metric tons, raw value						
Beginning stocks 2/	2,010	1,977	1,386	1,515	1,721	1,208	1,540	1,632	1,510	1,392	1,364
Total production 3/ 4/	7,955	7,167	7,644	7,846	7,145	6,712	7,662	7,396	6,832	7,228	7,267
Beet sugar	4,245	3,552	4,048	4,257	4,183	4,032	4,543	4,283	3,822	4,151	4,354
Cane sugar	3,710	3,615	3,596	3,590	2,962	2,681	3,119	3,113	3,009	3,078	2,912
Florida	1,866	1,796	1,932	1,954	1,536	1,240	1,559	1,492	1,431	1,486	1,361
Louisiana	1,438	1,433	1,240	1,249	1,049	1,079	1,198	1,312	1,267	1,344	1,270
Texas	187	158	173	159	143	159	161	143	138	101	127
Hawaii	219	227	251	228	234	202	201	165	174	146	154
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0
Total imports	1,443	1,393	1,570	1,588	1,905	3,124	1,887	2,377	2,796	3,011	2,944
Tariff-rate quota imports 5/	1,158	1,051	1,098	1,113	1,277	2,348	1,473	1,229	1,243	1,682	1,244
Other program imports	216	269	443	421	454	317	354	513	279	408	340
Nonprogram imports	69	73	29	54	174	459	60	636	1,274	920	1,360
Mexico 6/							54	630	1,272	732	930
Total supply	11,408	10,537	10,599	10,950	10,771	11,044	11,088	11,404	11,138	11,632	11,317
Total exports 3/	128	125	129	261	235	184	383	184	123	191	204
Quota-exempt for reexport	128	125	129	261	235	184	383	184	123	191	204
Other exports	0	0	0	0	0	0	0	0	0	0	0
CCC disposal, for export	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous	112	-22	146	20	85	-61	-120	0	0	-41	0
CCC disposal, for domestic nonfood use	9	0	0	0	0	0	0	0	0	0	0
Refining loss adjustment	0	0	0	0	0	0	0	0	0	-41	0
Statistical adjustment 7/	103	-22	146	20	85	-61	-120	0	0	0	0
Deliveries for domestic use	9,191	9,048	8,810	8,946	9,243	9,381	9,194	9,710	9,623	10,117	10,147
Transfer to sugar-containing products											
for exports under re-export program	89	141	166	129	110	96	153	128	109	183	132
Transfer to polyhydric alcohol, feed	30	30	22	38	44	46	48	56	42	31	36
Deliveries for domestic food and beverage use 8/	9,072	8,877	8,622	8,780	9,089	9,239	8,993	9,527	9,472	9,903	9,979
Total use	9,431	9,151	9,084	9,228	9,563	9,504	9,457	9,895	9,746	10,267	10,351
Ending stocks 2/	1,977	1,386	1,515	1,721	1,208	1,540	1,632	1,510	1,392	1,364	1,223
Privately owned	1,266	1,194									
CCC	711	192									
						Percent						
Stocks-to-use ratio	20.97	15.15	16.68	18.65	12.63	16.21	17.25	15.26	14.28	13.28	11.82

CCC = Commodity Credit Corporation.

Note: Numbers may not add due to rounding.

1/ Fiscal year beginning October 1. 2/ Stocks in hands of primary distributors and CCC. 3/ Historical data are from USDA, Farm Service Agency (FSA) formerly Agricultural Stabilization and Conservation Service *Sweetener Market Data* (SMD), and USDA, National Agricultural Statistics Service *Sugar Market Statistics* prior to 1992. 4/ Production reflects processors' projections compiled by the FSA. 5/ Actual arrivals under the tariff-rate quota (TRQ) with late entries, and TRQ overfills assigned to the fiscal year in which they actually arrive. The 2010/11 available TRQ assumes shortfall of 54,664 tonnes. 6/ Starting in 2007/08, total includes imports under Mexico's World Trade Organization TRQ allocation for raw and refined sugar. 7/ Calculated as a residual. Largely consists of invisible stocks change. 8/ For FY 2008-09, combines SMD deliveries for domestic and human use, SMD miscellaneous uses, and the difference between SMD imports and *World Agricultural Supply and Demand Estimates* imports.

Table 11--Mexico: sugar production and supply, and sugar and high fructose corn syrup utilization, 2/14/11

Fiscal year (Oct/Sept)	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11 1/
					1,000 Metric tons						
Beginning stocks	1,063	1,548	1,172	1,194	1,237	1,965	1,294	1,718	1,975	624	973
Production	5,220	5,169	5,229	5,330	6,149	5,604	5,633	5,852	5,260	5,115	5,650
Imports	43	52	63	327	268	240	474	226	160	861	290
Supply	6,326	6,769	6,464	6,851	7,654	7,809	7,401	7,796	7,395	6,600	6,913
Disappearance											
Human consumption	4,481	5,004	5,097	5,380	5,279	5,326	5,133	5,090	5,065	4,615	4,329
Other consumption	142	180	135	220	282	323	390	414	475	302	300
Miscellaneous								-360	-136	-27	
Total	4,623	5,184	5,232	5,600	5,561	5,649	5,523	5,144	5,404	4,890	4,629
Exports	155	413	38	14	128	866	160	677	1,367	737	1,332
Total use	4,778	5,597	5,270	5,614	5,689	6,515	5,683	5,821	6,771	5,627	5,961
Ending stocks	1,548	1,172	1,194	1,237	1,965	1,294	1,718	1,975	624	973	952
Stocks-to-human consumption	34.5	23.4	23.4	23.0	37.2	24.3	33.5	38.8	12.3	21.1	22.0
Stocks-to-use	32.4	20.9	22.7	22.0	34.6	19.9	30.2	33.9	9.2	17.3	16.0
HFCS cons. (dry weight)	600	263	130	135	355	667	698	782	653	1,418	1,750

Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online (historical data); USDA, *World Agricultural Supply and Demand Estimates* (forecast data). 1/ Forecast.

Sugar and Sweeteners Outlook/SSS-M-270
Economic Research Service

USDA

United States
Department of
Agriculture

Today's Strategies & Tomorrow's Opportunities

Agricultural Outlook Forum 2011

February 24-25, 2011
Crystal Gateway Marriott Hotel
Arlington, Virginia

To register, please go to:
www.usda.gov/oce/forum

Early Bird Registration $350 until January 21, 2011
$375 after January 21

Contacts and Links

Contact Information
Stephen Haley, (202) 694-5247, shaley@ers.usda.gov (coordinator)
Erik Dohlman (202) 694-5308, edohlman@ers.usda.gov (commodity analyst)
Mae Dean Johnson (202) 694-5245, maedean@ers.usda.gov (web publishing)

Subscription Information
Subscribe to ERS' e-mail notification service at http://www.ers.usda.gov/updates/ to receive timely notification of newsletter availability. Printed copies can be purchased from the USDA Order Desk by calling 1-800-363-2068 (specify the issue number).

Data

Tables from the *Sugar and Sweeteners Yearbook* are available in the Sugar and Sweeteners Briefing Room at http://www.ers.usda.gov/briefing/sugar/. They contain the latest data and historical information on the production, use, prices, imports, and exports of sugar and sweeteners.

Related Websites

Sugar and Sweeteners Outlook http://www.ers.usda.gov/Publications/SSS/
WASDE http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documented=1194
Sugar Briefing Room, http://www.ers.usda.gov/briefing/Sugar/

E-mail Notification

Readers of ERS outlook reports have two ways they can receive an e-mail notice about release of reports and associated data.

• Receive timely notification (soon after the report is posted on the web) via USDA's Economics, Statistics and Market Information System (which is housed at Cornell University's Mann Library). Go to http://usda.mannlib.cornell.edu/MannUsda/aboutEmailService.do and follow the instructions to receive e-mail notices about ERS, Agricultural Marketing Service, National Agricultural Statistics Service, and World Agricultural Outlook Board products.

• Receive weekly notification (on Friday afternoon) via the ERS website. Go to http://www.ers.usda.gov/Updates/ and follow the instructions to receive notices about ERS outlook reports, *Amber Waves* magazine, and other reports and data products on specific topics. ERS also offers RSS (really simple syndication) feeds for all ERS products. Go to http://www.ers.usda.gov/rss/ to get started.