

A Report from the Economic Research Service

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Sugar and Sweeteners Outlook

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USDA Projects U.S. and Mexican Sugar Supply and Use for Fiscal Year 2009

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At the end of March 2008, the National Agricultural Statistics Service (NASS) projected sugar beet acreage intentions for the 2008 crop year at 1.132 million acres, about 10.9 percent lower than 2007 crop year area planted. Assuming normal sucrose levels and continued improvement in productivity, the U.S. Department of Agriculture (USDA) projects fiscal year (FY) 2009 national beet sugar production at 4.400 million short tons, raw value (STRV), about 410,000 STRV less than the projection for FY 2008 (4.810 million STRV).

The USDA projects FY 2009 cane sugar production at 3.715 million STRV, an increase of 134,000 STRV over FY 2008. Because area harvested is not forecast by NASS, current cane sugar projections assume the same area harvested for sugar as the previous year. Florida cane sugar production for FY 2009 is forecast at 1.865 million STRV. This forecast assumes a return to normal weather patterns. If dry conditions seen in the last two seasons persist, cane sugar production could be reduced by 130,000 STRV. The USDA projects Texas production at 200,000 STRV. However, like Florida, Texas has faced dry conditions this past year. If these conditions prevail this coming year, production can be expected to be 35,000 STRV less. The USDA projects FY 2009 Louisiana cane sugar at 1.410 million STRV and Hawaiian cane sugar at 240,000 STRV.

Although the raw and refined sugar tariff-rate quotas (TRQ) for FY 2009 have not yet been announced, the USDA projects them in the *World Agricultural Supply and Demand Estimates* (WASDE) report at minimum levels implied by existing international commitments to the World Trade Organization (WTO) and at the allocated levels from the Dominican Republic and Central American Free Trade Agreement (DR-CAFTA). The projection in the May WASDE is, therefore, at 1.274 million STRV, assuming a shortfall of 100,000 STRV. Included in the total minimum access quantity is the refined sugar TRQ, the minimum access commitment of which is 24,251 STRV, or 22,000 metric tons, raw value (MTRV). Until the TRQ is announced, there is no projection for additional specialty sugar. This sugar is mostly organic sugar, and its allocation for FY 2008 was set at 70,000 STRV in addition to the 1,825 STRV included in the minimum access quantity. The USDA projects imports from Mexico at 550,000 STRV.

Other program sugar imports outside the sugar TRQ for FY 2009 are projected to total 425,000 STRV. Other USDA import programs include the Refined Sugar Re-export Program, the Sugar-Containing Products Program, and the Polyhydric Alcohol Program.

Sugar exports for FY 2009 are forecast at 250,000 STRV. Most of these exports are expected to go to Mexico, where they are used in Mexico's product re-export (IMMEX) program. Almost all such sugar-containing products are expected to be exported to the United States.

Deliveries for domestic food and beverage use for FY 2009 are projected at 10.325 million STRV, an increase of 100,000 STRV over the FY 2008 delivery estimate. Deliveries for domestic food and beverage use for FY 2008 were increased by 175,000 STRV to 10.225 million STRV in the May 2008 WASDE. Deliveries to industrial end users for the first 6 months of FY 2008 are 6.6 percent higher than the average of the same corresponding period of the two previous years. Likewise, deliveries to nonindustrial end users for the first 6 months are 2.1 percent higher.

The projection for Sugar-Containing Product Re-export deliveries is 150,000 STRV, the same level as that estimated for FY 2008. The FY 2009 projection for deliveries is 25,000 STRV for the manufacture of polyhydric alcohol and 35,000 STRV for feed uses, the same as the FY 2008 estimates.

Ending stocks are the difference between supply and use. For FY 2009, ending stocks are projected at 1.335 million STRV, implying an ending stocks-to-use ratio of 12.4 percent. For FY 2008, ending stocks are estimated at 1.756 million STRV, implying an ending stocks-to-use ratio of 16.4 percent.

The refined beet sugar price reported by *Milling and Baking News* is 30-33 cents/pound (lb) as of May 16. The price had increased 4 cents to 28 cents/lb after the explosion at the Imperial Sugar refinery on February 7. According to *Milling and Baking News*, there is concern that area planted may be less than indicated in NASS's *Planting Intentions*. The nearby no.14 New York raw sugar contract price is averaging 20.7 cents/lb through the first half of May. With the minimum price to avoid forfeiture in Florida projected by the Farm Service Agency at above 21 cents per pound, there may be raw sugar forfeitures this fiscal year.

The USDA projects 2008/09 Mexican sugar production at 5.850 million MTRV. Sugarcane area harvested is projected at 668,000 hectares, about the same level as this year. Sugarcane production for 2008/09 is projected at 51.0 million metric tons (mt), implying sugar recovery at 11.5 percent, raw basis (10.8 percent, tel quel basis).

The USDA estimates 2007/08 Mexican sugar production at 5.950 million MTRV. After a slow start to the harvest season, the pace picked up substantially. Sucrose recovery through the end of April was 12.15 percent, raw basis (11.46 percent, tel quel). With several more weeks to the harvest season, the recovery rate is forecast by the Economic Research Service to be at 12.18 percent, raw basis (11.48 percent, tel quel).

The USDA projects 2008/09 Mexican sugar deliveries for human consumption at 5.430 million MTRV, an increase of 80,000 MTRV over 2007/08. Consumption of high fructose corn syrup is projected at 800,000 mt, dry basis, the same level as estimated for 2007/08. Mexican 2008/09 sugar exports are projected at 500,000 MTRV, and 2007/08 exports are estimated at 530,000 MTRV. The destination for almost all of this sugar is the United States.

Deliveries to Mexico's IMMEX program are projected at 375,000 MTRV in 2008/09, 5,000 MTRV more than estimated deliveries in the previous year. Ending stocks for 2008/09 are projected at 1.413 million MTRV, implying a stocks-to-consumption ratio of 26.0 percent. This level is below the average 1997/98-2006/07 ending stocks-to-consumption ratio of 26.7 percent. Ending stocks for 2007/08 are estimated at 1.643 million MTRV, implying a stocks-to-consumption ratio of 30.7 percent.

U.S. Sugar

On May 11, 2008, the U.S. Department of Agriculture (USDA) released its latest supply and use estimates for fiscal year (FY) 2008 and first projections for FY 2009 in the World Agricultural Supply and Demand Estimates (WASDE) report.

Production

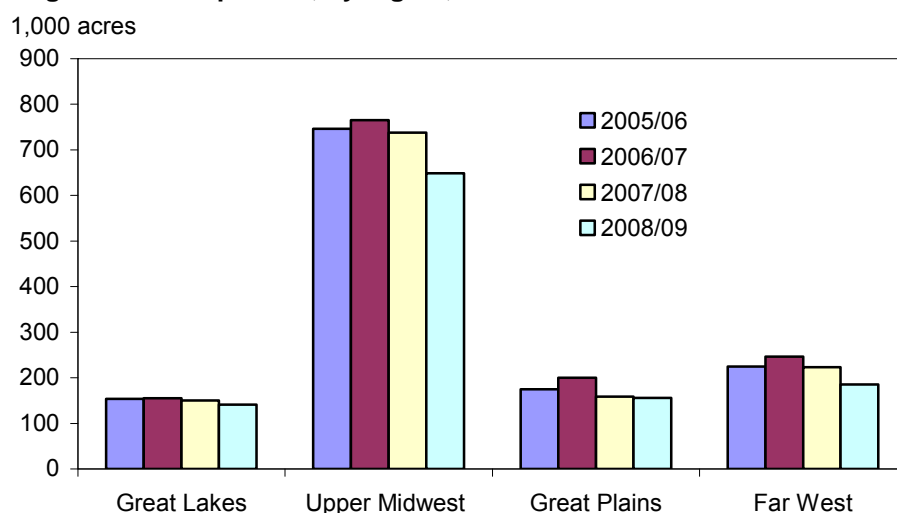
For most of the year, the USDA's Interagency Commodity Estimates Committee (ICEC) for sugar does not project sugar production for the out-year crop. For the most part, the USDA accepts the production estimates and projections provided by beet sugar processors and cane sugar millers to the Farm Service Agency (FSA). However, the processors' and millers' forecasts are not available until July of the preceding crop year. Therefore, in the meantime, WASDE reflects ICEC projections for FY 2009 sugar in May and June.

FY 2009 Beet Sugar Production

At the end of March 2008, the National Agricultural Statistics Service (NASS) projected 2008/09 crop year sugar beet acreage intentions at 1.132 million acres, about 13.7 percent lower than the average of the last 3 crop years' area planted. Most of the decrease in area is attributable to higher alternative crop prices, taking place when carryover sugar stocks have been expected to be high relative to expected total use in the 2007/08 crop year (i.e., average ending-year stocks-to-use projected in WASDE at 18.77 percent, October 2007 through March, 2008).

Figure 1 shows the distribution of area planted across the major producing regions since 2005/06. The largest acreage decrease takes place in the Upper Midwest (Minnesota and eastern North Dakota), over 100,000 acres relative to the

Figure 1
Sugar beet area planted, by region, 2005/06-2008/09



Source: USDA, NASS, Crop Production, *Planting Intentions*.

2005/06-2007/08 average, for about a 13.4-percent reduction. The second largest area reduction takes place in the Far West (Idaho, California, Oregon, and Washington State), 46,000 acres, for a 19.8-percent reduction. The Great Plains (Colorado, Wyoming, Nebraska, Montana, and western North Dakota) has 21,600 fewer acres, a 12.2-percent reduction. The Great Lakes (Michigan) has 12,000 fewer acres, a 7.8-percent decline.

Table 1 summarizes the methodology used to arrive at a projection for FY 2009 beet sugar production. The first column shows the NASS planted acreage intentions. The next column shows the average harvested-to-planted area ratios. Nationally, an average of 97.6 percent of area planted is harvested, implying that 1.105 million acres in aggregate for FY 2008 will be harvested. A State-by-State analysis of sugar beet yield trends implies a national yield projection of 26.0 tons per acre. Trend yields in certain States are higher than in prior years because of recent-year observed improvements in yield levels. These States include Minnesota, North Dakota, Michigan, Idaho, and Nebraska.

The resulting sugar beet production projection is 28.722 million tons, 10.0 percent less than FY 2008. Assuming normal sucrose levels and trend improvement in productivity, national sugar yield is projected at 3.965 tons/acre. Therefore, national beet sugar production is projected (sugar yield times area harvested) at 4.400 million short tons, raw value (STRV). This projection is 410,000 STRV less than FY 2008 estimated production (4.810 million STRV).

FY 2009 Cane Sugar Production

Table 2 shows cane sugar projections by State, along with underlying assumptions made by the sugar ICEC. The first column shows projected area harvested for sugar. Because NASS does not forecast area harvested until the end of June, the same area is assumed to be harvested as in the previous year. State sugar yields are projected based on sugarcane yields, trend productivity improvement, and normal sucrose levels. Sugar production is the multiplication of sugar yield and area harvested.

Florida cane sugar production for FY 2009 is forecast at 1.865 million STRV. This forecast assumes a return to normal weather patterns after 2 years of dry conditions, implying an expected sugar yield of 4.93 tons/acre. However, if dry conditions similar to the past 2 years persist, sugar yield could be expected to be 0.341 tons/acre lower at 4.59 tons/acre, which would imply production at 1.735 million STRV. Factoring in a drought probability of 50 percent implies an expected production level of 1.800 million STRV.

Texas is similar to Florida. Dry conditions in FY 2008 reduced expected sugar yield by 0.863 tons/ acre. Nonetheless, with the reemergence of normal weather, the USDA projects Texas production at 200,000 STRV. Conditions similar to those of FY 2008 imply production at 166,000 STRV, and 50-percent probability of these conditions implies expected production at 176,000 STRV.

The USDA projects FY 2009 Louisiana cane sugar at 1.410 million STRV and Hawaiian cane sugar at 240,000 STRV.

Table 1--ERS projection of beet sugar production for FY 2009

| Sugar beet States | Area planted 1/ | Estimated ratio: harvested-to- planted area 2/ | Area harvested | Trend yield | Sugar beet production | National sugar yield 3/ | Beet sugar |
|-------------------|-----------------|--|-----------------|-----------------|--------------------------|--------------------------------|--------------------------------|
| | A | α | B = α *A | C | D = B*C | ϕ | E = ϕ *B |
| | 1,000 acres | Ratio | 1,000 acres | Short tons/acre | 1,000 short tons | (Short ton, raw value)/acre | 1,000 short tons, raw value |
| California | 31.6 | 0.978 | 30.9 | 39.16 | 1,210 | -- | -- |
| Colorado | 35.8 | 0.952 | 34.1 | 24.56 | 837 | -- | -- |
| Idaho | 144.0 | 0.991 | 142.7 | 33.28 | 4,748 | -- | -- |
| Michigan | 141.0 | 0.969 | 136.6 | 23.84 | 3,257 | -- | -- |
| Minnesota | 432.0 | 0.978 | 422.4 | 24.56 | 10,375 | -- | -- |
| Montana | 35.8 | 0.982 | 35.2 | 24.19 | 851 | -- | -- |
| Nebraska | 52.0 | 0.930 | 48.3 | 23.64 | 1,143 | -- | -- |
| North Dakota | 217.0 | 0.981 | 212.9 | 24.77 | 5,273 | -- | -- |
| Oregon | 8.2 | 0.972 | 8.0 | 30.36 | 242 | -- | -- |
| Washington | 1.8 | 0.983 | 1.8 | 39.27 | 69 | -- | -- |
| Wyoming | 32.6 | 0.973 | 31.7 | 22.59 | 717 | -- | -- |
| Total | 1,131.8 | 0.976 | 1,104.5 | 26.00 | 28,722 | 3.965 | 4,379 |

1/ USDA, NASS, Acreage Intentions.

2/ Excludes payment-in-kind crop years of 2000/01 and 2001/02.

3/ National sugar yield = $0.02467 \times \text{Trend} (=39) + 0.115463 \times \text{sugar beet yield}$.

Source: USDA, ERS, Sugar and Sweetener Group.

Table 2--ERS projection of cane sugar production, FY 2009

| State | Climatic condition | Area harvested 1/ | Sugar yield 2/ | Cane sugar production |
|-----------|------------------------------|-------------------|--------------------------------|-----------------------------|
| | | 1,000 acres | (Short ton, raw value)/acre | 1,000 short tons, raw value |
| Florida | Normal | 378.0 | 4.93 | 1,864 |
| | 50 percent chance of drought | 378.0 | 4.76 | 1,799 |
| | Drought | 378.0 | 4.59 | 1,735 |
| Louisiana | Normal | 390.0 | 3.61 | 1,408 |
| Texas | Normal | 43.5 | 4.69 | 204 |
| | 50 percent chance of drought | 43.5 | 4.04 | 176 |
| | Drought | 43.5 | 3.83 | 166 |
| Hawaii | Normal | 20.2 | 11.82 | 239 |

1/ Assumed to equal area harvested for sugar from 2007/08.

2/ Florida sugar yield = $-0.846 - 0.341 \times (1 \text{ for fiscal years } 2006, 2007, 2008; 0, \text{ otherwise}) + 0.0282 \times \text{Trend} (= 38 \text{ for FY } 2009) + 0.126 \times \text{Florida sugarcane yield}$ Louisiana sugar yield = $-0.736 + 0.025 \times \text{Trend} + 0.116 \times \text{Louisiana sugarcane yield}$ Texas sugar yield = $-1.766 - 0.863 \times (1 \text{ for fiscal year } 2008; 0, \text{ otherwise}) + 0.155 \times \text{Texas sugarcane yield}$ Hawaii sugar yield = $-1.863 + 0.050 \times \text{Trend} + 0.132 \times \text{Hawaii sugarcane yield}$

Source: USDA, ERS, Sugar and Sweetener Group.

FY 2008 Production

At half way through the fiscal year, the beet processors' estimate of FY 2008 beet sugar production is 4.810 million STRV. Beet producers have produced 3.713 million through the end of March, about 76 percent of the expected total. With a NASS estimate of area harvested at 1.247 million acres, sugar recovery per harvested acre is calculated at a record 3.858 STRV. (Sugar recovery for FY 2007 was estimated at only slightly less, 3.841 STRV.)

In the latest FSA survey, Florida cane sugar millers estimate FY 2008 sugar production at 1.691 million STRV. This estimate implies sugar yield at 4.47 STRV/acre, about the same as in FY 2007 (4.50 STRV/acre) but below the historical trend (4.83 STRV/acre). The Louisiana sugarcane harvest ended in January, and sugar production was estimated at 1.442 million STRV. The USDA expects about 48,000 STRV of production next September, the last month of the fiscal year. Production is, therefore, projected at 1.490 million STRV for the fiscal year. (Production in Louisiana for September 2007 was 40,938 STRV.) Processors in Hawaii estimate production at 238,000 STRV, and the processor in Texas estimates production at 162,500 STRV.

Trade

Although the raw and refined sugar tariff-rate quotas (TRQ) for FY 2009 have not yet been announced, the USDA projects them in the WASDE report at minimum levels implied by existing international commitments to the World Trade Organization (WTO) and at the allocated levels from the Dominican Republic and Central American Free Trade Agreement (DR-CAFTA). The projection in the May WASDE is, therefore, at 1.274 million STRV, assuming a shortfall of 100,000 STRV (table 3). Included in the total minimum access quantity is the refined sugar TRQ, the minimum access commitment of which is 24,251 STRV, or 22,000 metric tons, raw value (MTRV). Until the TRQ is actually announced, there is no projection for additional specialty sugar. This sugar is mostly organic sugar, and its allocation for FY 2008 was set at 70,000 STRV in addition to the 1,825 STRV included in the minimum access quantity. The USDA projects imports from Mexico at 550,000 STRV.

Other program sugar imports outside the sugar TRQ for FY 2009 are projected to total 425,000 STRV. Other USDA import programs include the Refined Sugar Re-export Program, the Sugar-Containing Products Program, and the Polyhydric Alcohol Program.

Sugar exports for FY 2009 are forecast at 250,000 STRV. Most of these exports are expected to go to Mexico where they are used in Mexico's product re-export (IMMEX) program. Almost all such sugar-containing products are expected to be exported to the United States.

Based on reliable information, the FY 2008 raw sugar TRQ shortfall was increased by 70,000 STRV in the May 2008 WASDE to 170,000 STRV. The resulting total (1.061 million STRV), when summed with other import components (refined sugar TRQ, DR-CAFTA, Mexico, and re-export imports), brings the FY 2008 import estimate to 2.251 million STRV (table 4).

Table 3--USDA estimate of sugar imports, FY 2009

| Item | Metric tons, raw value | Short tons, raw value |
|-----------------------------------|------------------------|-----------------------|
| Raw sugar TRQ | 1,117,195 | 1,231,497 |
| Less shortfall | -90,719 | -100,000 |
| Total raw sugar TRQ | 1,026,476 | 1,131,497 |
| Refined sugar TRQ | | |
| Allocation to Canada | 10,300 | 11,354 |
| Global | 7,090 | 7,815 |
| Specialty | | |
| Base | 1,656 | 1,825 |
| Additional | 0 | |
| Specialty total | 1,656 | 1,825 |
| Total refined sugar TRQ | 19,046 | 20,994 |
| CAFTA/DR TRQ | 110,460 | 121,760 |
| Total estimate TRQ entries | 1,155,982 | 1,274,251 |
| Mexico | 498,957 | 550,000 |
| Re-export program imports | 385,557 | 425,000 |
| Sugar syrups, high-tier | 0 | 0 |
| Total projected imports | 2,040,496 | 2,249,251 |

1/ Mexico allocated 7,258 MTRV (8,000 STRV) under raw cane TRQ.

Source: USDA, FAS.

Table 4--USDA estimate of sugar imports, FY 2008

| Item | Metric tons, raw value | Short tons, raw value |
|-----------------------------------|------------------------|-----------------------|
| Raw sugar TRQ | 1,117,195 | 1,231,497 |
| Less shortfall | -154,223 | -170,000 |
| Total raw sugar TRQ | 962,972 | 1,061,497 |
| Refined sugar TRQ | | |
| Allocation to Canada | 10,300 | 11,354 |
| Global | 7,090 | 7,815 |
| Specialty | | |
| Base | 1,656 | 1,825 |
| Additional | 63,503 | 70,000 |
| Specialty total | 65,159 | 71,825 |
| Total refined sugar TRQ | 82,549 | 90,994 |
| CAFTA/DR TRQ | 89,440 | 98,590 |
| Total estimate TRQ entries | 1,134,961 | 1,251,081 |
| Mexico | 521,637 | 575,000 |
| Re-export program imports | 385,557 | 425,000 |
| Sugar syrups, high-tier | 0 | 0 |
| Total projected imports | 2,042,155 | 2,251,081 |

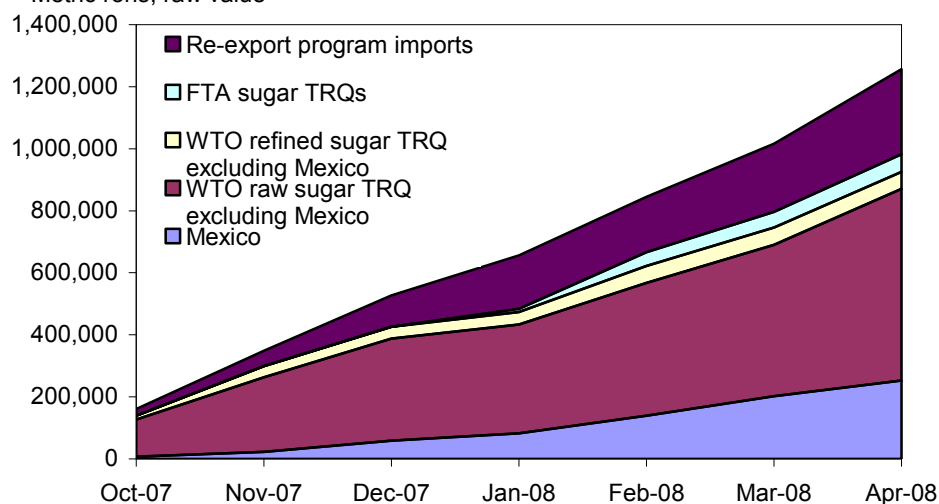
1/ Mexico allocated 7,258 MTRV (8,000 STRV) under raw cane TRQ.

Source: USDA, FAS.

Figure 2

Cumulative U.S. sugar imports, by month, FY 2008

Metric tons, raw value



Source: U.S. Customs and Border Protection.

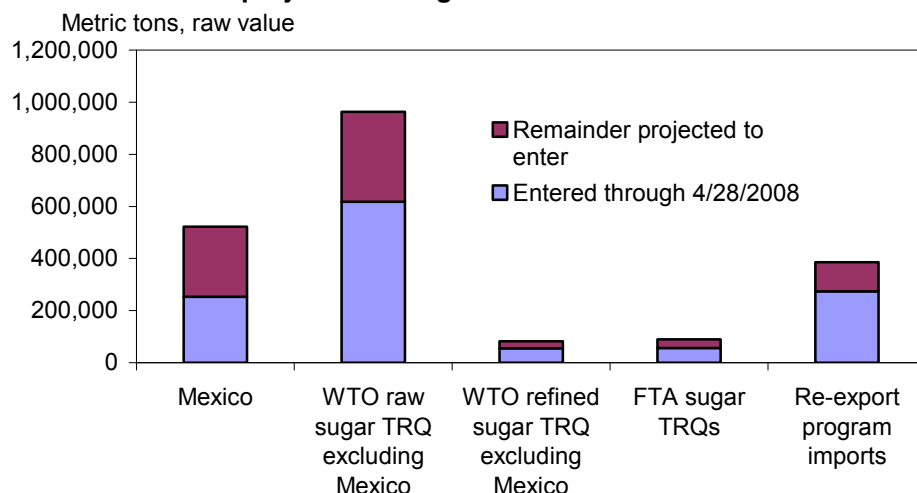
Based on data found in tables 21-24, figure 2 shows monthly cumulative imports through the end of April 2008, the seventh month of the fiscal year. Figure 3 shows this same information, along with the amounts expected to enter by the end of September. Through April 2008, raw sugar TRQ entries have equaled 688,496 STRV (624,593 MTRV), or about 65 percent of the expected total. Entries of specialty (mostly organic) sugar under the refined sugar TRQ are restricted by tranches that open on pre-specified dates during the fiscal year. The latest tranche opened on May 14, 2008, for 15,050 STRV (13,653 MTRV). The last tranche for the same quantity opens on August 27, 2008. Sugar from Mexico for the year is estimated at 575,000 STRV. Of this amount, 48.5 percent has entered through April.

Sugar Deliveries, Sugar-Containing Products, Ending Stocks

Deliveries for domestic food and beverage use for FY 2008 are projected at 10.225 million STRV, a seemingly large increase of 3.1 percent over the FY 2007 delivery estimate of 9.913 million STRV. However, as analyzed in earlier editions of the *Sugar and Sweetener Outlook*, FY 2007 deliveries were probably understated by 185,000 STRV. That analysis suggested that, in FY 2007, entities that do not report to the USDA held early-season, unrecorded draw-downs of sugar stocks. This refined sugar was imported in late FY 2006 and was recorded as a delivery upon entry into U.S. customs territory. Deliveries in the first quarter of FY 2007 were unusually low as the normal delivery pattern was altered by the presence of the earlier-imported refined sugar. As a consequence of these factors, the actual increase for FY 2008 is more on the order of 1.3 percent. Further, in making its forecast for FY 2009, the USDA assumed an increase of about 1 percent in deliveries for human consumption, making it 10.325 million STRV.

Figure 3

FY 2008 U.S. sugar imports, by type, actual through 4/30/2008 and projected through 9/30/2008



Source: U.S. Customs and Border Protection (data), USDA (projection).

The problem described immediately above is compounded by the unusually high level of imports of refined sugar throughout the whole of FY 2006, 615,000 STRV. Because the end use of this sugar cannot be tracked, comparisons of FY 2008 end use data with corresponding data in FY 2006 and FY 2007 are suspect. The only clear trend for sugar in industrial uses is the increase of sugar for beverage manufacturing. Deliveries for the first half of FY 2008 have amounted to 170,983 STRV, 42.5 percent higher than the average for corresponding periods in FY 2006 and FY 2007.

In spite of these analytical difficulties, deliveries since the beginning of the year have been stronger than the pattern of the last few years. After the refinery explosion in February, there was some concern that firms would increase their sugar purchases to guard against effects of possible market shortages due to reduced refining capacity. Although the data may contain an element of this concern, the strength in deliveries through the end of March seems to outweigh the concern.

FY 2008 sugar in imported products through two quarters (October 2007-March 2008) is estimated at 614,601 STRV, a decrease of 3.7 percent compared with the same period in FY 2007 (tables 5 and 6). The upward trend in sugar in imported products, in evidence since 1995, has reached a plateau, at least for the present. In individual product categories, sugar in sugar confectionery has decreased 9.3 percent. Although part of this decrease is due to fewer imports of flavored sugar from Mexico (Harmonized Tariff Schedule (HTS) 1701.91.4800 and 1701.91.5800), the decrease without the inclusion of these products is 7.0 percent. Interestingly, imports of sugar in carbonated and other beverages have decreased 4.9 percent in the first half of FY 2008 compared with FY 2007. Sales of these beverages are believed to be targeted to immigrant groups from Mexico and other countries living in the United States. The sugar in the other import product categories are about the same as in the first half of the previous fiscal year. Sugar in product exports for the same periods increased 14.3 percent to 323,000 STRV.

Table 5--Estimated U.S. sugar deliveries and sugar in traded sugar-containing products 1/

| Fiscal year | Oct-Dec | Jan-Mar | Apr-June | July-Sept | FY Total |
|--|---------|---------|----------|-----------|----------|
| <i>1,000 short tons, raw value (STRV)</i> | | | | | |
| Domestic sugar deliveries for food and beverage use: | | | | | |
| 1993 | 2,280 | 2,046 | 2,172 | 2,432 | 8,930 |
| 1994 | 2,277 | 2,121 | 2,265 | 2,533 | 9,196 |
| 1995 | 2,260 | 2,105 | 2,311 | 2,542 | 9,218 |
| 1996 | 2,379 | 2,191 | 2,355 | 2,519 | 9,445 |
| 1997 | 2,430 | 2,143 | 2,401 | 2,591 | 9,565 |
| 1998 | 2,443 | 2,233 | 2,428 | 2,568 | 9,672 |
| 1999 | 2,458 | 2,208 | 2,553 | 2,655 | 9,873 |
| 2000 | 2,580 | 2,318 | 2,484 | 2,611 | 9,993 |
| 2001 | 2,564 | 2,370 | 2,486 | 2,580 | 10,000 |
| 2002 | 2,474 | 2,227 | 2,439 | 2,645 | 9,785 |
| 2003 | 2,497 | 2,183 | 2,360 | 2,464 | 9,504 |
| 2004 | 2,504 | 2,286 | 2,368 | 2,520 | 9,678 |
| 2005 | 2,547 | 2,335 | 2,471 | 2,666 | 10,019 |
| 2006 | 2,571 | 2,436 | 2,487 | 2,690 | 10,184 |
| 2007 | 2,389 | 2,307 | 2,535 | 2,682 | 9,913 |
| 2008 | 2,514 | 2,501 | | | |
| Estimated sugar in imported sugar-containing products: | | | | | |
| 1993 | 75 | 81 | 79 | 74 | 309 |
| 1994 | 76 | 62 | 68 | 84 | 290 |
| 1995 | 79 | 83 | 92 | 100 | 354 |
| 1996 | 99 | 85 | 95 | 110 | 389 |
| 1997 | 112 | 100 | 119 | 128 | 459 |
| 1998 | 125 | 115 | 138 | 151 | 529 |
| 1999 | 140 | 140 | 163 | 177 | 620 |
| 2000 | 173 | 162 | 177 | 191 | 704 |
| 2001 | 185 | 174 | 195 | 216 | 769 |
| 2002 | 215 | 192 | 223 | 250 | 879 |
| 2003 | 236 | 226 | 256 | 284 | 1,002 |
| 2004 | 266 | 251 | 288 | 315 | 1,119 |
| 2005 | 291 | 277 | 298 | 340 | 1,205 |
| 2006 | 322 | 313 | 358 | 352 | 1,345 |
| 2007 | 334 | 304 | 321 | 352 | 1,311 |
| 2008 | 323 | 292 | 0 | 0 | |
| Estimated sugar in exported sugar-containing products: | | | | | |
| 1993 | 59 | 56 | 52 | 62 | 229 |
| 1994 | 74 | 63 | 63 | 66 | 267 |
| 1995 | 68 | 74 | 78 | 91 | 311 |
| 1996 | 97 | 85 | 90 | 103 | 376 |
| 1997 | 103 | 98 | 102 | 108 | 411 |
| 1998 | 109 | 91 | 98 | 103 | 401 |
| 1999 | 106 | 96 | 99 | 109 | 409 |
| 2000 | 116 | 104 | 107 | 128 | 456 |
| 2001 | 134 | 115 | 129 | 130 | 508 |
| 2002 | 130 | 112 | 118 | 125 | 485 |
| 2003 | 138 | 123 | 130 | 140 | 531 |
| 2004 | 150 | 137 | 140 | 148 | 575 |
| 2005 | 152 | 142 | 160 | 161 | 616 |
| 2006 | 175 | 143 | 150 | 150 | 618 |
| 2007 | 157 | 145 | 150 | 156 | 608 |
| 2008 | 179 | 166 | 0 | 0 | |

Continued--

Table 5--Estimated U.S. sugar deliveries and sugar in traded sugar-containing products 1/

| Fiscal year | Oct-Dec | Jan-Mar | Apr-June | July-Sept | FY Total |
|--|---------|---------|----------|-----------|----------|
| <i>1,000 short tons, raw value (STRV)</i> | | | | | |
| Estimated sugar in USDA sugar-containing product re-export program: | | | | | |
| 1993 | 26 | 23 | 26 | 57 | 132 |
| 1994 | 24 | 20 | 39 | 43 | 126 |
| 1995 | 28 | 18 | 18 | 39 | 103 |
| 1996 | 21 | 20 | 30 | 32 | 104 |
| 1997 | 22 | 68 | 22 | 45 | 157 |
| 1998 | 21 | 24 | 32 | 46 | 123 |
| 1999 | 44 | 58 | 35 | 32 | 169 |
| 2000 | 21 | 21 | 22 | 22 | 86 |
| 2001 | 18 | 21 | 29 | 30 | 98 |
| 2002 | 40 | 39 | 35 | 42 | 156 |
| 2003 | 43 | 44 | 49 | 47 | 183 |
| 2004 | 35 | 28 | 40 | 39 | 142 |
| 2005 | 28 | 24 | 37 | 33 | 121 |
| 2006 | 25 | 25 | 23 | 32 | 106 |
| 2007 | 31 | 43 | 55 | 40 | 169 |
| 2008 | 35 | 27 | | | |
| Estimated sugar deliveries for domestic consumption (adjusted for trade in sugar-containing products): | | | | | |
| 1993 | 2,322 | 2,094 | 2,226 | 2,500 | 9,142 |
| 1994 | 2,303 | 2,140 | 2,309 | 2,594 | 9,346 |
| 1995 | 2,299 | 2,132 | 2,343 | 2,590 | 9,364 |
| 1996 | 2,402 | 2,211 | 2,390 | 2,558 | 9,561 |
| 1997 | 2,461 | 2,213 | 2,439 | 2,656 | 9,770 |
| 1998 | 2,480 | 2,281 | 2,500 | 2,662 | 9,923 |
| 1999 | 2,536 | 2,311 | 2,651 | 2,755 | 10,253 |
| 2000 | 2,658 | 2,396 | 2,576 | 2,697 | 10,328 |
| 2001 | 2,632 | 2,450 | 2,580 | 2,697 | 10,359 |
| 2002 | 2,599 | 2,346 | 2,580 | 2,811 | 10,335 |
| 2003 | 2,637 | 2,330 | 2,534 | 2,656 | 10,158 |
| 2004 | 2,655 | 2,428 | 2,555 | 2,726 | 10,364 |
| 2005 | 2,714 | 2,493 | 2,646 | 2,877 | 10,730 |
| 2006 | 2,743 | 2,630 | 2,719 | 2,924 | 11,016 |
| 2007 | 2,597 | 2,510 | 2,761 | 2,917 | 10,785 |
| 2008 | 2,693 | 2,654 | | | |

1/ includes Puerto Rico.

Source: USDA, FAS, *Sweetener Market Data*, (deliveries data); USDA, ERS, Sugar and Sweetener Group, (sugar in traded products).

Table 6--Estimated sugar in U.S. product imports and exports, by quarter, 2000-08.

| Year | Quarter | Sugar confectionery 1/ | Cocoa and cocoa preparations | Cereal and bakers preparations | Bread, pastry, cakes, etc. | Misc. edible preparations | Carbonated soft drinks | Total sugar in imported products | Total sugar in exported products | Net sugar inflow in products |
|--|---------|---------------------------|---------------------------------|-----------------------------------|-------------------------------|------------------------------|---------------------------|--|--|------------------------------------|
| <i>1,000 short tons, refined value</i> | | | | | | | | | | |
| 2000 | 1 | 55,893 | 30,093 | 4,310 | 21,857 | 27,881 | 11,143 | 151,177 | 97,575 | 53,602 |
| | 2 | 53,582 | 30,872 | 5,170 | 22,083 | 36,656 | 17,432 | 165,795 | 99,551 | 66,244 |
| | 3 | 65,986 | 34,019 | 4,913 | 27,118 | 28,847 | 17,963 | 178,846 | 119,852 | 58,994 |
| | 4 | 64,452 | 35,423 | 5,154 | 28,682 | 26,983 | 12,206 | 172,901 | 125,618 | 47,282 |
| 2001 | 1 | 58,397 | 34,603 | 4,074 | 24,710 | 28,332 | 12,465 | 162,581 | 107,209 | 55,371 |
| | 2 | 61,638 | 34,705 | 4,655 | 25,440 | 35,711 | 19,667 | 181,816 | 120,818 | 60,998 |
| | 3 | 73,570 | 43,077 | 4,695 | 31,255 | 29,866 | 19,248 | 201,711 | 121,239 | 80,472 |
| | 4 | 66,370 | 47,965 | 4,672 | 34,512 | 33,422 | 13,581 | 200,523 | 121,725 | 78,797 |
| 2002 | 1 | 60,027 | 41,174 | 5,219 | 25,223 | 33,770 | 13,928 | 179,341 | 104,652 | 74,690 |
| | 2 | 71,349 | 44,276 | 4,667 | 26,511 | 39,860 | 21,486 | 208,149 | 110,141 | 98,007 |
| | 3 | 85,942 | 55,501 | 4,651 | 32,380 | 34,310 | 20,545 | 233,329 | 116,380 | 116,949 |
| | 4 | 81,685 | 52,658 | 4,881 | 33,724 | 32,429 | 14,894 | 220,272 | 128,759 | 91,513 |
| 2003 | 1 | 74,278 | 48,212 | 5,805 | 28,656 | 36,622 | 17,870 | 211,444 | 115,366 | 96,077 |
| | 2 | 86,456 | 48,091 | 5,860 | 31,781 | 41,386 | 25,534 | 239,108 | 121,482 | 117,626 |
| | 3 | 105,086 | 58,865 | 6,132 | 36,510 | 35,778 | 23,268 | 265,639 | 130,461 | 135,178 |
| | 4 | 96,965 | 53,092 | 7,342 | 37,552 | 37,073 | 16,769 | 248,794 | 140,640 | 108,154 |
| 2004 | 1 | 85,890 | 50,762 | 6,134 | 31,286 | 40,580 | 19,620 | 234,272 | 127,941 | 106,331 |
| | 2 | 95,481 | 51,296 | 5,907 | 32,740 | 54,497 | 28,812 | 268,733 | 130,813 | 137,920 |
| | 3 | 116,929 | 60,192 | 6,322 | 36,703 | 46,746 | 27,341 | 294,234 | 138,317 | 155,917 |
| | 4 | 102,519 | 57,817 | 6,719 | 38,169 | 44,505 | 21,958 | 271,687 | 142,166 | 129,521 |
| 2005 | 1 | 95,894 | 52,593 | 6,408 | 32,231 | 48,754 | 22,577 | 258,458 | 132,481 | 125,976 |
| | 2 | 104,711 | 53,727 | 6,060 | 33,878 | 50,268 | 30,151 | 278,795 | 149,868 | 128,927 |
| | 3 | 132,330 | 63,740 | 6,766 | 38,352 | 45,958 | 30,447 | 317,594 | 150,723 | 166,871 |
| | 4 | 124,034 | 61,262 | 6,778 | 39,280 | 42,859 | 26,571 | 300,784 | 163,888 | 136,896 |
| 2006 | 1 | 113,189 | 64,153 | 6,180 | 32,874 | 48,623 | 27,419 | 292,436 | 133,673 | 158,763 |
| | 2 | 141,139 | 66,249 | 6,299 | 33,896 | 53,490 | 33,916 | 334,988 | 139,891 | 195,097 |
| | 3 | 126,324 | 73,329 | 5,828 | 39,611 | 47,260 | 36,336 | 328,687 | 140,145 | 188,543 |
| | 4 | 118,895 | 71,719 | 6,425 | 42,214 | 44,320 | 29,044 | 312,616 | 147,126 | 165,490 |
| 2007 | 1 | 103,240 | 65,694 | 6,530 | 34,817 | 44,275 | 29,515 | 284,071 | 135,107 | 148,964 |
| | 2 | 102,477 | 67,848 | 6,132 | 37,448 | 52,509 | 33,670 | 300,083 | 140,211 | 159,872 |
| | 3 | 119,503 | 77,208 | 6,172 | 41,088 | 48,744 | 36,070 | 328,785 | 145,788 | 182,997 |
| | 4 | 107,843 | 70,971 | 6,253 | 41,433 | 44,870 | 30,096 | 301,465 | 167,188 | 134,277 |
| 2008 | 1 | 93,572 | 65,601 | 6,673 | 35,596 | 45,872 | 25,615 | 272,929 | 155,501 | 117,428 |

1/ Includes flavored sugars -- HTS 1701.91.4800 and 1701.91.5800.

Source: USDA, ERS, Sugar and Sweetener Group.

Ending-year stocks for FY 2008 are estimated at 1.766 million STRV, implying an ending-year stocks-to-use ratio of 16.4 percent. The ratio projected in December 2007 had been at a high of 9.4 percent. Since December, the estimate for beet sugar production has been lowered by 86,000 STRV and Florida cane sugar production has been lowered by 84,000 STRV. (The decrease in Texas cane sugar production, 36,000 STRV, was offset by an increase in Louisiana cane sugar production, 40,000 STRV.) The estimate of deliveries for human consumption was increased by 125,000 STRV, from December to May. (An increase in estimated sugar from Mexico, 100,000 STRV, was offset by an increased estimate of shortfall, (70,000 STRV), no sugar expected from Costa Rica under the DR-CAFTA, and no imports of sugar syrups.)

The initial projection of ending-year stocks for FY 2009 is 1.335 million STRV, implying an ending-year stocks-to-use ratio of 12.4 percent. Compared with that of FY 2008, production is projected to be lower by 276,000 STRV. The projected decrease in beet sugar production of 410,000 STRV is offset by a projected increase in cane sugar production of 134,000 STRV. FY 2009 beginning stocks are 43,000 lower than in FY 2008; imports are projected about the same as in FY 2008; and deliveries are projected to be 100,000 STRV more than in FY 2008.

Prices

The refined beet sugar price reported by *Milling and Baking News* is 30-33 cents/pound (lb) as of May 16, 2008. The price had increased 4 cents to 28 cents/lb after the explosion at the Imperial Sugar refinery on February 7. According to *Milling and Baking News*, there is concern that area planted may be less than indicated in NASS's *Planting Intentions*.

The nearby no.14 New York raw sugar contract price is averaging 20.7 cents/lb through the first half of May. With the minimum price to avoid forfeiture in Florida projected by the FSA at above 21 cents per pound (table 7), there may be raw sugar forfeitures this fiscal year. The forfeiture concern stems from the loss of the refinery in February. Other refineries were able to take up the refining slack but only by running above normal pace. Demand for raw sugar is, therefore, hypothesized to be reduced by the lack of sufficient refining capacity.

Table 7--Calculation of minimum prices of raw cane and refined beet sugar to avoid forfeiture, 2007/08 crop

| State/region | Cost of loan redemption and marketing | | | | | Minimum price 3/ |
|---|---------------------------------------|---------------------|--------------------|--------------------|--------------------|------------------|
| | Loan rate | Interest expense 1/ | Transport costs 2/ | Location discounts | Cash discount (2%) | |
| | <i>Cents per pound</i> | | | | | |
| Raw cane sugar | | | | | | |
| Florida | 18.07 | 0.58 | 2.39 | 0.00 | -- | 21.04 |
| Hawaii | 16.64 | 0.53 | 2.80 | 1.25 | -- | 21.22 |
| Louisiana | 18.27 | 0.58 | 0.52 | 0.46 | -- | 19.83 |
| Texas | 17.27 | 0.55 | 1.95 | 0.40 | -- | 20.17 |
| Refined beet sugar | | | | | | |
| Michigan and Ohio | 24.17 | 0.77 | -- | -- | 0.51 | 25.45 |
| Minnesota and eastern North Dakota | 22.89 | 0.73 | -- | -- | 0.48 | 24.10 |
| Colorado, Nebraska, eastern Wyoming | 22.95 | 0.73 | -- | -- | 0.48 | 24.16 |
| Montana, western Wyoming, and western North Dakota | 23.00 | 0.73 | -- | -- | 0.48 | 24.21 |
| Idaho, Oregon, Washington State | 22.03 | 0.70 | -- | -- | 0.46 | 23.19 |
| California | 23.62 | 1.98 | -- | -- | 0.52 | 26.12 |

1/ Commodity Credit Corporation interest rate = 4.25 percent.

2/ Based on 4/21/08 freight reporting.

3/ The unit amount that the borrower repays.

Source: USDA, FSA.

Mexico Sugar and HFCS

The USDA estimates 2007/08 Mexican sugar production at 5.950 million metric tons, raw value (MTRV). After a slow start to the harvest season due to labor unrest, the pace picked up substantially. Sucrose recovery through the end of April was at a high level of 12.15 percent, raw basis (11.46 percent, tel quel). With several more weeks to the harvest season, the recovery rate is forecast by the Economic Research Service (ERS) Sugar Group to be at 12.18 percent, raw basis (11.48 percent, tel quel). Although ERS estimates that the sugarcane crop should be about 49 million metric tons (mt), the Foreign Agricultural Service (FAS) post in Mexico City expects a crop of 50 million mt, implying that production may end up higher.

The USDA projects 2008/09 Mexican sugar production at 5.850 million MTRV. Sugarcane area harvested is projected at 668,000 hectares, about the same level as this year. Sugarcane production for 2008/09 is projected at 51.0 million metric tons (mt), implying sugar recovery at 11.5 percent, raw basis (10.8 percent, tel quel basis). Although the sugarcane crop is forecast higher than this year's crop, it is assumed that sugar yield (i.e., sugar per harvested area) will be close to trend (fig. 4).

The USDA projects 2008/09 Mexican sugar deliveries for human consumption at 5.430 million MTRV, an increase of 80,000 MTRV over 2007/08. Consumption of high fructose corn syrup (HFCS) is projected at 800,000 mt, dry basis, the same level as estimated for 2007/08. Mexican 2008/09 sugar exports are projected at 500,000 MTRV, and 2007/08 exports are estimated at 530,000 MTRV. The destination for almost all this sugar is the United States.

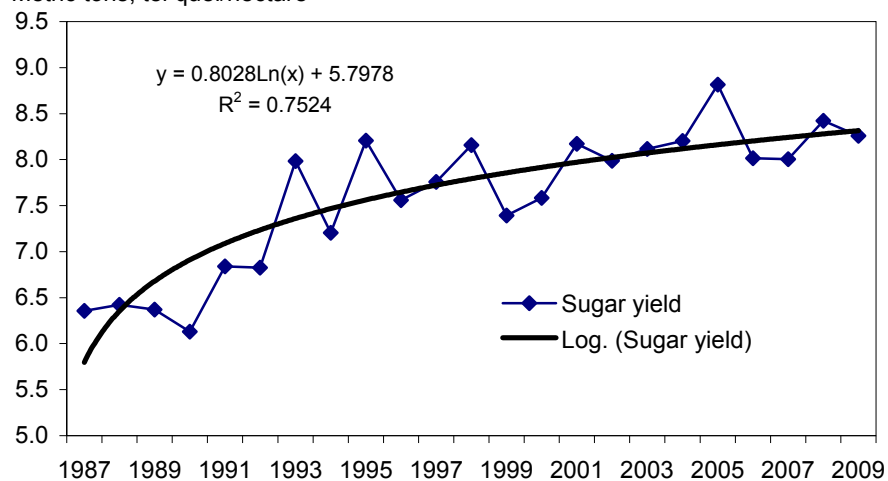
Deliveries to Mexico's IMMEX program are projected at 375,000 MTRV in 2008/09. This amount is 5,000 MTRV more than estimated deliveries in the previous year. Ending stocks for 2008/09 are projected at 1.413 million MTRV, implying a stocks-to-consumption ratio of 26.0 percent. This level is below the average 1997/98-2006/07 ending stocks-to-consumption ratio of 26.7 percent. Ending stocks for 2007/08 are estimated at 1.643 million MTRV, implying a stocks-to-consumption ratio of 30.7 percent (fig. 5).

Sugar prices in Mexico remain low. The price of estandar sugar in Mexico City has averaged 258 pesos per 50-kilogram bag through mid-May, or about 22.3 cents/pound (lb) (fig. 6). Although this price is higher than the raw sugar No.14 contract price of 20.7 cents/lb, estandar's high polarity gives it a premium to the 96-pol raw sugar, which implies that these prices are fairly close (although separated by distance). The price of refinado sugar in Mexico City has averaged 319 pesos per 50-kilogram bag through mid-May, or about 27.5 cents/lb. This price is below the equivalent U.S. refined price in the Midwest of 30-33 cents/lb (fig. 7). The low sugar prices in Mexico are part of the reason for HFCS not being used more in the Mexican beverage industry.

Figure 4

Sugar yield in Mexico, actual and projected, 1987-2009

Metric tons, tel quel/hectare

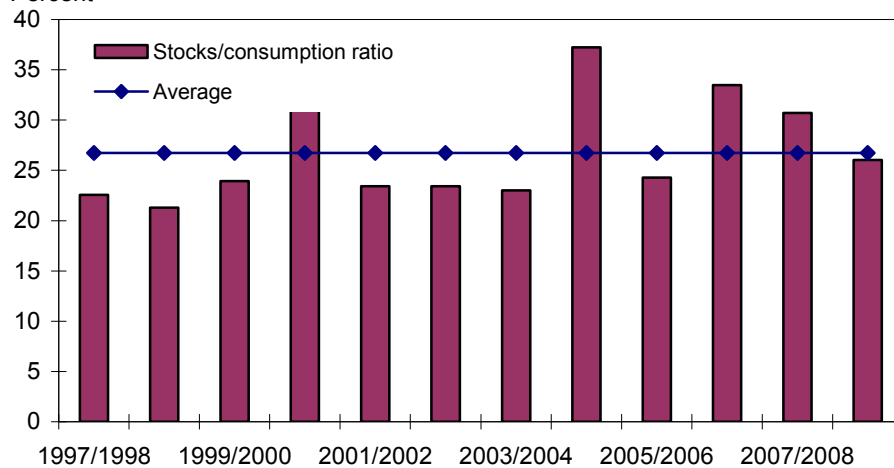


Sources: COAAZUCAR (data), ERS, Sugar and Sweetener Group (projection).

Figure 5

Sugar in Mexico, ratio of ending fiscal year stocks to consumption, 1997/98-2008/09

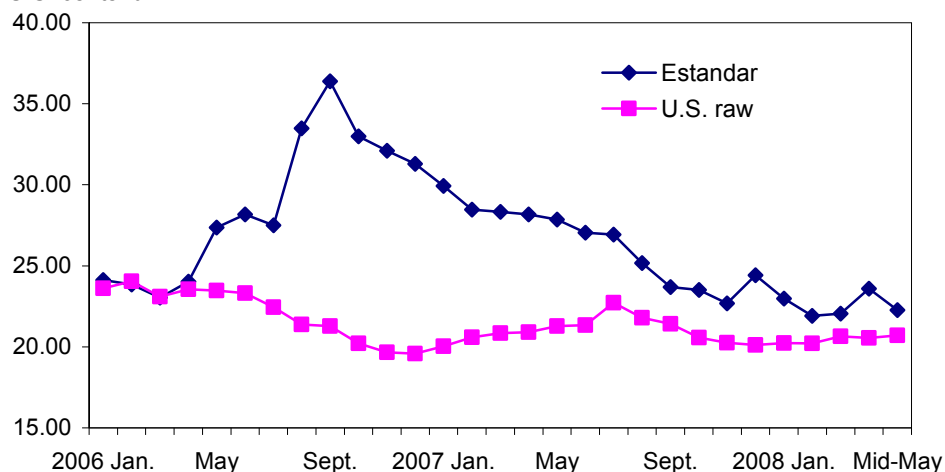
Percent



Source: USDA, FAS PSD database.

Figure 6
**Estandar sugar price, Mexico City, and U.S. No. 14 raw
sugar nearby futures price**

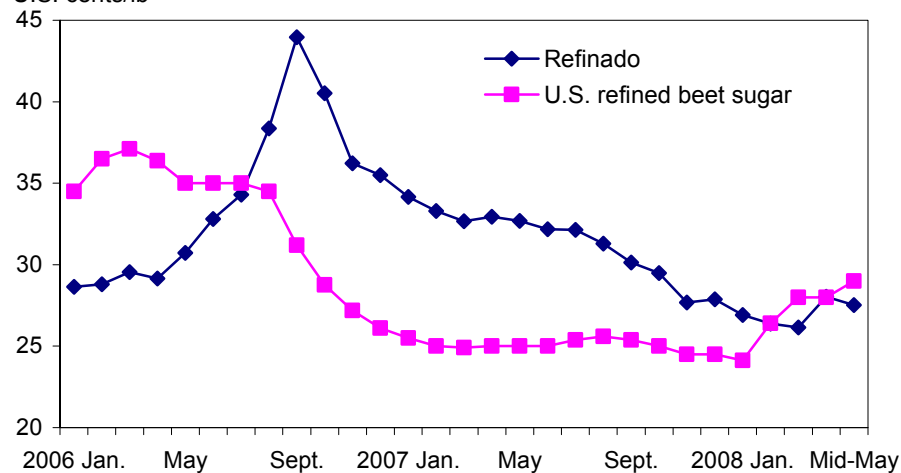
U.S. cents/lb



Source: Economia - SNIIM, ICE market data.

Figure 7
**Refinado sugar price, Mexico City, and refined beet
sugar, Midwest price**

U.S. cents/lb



Source: Economia - SNIIM, *Milling and Baking News*.

U.S. Sweetener Demand

The Economic Research Service (ERS) makes calendar year estimates of total sweetener deliveries that are available for food and beverage consumption by U.S. consumers. These sweeteners include refined sugar; the corn sweeteners of high fructose corn syrup (HFCS), glucose syrup, and dextrose; honey; and other edible syrups, including maple syrup and maple sugar.

U.S. deliveries of total sweeteners for human food and beverage use for 2007 is estimated at 20.561 million tons (table 8), representing a decrease of 1.0 percent compared with deliveries in 2006. Refined sugar deliveries were about the same as in 2006, but corn sweetener deliveries for food and beverage use fell by 2.0 percent. Within the corn sweetener category, HFCS deliveries fell for the fifth year in a row, down 6.3 percent since 2002. Deliveries of the other corn sweeteners for human use stayed on the same level as 2006. Honey deliveries decreased by 11.4 percent, and other edible syrups remained at about the same level as in 2006.

On a per capita basis, U.S. sweetener deliveries for 2007 were equal to 136.6 pounds, down 2.6 pounds from 2006 and down 14.8 pounds from the per capita high of 151.4 pounds set in 1999.

Sugar contained in imported products has been excluded in estimating U.S. per capita sweetener deliveries. Prior to 1995, sugar contained in imports was offset by sugar contained in U.S. food exports, therefore indicating only a minor positive adjustment to total deliveries. Beginning in the 1995-96 period, imports of sugar-containing products started increasing at a faster rate than U.S. exports of sugar-containing products. The next-to-last column of table 8 shows the addition of sweetener supplies due to net imports of these products. The added amount has grown from 116,000 tons in 1996 to 801,000 tons in 2007. (The 2007 total actually decreased relative to 2006 by 11,000 tons.) On a per capita basis, the sugar in net imported products added 5.3 pounds to total per capita sweetener availability in 2007 for a total of 141.9 pounds.

Data estimated by SRI Consulting and published in their Chemical Economics Handbook (CEH) shows in the next-to-last column the sucrose equivalence of available high-intensity sweeteners saccharin, aspartame, acesulfame K, sucralose, and cyclamate. The supply of these sweeteners has been growing over time, from 2.91 million tons in 1992 to 4.57 million tons in 2007. On a per capita basis, consumption availability in 2007 is estimated at 30.3 pounds, sucrose equivalent.

Table 8--U.S. caloric sweeteners estimated deliveries for domestic food and beverage use, by calendar year 1/

| Table 6-10.6. Caloric sweeteners estimated deliveries for domestic food and beverage use, by calendar year 1/ | | | | | | | | | | | | | |
|---|----------|------------------|-----------------|------------------|----------|--------|---------------|------------------|--------------------------------|---------------------------|---|---|---------------------|
| U.S. population 2/ | | Refined sugar | Corn sweeteners | | | | Pure honey | Edible syrups | Total caloric sweeteners | Sugar from net imports | Total caloric sweeteners with sugar-containing products | High Intensity Sweeteners 3/ (sucrose equivalence) | Total sweeteners |
| Calendar year | (July 1) | | HFCS | Glucose syrup | Dextrose | Total | | | | | | | |
| 1,000 tons, dry basis | | | | | | | | | | | | | |
| Pounds, dry basis | | | | | | | | | | | | | |
| 1992 | 256.9 | 8,249 | 6,652 | 1,943 | 461 | 9,056 | 126 | 53 | 17,483 | 174 | 17,657 | 2,908 | 20,565 |
| 1993 | 260.3 | 8,305 | 7,086 | 2,050 | 481 | 9,617 | 135 | 56 | 18,112 | 183 | 18,295 | 3,032 | 21,327 |
| 1994 | 263.4 | 8,478 | 7,398 | 2,093 | 502 | 9,993 | 126 | 54 | 18,651 | 153 | 18,804 | 3,157 | 21,960 |
| 1995 | 266.6 | 8,652 | 7,676 | 2,176 | 528 | 10,380 | 120 | 57 | 19,209 | 121 | 19,331 | 3,550 | 22,881 |
| 1996 | 269.7 | 8,785 | 7,788 | 2,216 | 537 | 10,541 | 131 | 57 | 19,514 | 116 | 19,630 | 3,695 | 23,326 |
| 1997 | 272.9 | 8,861 | 8,240 | 2,364 | 511 | 11,116 | 129 | 58 | 20,163 | 197 | 20,360 | 3,689 | 24,049 |
| 1998 | 276.1 | 8,966 | 8,552 | 2,358 | 502 | 11,411 | 130 | 59 | 20,566 | 274 | 20,840 | 3,782 | 24,622 |
| 1999 | 279.3 | 9,264 | 8,897 | 2,281 | 488 | 11,666 | 147 | 60 | 21,138 | 354 | 21,492 | 3,877 | 25,369 |
| 2000 | 282.3 | 9,253 | 8,845 | 2,230 | 476 | 11,551 | 157 | 61 | 21,022 | 304 | 21,327 | 3,917 | 25,243 |
| 2001 | 285.0 | 9,195 | 8,920 | 2,205 | 469 | 11,595 | 134 | 61 | 20,986 | 388 | 21,373 | 4,059 | 25,432 |
| 2002 | 287.7 | 9,109 | 9,045 | 2,224 | 473 | 11,741 | 153 | 62 | 21,065 | 529 | 21,594 | 4,193 | 25,787 |
| 2003 | 290.3 | 8,859 | 8,849 | 2,209 | 449 | 11,507 | 146 | 63 | 20,575 | 621 | 21,196 | 4,284 | 25,479 |
| 2004 | 293.0 | 9,045 | 8,779 | 2,292 | 487 | 11,558 | 130 | 64 | 20,797 | 656 | 21,453 | 4,381 | 25,833 |
| 2005 | 295.7 | 9,346 | 8,756 | 2,261 | 481 | 11,497 | 155 | 66 | 21,065 | 669 | 21,734 | 4,414 | 26,148 |
| 2006 | 298.4 | 9,323 | 8,702 | 2,053 | 463 | 11,219 | 167 | 66 | 20,774 | 812 | 21,586 | 4,467 | 26,053 |
| 2007 | 301.1 | 9,351 | 8,479 | 2,067 | 448 | 10,994 | 148 | 67 | 20,561 | 801 | 21,361 | 4,568 | 25,930 |
| 1992 | 256.9 | 64.2 | 51.8 | 15.1 | 3.6 | 70.5 | 1.0 | 0.4 | 136.1 | 1.4 | 137.5 | 22.6 | 160.1 |
| 1993 | 260.3 | 63.8 | 54.5 | 15.8 | 3.7 | 73.9 | 1.0 | 0.4 | 139.2 | 1.4 | 140.6 | 23.3 | 163.9 |
| 1994 | 263.4 | 64.4 | 56.2 | 15.9 | 3.8 | 75.9 | 1.0 | 0.4 | 141.6 | 1.2 | 142.8 | 24.0 | 166.7 |
| 1995 | 266.6 | 64.9 | 57.6 | 16.3 | 4.0 | 77.9 | 0.9 | 0.4 | 144.1 | 0.9 | 145.0 | 26.6 | 171.7 |
| 1996 | 269.7 | 65.2 | 57.8 | 16.4 | 4.0 | 78.2 | 1.0 | 0.4 | 144.7 | 0.9 | 145.6 | 27.4 | 173.0 |
| 1997 | 272.9 | 64.9 | 60.4 | 17.3 | 3.7 | 81.5 | 0.9 | 0.4 | 147.8 | 1.4 | 149.2 | 27.0 | 176.2 |
| 1998 | 276.1 | 64.9 | 61.9 | 17.1 | 3.6 | 82.7 | 0.9 | 0.4 | 149.0 | 2.0 | 150.9 | 27.4 | 178.3 |
| 1999 | 279.3 | 66.3 | 63.7 | 16.3 | 3.5 | 83.5 | 1.1 | 0.4 | 151.4 | 2.5 | 153.9 | 27.8 | 181.7 |
| 2000 | 282.3 | 65.5 | 62.7 | 15.8 | 3.4 | 81.8 | 1.1 | 0.4 | 148.9 | 2.2 | 151.1 | 27.7 | 178.8 |
| 2001 | 285.0 | 64.5 | 62.6 | 15.5 | 3.3 | 81.4 | 0.9 | 0.4 | 147.3 | 2.7 | 150.0 | 28.5 | 178.5 |
| 2002 | 287.7 | 63.3 | 62.9 | 15.5 | 3.3 | 81.6 | 1.1 | 0.4 | 146.5 | 3.7 | 150.1 | 29.2 | 179.3 |
| 2003 | 290.3 | 61.0 | 61.0 | 15.2 | 3.1 | 79.3 | 1.0 | 0.4 | 141.7 | 4.3 | 146.0 | 29.5 | 175.5 |
| 2004 | 293.0 | 61.7 | 59.9 | 15.6 | 3.3 | 78.9 | 0.9 | 0.4 | 141.9 | 4.5 | 146.4 | 29.9 | 176.3 |
| 2005 | 295.7 | 63.2 | 59.2 | 15.3 | 3.3 | 77.8 | 1.1 | 0.4 | 142.5 | 4.5 | 147.0 | 29.8 | 176.8 |
| 2006 | 298.4 | 62.5 | 58.3 | 13.8 | 3.1 | 75.2 | 1.1 | 0.4 | 139.2 | 5.4 | 144.7 | 29.9 | 174.6 |
| 2007 | 301.1 | 62.1 | 56.3 | 13.7 | 3.0 | 73.0 | 1.0 | 0.4 | 136.6 | 5.3 | 141.9 | 30.3 | 172.2 |

1/ Per capita deliveries of sweeteners by U.S. processors and refiners and direct-consumption imports to food manufacturers, retailers, and other end users represent the per capita supply of caloric sweeteners. The data exclude deliveries to manufacturers of alcoholic beverages. Actual human intake of caloric sweeteners is lower because of uneaten food, spoilage, and other losses.

2/ U.S. Census Bureau.

3/ Calculated from data developed by SRI Consulting and published in *Chemical Economics Handbook* (CEH).

Source: USDA, ERS, Sugar and Sweeteners Group.

Western Hemisphere Sugar



Western Hemisphere Sugar

Sugar is an important crop for many countries in Latin America. In fact, in several countries, it represents an important share of the agricultural gross domestic product. Sugarcane-based ethanol is becoming a real alternative in many countries, such as Colombia. Latin America houses several important sugar-producing countries that have the potential to produce large amounts of refined sugar and sugarcane-based ethanol.

Dominican Republic

Production

At 482,186 metric tons, raw value (MTRV), sugar production in the Dominican Republic during marketing year (MY) 2007 fell below the 520,000 MTRV initially estimated because of unfavorable weather conditions and a nonoperational state-owned mill. The Central Romana and Grupo Vicini mills produced 90 percent of the country's sugar, while Consorcio Azucarero Central produced the remaining 10 percent. Production for MY 2008 is forecast at 490,000 MTRV. Central Romana and Grupo Vicini will produce 89 percent and Consorcio Azucarero Central will produce the rest. Central Romana and Grupo Vicini usually start the sugar harvest in early to late December, while Consorcio Azucarero Central begins in early to late February.

In MY 2007, the only sugar refinery operating in the country, Central Romana, produced 150,000 metric tons (mt), requiring the country to import 84,000 mt of raw sugar. The Dominican Sugar Institute (INAZUCAR) believes that the production of refined sugar for MY 2008 will be similar to that of MY 2007, implying that, to meet its needs, the country must import about 40,000 mt of raw sugar. However, the opening of the European Union (EU) market may generate an increase in raw sugar imports. In October 2008, the Dominican Republic will be allowed to export up to 30,000 mt of raw sugar to the EU duty free.

Depending on the company, production costs vary from U.S. \$0.12 to U.S. \$0.20 per pound. The major factors that determine yield are rainfall patterns, fertilization, and labor. Due to increasing costs, fertilizer application, which in most cases is done by hand, has remained almost constant during the last 5 years. Moreover, less than half of the land used in sugarcane production is irrigated. During dry periods, these two limitations can reduce supply.

The Government is considering putting sugarcane to the alternative use of producing biofuels, specifically ethanol, and legislation is slowly moving in this direction.

Consumption

Domestic consumption for marketing year (MY) 2007 was 334,500 mt—185,000 mt, or about 55 percent, of raw sugar and 149,500 mt, or about 45 percent, of refined sugar. The general public usually consumes raw sugar, while soft drink, juice, and confectionary industries demand refined sugar. The USDA believes that

domestic sugar consumption for MY 2008 will be very similar to that of MY 2007. Central Romana, the only domestic refiner, produces about 150,000 mt. Semi-refined sugar has not been manufactured in the last 5 years.

Trade

A shortfall in domestic production in MY 2007 caused imports to be higher than initially forecast. The USDA believes that, unless MY 2008 domestic production increases, the country will need to import 40,000 mt of raw sugar.

The Dominican Republic is the largest beneficiary of the U.S. tariff rate quota (TRQ) for sugar. Besides its informal trade with Haiti, all of the Dominican Republic's exports go to the United States and Puerto Rico. During CY 2007, the Dominican Republic exported 276,039 mt of raw sugar. As of March 2008, 41,525 mt of raw sugar have been shipped to the United States and Puerto Rico. Currently, the TRQ allocation for the Dominican Republic is 185,335 mt. Under the Dominican Republic and Central American Free Trade Agreement (DR-CAFTA), which was implemented in 2006, the Dominican Republic can add 10,000 mt to its quota with 2 percent growth per year, provided the country meets the next exporter requirement stated in the agreement.

The Dominican Republic's import duties are relatively high—15 percent for raw sugar and 20 percent for refined sugar, plus a 16-percent value-added tax, known domestically as ITBIS. Imports for sugar and sugar-based products require permits from INAZUCAR. A couple of companies operate in a special free-trade zone using sugar as a raw material. They produce sweetened coconut milk, piña colada mix, juices, canned red pinto beans, and garbanzos. These companies are authorized to import and re-export as much as 6,000 mt of sugar per year. (Estimates in this report do not include the free-trade-zone sugar.)

In January 2008, the Dominican Republic, along with other countries in the Caribbean, reached an Economic Partnership Agreement (EPA) with the EU. Under this agreement, starting in October 2008, 30,000 mt of sugar will have export access to the EU and, as of October 2009, Dominican sugar will have free access. As of October 2008, Dominican sugar will enter the EU at 448.20 €(euro) per mt c.i.f. (cost, insurance, freight), and for 2009, at 335.20 €per mt c.i.f. Although these values are higher than the U.S. preferential rate, INAZUCAR has stated that exports to the EU will take place only after the U.S. quota is filled.

Policy

Numerous laws regulate the Dominican sugar industry. Two of the most important are law 491 and law 619. The former is used to supervise the relationship between private cane producers and processors and to set the price for cane based on sugar content, while the latter is used to assign regulatory functions to INAZUCAR and to regulate marketing, price schedules, and statistics.

To allocate the U.S. quota among producers, INAZUCAR uses a formula based on the individual production levels of the last 3 years. INAZUCAR no longer publishes allocations; current, a Presidential ruling dictates individual allocations. For 2008, Central Romana obtained 62.84 percent; Vicini, 27.16 percent; and Consorcio Azucarero Central, 10 percent.

Due to the new DR-CAFTA agreement implemented in March 2006, the Dominican Republic will phase out its sugar and high fructose corn syrup tariffs over a 15-year period.

Legislation to diversify the use of sugarcane is moving forward. Biofuel production, specifically in ethanol-gasoline blends, appears to be the first alternative. In fact, decree 556-05 from 2005 reactivated law 2071 to authorize ethanol-gasoline blends. Moreover, a new law requiring the use of 5 percent alcohol in gasoline is waiting approval. The bill has already passed in one of the two Congress' chambers, and government officials believe that it will soon become a law. If this legislation passes and international prices remain favorable, ethanol production will move forward, but domestic production is at least 2-3 years away.

Argentina

Production

The harshest winter in the last 20 years, combined with excess autumn rain, took its toll on sugar production in Argentina, causing MY 2008 production, at 2.16 million MTRV to be about 80 percent of initial estimates. Production for MY 2009, however, looks very promising. In fact, expectations of a return to normal weather patterns as well as higher yields may result in record-high production of 2.52 million MTRV.

Considerable investment at the farm level during the last few years significantly increased productivity; however, MY 2008's poor weather and increasing costs have slowed the pace of investment. For instance, for MY 2009, Argentinean farmers expect the cost of fertilizers, labor, energy, and agricultural chemicals to increase by 20-30 percent. Experts believe that this will translate into higher prices.

Conversely, investment at the mill level continues to be robust. Mills are expanding crushing capacity and boilers in order to co-generate energy. For example, three mills in the Tucuman Province will achieve energy self-sufficiency, which will be a big plus during the winter. Moreover, almost all of the mills are considering the possibility of expanding their distilleries to produce ethanol for fuel. According to people familiar with the industry, investment will take place when the current biofuel law is improved, as it is currently viewed to be lacking many definitions.

Consumption

Domestic consumption for MY 2008 was 1.8 million mt. The Argentinean economy is expected to continue growing, which will lead to an increase in domestic sugar consumption. USDA expects domestic consumption for MY 2009 to reach a record high of 1.9 million mt, with households demanding approximately 40 percent and soft drink, candy, and food industries consuming the remaining 60 percent.

Trade

Low domestic production for MY 2008 caused exports to be lower than initially expected, only 338,000 mt. Even though Argentinean companies had committed to export most of their anticipated production surplus, some deals had to be called off. For instance, some 300,000 mt of raw sugar were re-purchased at the port and then refined and sold in the domestic market. Moreover, in late 2007 and early 2008, one sugar mill had to import sugar from Bolivia in order to comply with pre-arranged export agreements, while a candy manufacturer and two large mills imported around 9,500 mt of refined sugar from Brazil during the same period.

Nonetheless, it appears that MY 2009 will be different. MY 2009 exports will be 580,000 mt, about 71 percent higher than MY 2008 exports. As of now, 20 percent of the MY 2009 crop is designated for export. Exports of raw sugar will represent more than 50 percent of total sugar exports, with the United States and the Russian Federation being the most important buyers. Refined sugar is expected to be shipped primarily to Chile followed by Uruguay and a few other counties in the region.

Policy

The current biofuel law mandates that gasoline be mixed with 5 percent ethanol by 2010, which represents an annual production of 250-300 million liters. However, many experts believe that the current law is not well structured and thus slows the pace of investment. Currently, Argentina's annual ethanol production, which comes from molasses, is about 250 million liters, none of which is used for fuel. Experts believe that, if ethanol production occurs, sugar exports will decrease drastically, leaving the United States as the only buyer of Argentinean sugar. Finally, the Government is pressuring the industry to include water treatment processes.

Guatemala

Production

Most of the sugarcane production in Guatemala takes place in the southern part of the country in the departments (equivalent to U.S. States) of Escuintla, Suchitepequez, Retalhuleu, and Santa Rosa. MY 2007 sugar production was 2.36 million mt. Even though area planted will increase during MY 2008, unfavorable weather conditions and the low irrigation rate—only about 40 percent of the land used in sugarcane production is irrigated—will reduce domestic production. Domestic production will decline 7 percent to 2.2 million mt, but area planted will increase by about 3 percent to 215,000 hectares. Contracts acquired by the mills generally result in an increase in area planted. Currently, producers are expanding the crop toward the southeast region of the country. Northward expansion is impossible as this area is devoted to banana and palm oil crops.

The country presently has 13 mills, which have a combined production capacity of 130,000 mt per day. Some of these mills produce alcohol. Specifically, the Palo Gordo and Darsa mills each produce 100,000 liters per day and the Madgalena & Madre Tierra mill produces 300,000 liters per day. Moreover, in MY 2007, the biggest sugar mill in Guatemala, Pantaleon, opened "Bio-Etanol Co," which has a

production capacity of 150,000 liters per day. Other mills are also in the process of adding alcohol refineries. Mexico, the EU, and Central American countries are the main buyers of Guatemalan alcohol.

The sugar industry generates about 60,000 full-time direct jobs and about 300,000 indirect ones. For example, the Guatemalan Sugarcane Research Center (CENGICAÑA) provides the industry with research and technical assistance. CENGICAÑA's main mission is to conduct research on how to increase yields and on how to develop new cane varieties. CENGICAÑA's support has proven to be effective. In fact, even though the weather has been uncooperative, yields have maintained acceptable levels.

Consumption

Domestic consumption for MY 2007 was 715,000 mt. Due to population growth, consumption for MY 2008 will increase about 4 percent to 745,000 mt. Concerns about malnutrition and growing awareness of the vitamin A content found in sugar caused per capita consumption to increase during 2007. Currently, per capita sugar consumption in Guatemala is close to 53 kilograms (kg). Domestic sugar consumption is divided between the general public at 72 percent and industrial users at 28 percent. Soft drink companies demand most of the industrial portion, followed by confectionaries, bakeries, juice makers, wineries, dairies, and pharmaceutical companies.

Comercializadora de Guatemala (COMETRO) controls domestic wholesale and retail markets. Specifically, COMETRO markets and distributes to retailers using its network of 38 strategically located warehouses. Nonetheless, COMETRO is starting to face some competition, which has forced it to design new marketing strategies aimed at improving efficiency.

Trade

Guatemala is the second largest sugar exporter in Latin America and the fifth largest in the world. Agricultural exports count for about 75 percent of total exports, with sugar, bananas, and coffee the most important products. Sugar exports represent about 75 percent of total sugar production. In fact, according to the USDA Post, during CY 2007, Guatemala exported 1,295,092 mt. The biggest buyers of Guatemalan sugar are South Korea, Canada, the United States, Venezuela, China, Chile, and Taiwan, which make up around 74 percent of demand. Guatemala's sugar exports for MY 2007 were 1.5 million mt, and the USDA Post believes that, for MY 2008, exports will reach 1.4 million mt. The U.S. quota allocation for Guatemala for FY 2008 is 50,546 MTRV. The Asociación de Azucareros de Guatemala (ASAZGUA) expects a small increase in the percentage of raw sugar exports. In fact, it believes that about 84 percent of the exports will be raw sugar.

Asia is becoming an important market for Guatemalan sugar. In 2006, Guatemala and Taiwan reached a bilateral free trade agreement that allows significant quantities of Guatemalan sugar to enter duty free. Since then, the quantity has been increasing. In 2007, Taiwan's quota allocation for Guatemala was 67,482 mt, and in 2008, it was 75,000 mt, of which 48,750 mt was raw sugar and the rest was refined sugar. Moreover, the new Economic Cooperation Agreement with the Russian

Federation will provide Guatemala most-favored-nation treatment without volume restrictions.

Policy

Guatemala's sugar board includes representatives from the Economics Ministry, sugarcane producers, and sugar mills. The board sets production goals and sugarcane prices and decides the distribution among the mills of the U.S. sugar quota. Distribution of this quota is based on past production performance, previous quotas, and milling capacity.

A law aimed at fighting malnutrition requires that all sugar sold in the domestic market be enriched with vitamin A, which, according to industry representatives, signifies an annual investment of \$3.5 million. Guatemala does not have import quotas; all imports have a tariff of 20 percent and are required to comply with the vitamin A enrichment law.

Brazil

Production

Sugar

Brazil is by far the biggest producer of sugarcane in the world. In fact, it produces around 35 percent of the world's total. Most of Brazil's sugarcane production, 80-85 percent, takes place in the Center-South part of the country, while the remaining 15-20 percent occurs in the Northeast. Sugarcane production for MY 2008 was 491.1 million mt, with the Center-South region providing 431.1 million mt and the Northeast 60 million mt. Due to the continued increase in land used by sugarcane plantations in the Center-South region, the Agricultural Trade Office (ATO) in Sao Paulo expects that sugarcane production for MY 2009 will grow by 12 percent to 550 million mt. This expansion in the amount of land used will allow the Center-South region to produce 490 million mt. In addition to an increase in acreage, approximately 30 new mills are scheduled to start operating this season.

In MY 2008, the area of land used in sugarcane production was 7.19 million hectares, and MY 2009 will see an increase of approximately 12 percent to 8.05 million hectares. Likewise, the harvested area is expected to increase sizably between MY 2008 and MY 2009, from 6.5 million hectares to 7.4 million hectares, or by about 14 percent. The Government of Brazil, through its satellite program, monitors sugarcane expansion in the country. According to this program, Sao Paulo State, which is the leading sugarcane producer in Brazil, increased its sugarcane acreage by about 15 percent during MY 2008. Parana, the second largest sugarcane-producing State, increased its land area for sugarcane by 23 percent between MY 2007 and MY 2008, and Minas Gerais, the third largest producing State, expanded its land area by about 31 percent during the same period. Although most of the expansion took place on what was previously cattle pasture, it is not clear if some soy and grain fields were displaced.

Weather conditions in the States of Sao Paulo, Parana, and Minas Gerais will contribute to a decrease in the agricultural yield for MY 2009. In fact, yields are

forecast at 74.32 mt per hectare, representing a 2 percent reduction from the previous marketing year. On the other hand, the industrial yield will remain nearly unchanged, remaining at around 143 kg TRS (total reducing sugar) per mt, which is only slightly lower than the MY 2007 industrial yield of 145.81 kg TRS per mt.

Sugar production for MY 2008 was 32.1 million mt, and production for MY 2009 is expected to increase by 5 percent to 33.7 million mt. The Center-South States will produce about 87 percent or 29.2 million mt, implying an increase of 7 percent compared with 1 year earlier. The Northeast region will produce about 4.5 million mt, or 13 percent.

Ethanol

As ethanol demand is strong, harvesting early avoids potential shortages of the product. Brazil's harvest season officially starts in May; however, harvesting in Parana State usually starts in mid-March and in Sao Paulo State in April; mills start crushing the cane in late March and early April.

Although sugar prices have bounced back, the MY 2009 crop is expected to follow the growing trend of ethanol production because of the strong domestic demand for ethanol.

Ethanol production will continue rising. Production for MY 2009 will increase by about 15 percent, from 22.39 billion liters (8.07 billion liters of anhydrous ethanol and 14.32 billion liters of hydrated ethanol) in MY 2008 to 25.71 billion liters (8.5 billion liters of anhydrous ethanol and 17.21 billion liters of hydrated ethanol) in MY 2009.

Consumption

Fuel consumption in Brazil has been steadily increasing since 2005. For instance, diesel consumption has gone from 39 million cubic meters in 2005 to 41.5 million in 2007. Hydrated ethanol consumption has increased from 4.6 million cubic meters in 2005 to 9.3 million in 2007. Consumption of gasoline C (including 20-25 percent anhydrous ethanol) has grown from 23.5 million cubic meters to 24.3 million cubic meters during the same period. However, increasing sales of flex-fuel cars do not guarantee that demand for ethanol will continue rising. Consumers' decisions at the pump are based on the ethanol-gasoline price ratio. Specifically, ratios below 70 percent imply that ethanol prices are more attractive than gasoline prices. Since 2005, ethanol has been more attractive in Sao Paulo State, but it was not until 2007 that ethanol became preferred in the States of Rio de Janeiro, Minas Gerais, Goiania, and Fortaleza. So far during 2008, ethanol has been preferred in all of the previously mentioned States. Gasoline prices, however, have been more attractive in the State of Porto Alegre since 2006 and, as of 2008, this trend has not changed.

Sugar consumption during MY 2008 was 11.4 million mt. ATO/Sao Paulo says that population growth and expansion of the food processing sector will increase domestic sugar consumption to 11.9 million mt in MY 2009.

Trade

Sugar exports during MY 2008 were 19.75 million mt. In MY 2009, exports will increase by about 9.3 percent to 21.6 million mt. Of this total, raw sugar should be around 16.2 million mt and the remaining will be refined sugar. In MY 2008, Brazilian exports went to several countries all over the world. Russia, importing 3,691,668 mt worth \$894.5 million, was the most important importer of Brazilian sugar (NCM 1701.11.00). Malaysia bought 859,767 mt worth \$197.3 million; Nigeria, 823,860 mt, \$204.9 million; Canada, 228,400 mt, \$186.7 million; Egypt, 681,593 mt, \$159.7 million; Algeria, 204,268 mt, \$157.8 million; Iran, 449,430 mt, \$108.2 million; and all other purchasing countries, 2,804,720 mt, \$693.5 million. The main buyers of Brazilian sugar (NCM 1701.99.00) were the United Arab Emirates, which bought 750,602 mt worth \$177.1 million; Saudi Arabia, 681,699 mt, \$159.3 million; and Nigeria, 309,390 mt, \$95 million.

Brazil exported 3.45 billion liters of ethanol in MY 2008, which was 450 million liters higher than the initial estimate because of the unexpectedly large volumes of ethanol that companies sold in late in 2007 and early 2008 in order to liquidate excess supply. Ethanol exports will reach 3.9 billion liters in MY 2009, which signifies an increase of 450 million liters from the previous marketing year. Brazil expects to increase its exports to the United States both directly and through Caribbean Basin Initiative (CBI) countries. Moreover, anticipated high U.S. prices for ethanol should make Brazilian ethanol more attractive. Like it does for sugar, Brazil sells ethanol to many countries around the globe. For instance, in MY 2008, the Netherlands, buying 875.4 million liters worth \$361.3 million, and the United States, buying 514.2 million liters worth \$265.9 million, were the most important importers of Brazilian ethanol (NCM 2207.10.00). Jamaica, Japan, El Salvador, Costa Rica, Trinidad and Tobago, Nigeria, the Virgin Islands, and South Korea purchased 1.24 billion liters worth \$485.1 million. The main buyers of Brazilian ethanol (NCM 2207.20.10) were the Netherlands, at 11.6 million liters worth \$4.7 million, and Jamaica, at 10.4 million liters worth \$4.1 million.

Peru

Production

Favorable weather conditions, robust investment in new plantations, and efficiency gains at processing plants will raise CY 2008 sugar production in Peru to 910,000 mt, an increase of 105,000 mt, or about 13 percent, over that of CY 2007. The USDA Post believes that sugar production will continue rising in the near future. In fact, CY 2009 production is projected at 995,000 mt. If Peru achieves this production level, it will become self-sufficient in sugar production. Peru's sugarcane production will reach 8.2 million mt, up about 960,000 mt from that of CY 2007, and 8.3 million mt in CY 2009.

Sugar mills in Peru are located along the coast and have a total milling capacity of 37,000 mt of cane per day. Mills in Peru are very heterogeneous. In fact, yields range from 53 to 190 mt of cane per hectare and cuts occur every 13-18 months. Moreover, costs vary widely between mills, largely due to their fuel requirements. Fuel use can be as low as 5 gallons per metric ton and as high as 90 gallons per metric ton of sugar produced.

The Northern coast of Peru, where most of the cane is produced, has seen significant private investment in the last 5 years, with domestic as well as international investors purchasing land. This investment has produced economies of scale, which, in turn, have allowed for higher rates of return and thus more investment.

Peru has 10 sugar producers, with the largest 5 producing more than 70 percent of the output. Sugar production and market share among the 10 producers in CY 2007 were as follows: Casa Grande, 165,967 mt, 8.2 percent; Cartavio, 138,180 mt, 15.2 percent; Laredo, 132,045 mt, 14.5 percent; Paramonga, 122,027 mt, 13.4 percent; Tuman, 93,522 mt, 10.3 percent; Andahuasi, 69,060 mt, 7.6 percent; San Jacinto, 62,885 mt, 6.9 percent; Pomalca, 58,206 mt, 6.4 percent; Pucala, 58,537 mt, 6.4 percent; and Chucarapi, 9,678 mt, 1.1 percent.

Production of ethanol from sugarcane is one of the main drivers of investment in Peru. So far, investments have totaled \$130 million. Experts believe that about 7.8 percent of gasoline and 5 percent of diesel could be replaced with biofuels.

Consumption

Peru's sugar consumption has been increasing over the last few years. In fact, it will increase from 995,000 mt to 1,050,000 mt between MY 2007 and MY 2008. The USDA Post believes that sugar consumption will reach 1,100,000 mt in CY 2009. The increase in domestic consumption is principally due to the robust state of the economy, with beverage and confectionary industries being the main drivers.

Trade

The USDA Post estimates Peru's sugar exports for CY 2008 at 48,000 mt. The United States, through its sugar tariff rate quota, is virtually the only buyer of Peruvian sugar. The ministry of Agriculture and the Peruvian Sugar and Biofuels Producers Association (APPAB) distribute the U.S. sugar quota among the mills.

Expectations of higher domestic production will cause exports to increase and imports to contract. In fact, CY 2009 imports will decrease by 30 percent. Colombia will be the main seller in CY 2008, with a market share of 63 percent, followed by Bolivia with 17 percent, and Guatemala with 9 percent.

Policy

Most mills have been privatized, which has resulted in an increase in productivity. A few mills, however, still refuse to privatize despite their high debt and inability to re-pay it. These mills are highly inefficient. Only one of the mills that has not privatized, Andahuasi, has developed an investment plan to upgrade technology and renovate plantations. Some evidence suggests that the plan is working. Despite inefficiencies, Peru is expected to be self-sufficient in sugar production in CY 2009.

Sugarcane is assessed a 9 percent import tariff and is subject to the price band system, which is a surcharge based on the international price: the lower the international price, the higher the tax. Andean Community Nations have duty-free access.

In 2003, Peru's government passed Law 28054 to promote the use of biofuels. However, some elements of the law, such as the tax scheme for ethanol, are unclear. Nonetheless, when the domestic law becomes more transparent, investors plan to use the United States as the main export market. Under the Peru-U.S. FTA, ethanol will have duty-free access to the United States as soon as the agreement is implemented. In anticipation, one U.S. and one Peruvian company bought 10,000 hectares each to sow sugarcane for ethanol production.

Colombia

Production

Most of the Colombian sugarcane is planted in three departments: Cauca Valley, Cauca, and Risaralda, which are located in the southern part of the country. Currently, 14 mills in the country are dedicated to the production of sugar. Unfavorable weather conditions, which reduced sugarcane yields, decreased production from 2.44 million mt in MY 2006 to 2.35 million mt in MY 2007. However, better weather conditions will increase MY 2008 production to 2.36 million mt.

Sugar production has been declining in the last few years due to ethanol production. In fact, 5 out of the 14 mills are producing sugarcane-based ethanol. According to the Ministry of Agriculture, land used on sugarcane plantations in 2007 was 214,569 hectares, with 177,137 hectares used for sugar production and 37,432 hectares used for ethanol production. Land used in sugarcane production in 2008 will increase by 2,947 hectares, with a reduction of 1,116 hectares used for sugar production and an increase of 4,063 hectares used for ethanol production.

The 5 ethanol plants in Colombia produce an average of 230,000 liters of ethanol per day, which supplies 70 percent of the government mandate to blend 10 percent ethanol with gasoline. To cover the remaining 30 percent, the Government plans to increase ethanol production from sugarcane and to start production from beetroots and cassava. However, the main obstacle is to ensure that the supply of raw materials is sufficient to produce ethanol.

Colombia is the second largest producer of noncentrifugal sugar in the world after India. Colombia's noncentrifugal sugar production in 2007 was 1.58 million tons and was distributed amongst 70,000 farms, which, combined, employ about 120,000 farmers. An initiative to use some of the sugarcane from the production of noncentrifugal sugar in ethanol production is not proving successful because prices for noncentrifugal sugar are much more attractive than prices for ethanol.

Consumption

Domestic sugar consumption in MY 2007 was 1.6 million tons and increase to 1.61 million tons in MY 2008 due to strong economic growth. The creation and preparation of confectionary food items for export and for domestic consumption will be the main drivers of the increase in domestic sugar consumption.

Trade

Sugar exports were 942,000 mt in MY 2007. Ethanol production will cause exports in MY 2008 to decrease to 940,000 mt. Of this amount, about 720,000 mt will be refined sugar and the rest will be raw sugar. Producers have been exporting higher priced sugar and have substituted exports of raw sugar with ethanol production. In fact, since late 2005, when ethanol production started, raw sugar exports have decreased by 300,000 mt and imports have increased.

Colombia exported sugar to several countries in the world in MY 2007. During the last 3 years, Peru has been the most important buyer of Colombian sugar. In fact, in MY 2007, Peru imported about 187,000 mt; Haiti, 145,000 mt; Chile, 113,000 mt; Mexico, 65,000 mt; Venezuela, 49,000 mt; Jamaica, 45,000 mt; Canada, 43,000 mt; Trinidad and Tobago, 25,000 mt; Syria, 22,000 mt; Ecuador, 11,000 mt; the United States, 58,000 mt; and other countries, 180,000 mt. Imports have seen a steady increase since launching ethanol production. In MY 2007, the main exporters of sugar to Colombia were Brazil, Argentina, Cuba, and Singapore.

The 2007 U.S. quota was 30,760 mt; however, Colombia's exports were almost twice that amount. The 2008 U.S. quota was set at 25,273 mt. Colombia always fulfils the U.S. quota because prices are very attractive. The Ministry of Foreign Trade distributes this quota. Generally, large mills obtain about 80 percent and noncentrifugal sugar producers obtain the remaining 20 percent.

Policy

In 2007, Colombia launched the "Agriculture Secure Income" plan, which secures government funding for agricultural production. The program receives \$270 million in funding to assist producers of specific commodities. Sugarcane, producers can receive subsidized loans from the government-owned bank (FINAGRO). Small farms are eligible for the maximum subsidy, which is 40 percent of the principal balance, while large farms get the lowest subsidy of 10 percent. Moreover, there is a government program to encourage agricultural exports.

Colombia also has a price-stabilization fund, which was launched in January 2001 by the Ministry of Agriculture. Exporters who receive prices above the international price contribute to the fund. Money from the fund is distributed among exporters who sell their sugar at prices lower than the international price.

Colombia belongs to the Andean Community and thus uses a price band system. Countries belonging to this group (Bolivia, Ecuador, and Peru) are allowed to export sugar to Colombia duty free. Imports from nonmember countries are subject to a variable duty. The benchmark duty rate on imports of raw and refined sugar is 20 percent. The Andean Community revises the price band system every April.

Jamaica

Production

On average, sugarcane plantations in Jamaica use around 34,000 hectares. However, illicit cane fires, poor weather, disruptions in labor supply, and increases in stand-over fields allow only 80 percent of the area to be harvested. There are five state-owned and two privately owned sugar mills in Jamaica. The heterogeneity among the Jamaican mills suggests that the state-owned mills should be upgraded. In fact, all five state-owned mills have recovery indexes below the industry minimum of 91 percent. This problem is more evident at the Bernard Lodge and Long Pond sugar mills, the recovery indexes of which are 81 percent and 79 percent, respectively. In contrast, the private mills have recovery indexes of 92 percent and 96 percent. Some evidence suggests that sometime later in the year a Brazilian firm will take control of the five state-owned mills.

An increase in the sugarcane area in 2006/07 raised production of sugarcane to 1,974,000 mt and of sugar to 164,000 mt, which were both higher than initial estimates. Because of a hurricane in August 2007 and unfavorable weather conditions during late November and early December 2007, the 2007/08 crop was strategically delayed about 3 weeks. This decision, combined with subsequent improvement in the weather, resulted in an enhancement in the quality of the crop, which, in turn, increased productivity. In fact, 2007/08 sugarcane and sugar production will be only slightly lower than that of 2006/07. Specifically, 2007/08 sugarcane production will be 1,750,000 mt, while sugar production will be 160,000 mt. The USDA Post believes that sugarcane and sugar production for 2008/09 will increase to 1,900,000 mt and 170,000 mt, respectively.

Consumption

Domestic consumption in 2006/07 was 140,000 mt, which was 10,000 mt higher than the initial estimate. This higher consumption level was due to Jamaica boosting its refined sugar imports by 9,000 mt in 2006/07. In Jamaica, refined sugar is used for manufacturing, principally by the soft drink and bakery industries. Given the increase in wheat prices, which depressed the bakery industry, the growth in refined sugar consumption must be attributed to the soft drink industry. The USDA Post estimates that domestic consumption for 2007/08 will fall by 1.5 percent to 138,000 mt and that consumption 2008/09 will reach 140,000 mt.

Trade

Attractive prices paid by the EU encourage Jamaica to fulfill its quota even though it means that the country must import raw and refined sugar to satisfy its domestic demand. The EU quota is 127,000 mt plus an additional 24,000 mt under the Special Preferential Sugar agreement.

Jamaica exported around 153,000 mt worth \$101 million in 2006/07. The EU bought about 147,000 mt, the United States about 5,900 mt, and other countries the rest. The price that the EU pays for Jamaican sugar will be adjusted downwards every July 1 until 2010. Although the price will not be adjusted in 2008, Jamaican Cane Product Sales, the agency which trades Jamaica's raw sugar, will fulfill the

2008 EU quota before July 1 in order to create a pattern for 2009 and 2010. The EU will pay 448 €/mt in 2009 and 335.2 €/mt in 2010 for Jamaican sugar.

Jamaica's imports of refined sugar jumped 12 percent to 74,000 mt in 2006/07, principally due to an increase in manufacturing demand. On the other hand, raw sugar imports remained almost constant. Guatemala, Colombia, Belize, and Guyana are the main suppliers for the Jamaican market. Guatemala supplies 30-50 percent of refined sugar, Colombia 20-40 percent, and Belize and Guyana share the difference.

For the current crop year, Jamaica expects to fulfill both the EU and U.S. quotas. Given the above-explained situation with the EU, the U.S. quota will not be fulfilled until the end of the crop cycle. Moreover, the USDA Post estimates that imports will reach 129,000 mt, of which 75,000 mt will be refined sugar and the rest will be raw sugar.

Policy

Due to future reductions in the price, the EU will pay for Jamaican sugar, the Jamaican Government plans to privatize its five mills, which combined represent 80 percent of the industry. Media reports suggest that the Government may have selected Brazil's Infinity Bio-Energy to operate the five state-owned mills and that a deal could be reached as early as June 2008. If Infinity Bio-Energy takes over, the production of sugar and traditional sugar derivatives will increase; however, the anticipated production of ethanol will not occur at least for 2 more years. When produced, Jamaican ethanol will have preferential access to the United States through the Caribbean Basin Initiative. Finally, Jamaican environmental policies encourage the diversification of sugarcane uses.

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Honey

Notwithstanding a 2-percent climb in the number of honey-producing bee colonies to more than 2.4 million in 2007, U.S. production of natural honey declined 4 percent. Lower yields of honey harvested per colony were again to blame for the second consecutive year. The average yield in 2007 was 60.8 pounds of honey per bee colony, down from 64.7 in 2006 and 72.4 in 2005. Despite the reduced production volume, honey prices remained largely unchanged on average in 2007, sliding by less than 1 percent. Thus, lower production and prices pushed the value of production down 4.5 percent from \$160.5 million in 2006 to \$153.2 million in 2007.

The smaller yield per colony and slightly lower prices also trimmed the average farm value of honey per bee colony to \$62.75 in 2007 from \$67.00 in 2006. States that produced larger volumes of honey, such as North and South Dakota, Texas, and Michigan, were able to raise their honey production values significantly. Bee keepers in Texas and Michigan gained value per colony at two-digit rates relative to other major honey-producing States where values per colony declined, except in North and South Dakota. By far, North Dakota remained the largest producing State with more than 31 million pounds of honey produced in 2007, more than twice that of California, the next largest producer.

U.S. consumption of honey fell 11 percent in 2007 as domestic production, stocks, and import volume dropped. As a result, per capita consumption slipped from 1.4 pounds to 1.3 pounds. Supply from imports accounted for 61 percent of domestic honey consumption in 2007, down from 65 percent in 2006. Imports exceeded 200 million pounds in 5 of the 6 years between 2002 and 2007, during which the share of imports in consumption climbed from 52 percent to 61 percent. Import prices averaged 75 cents per pound between 2002 and 2006, which is 30 percent more than in the preceding 6 years. As a result, the import cost of honey during that period was 75 percent higher than in the preceding 6 years.

The volume of imported honey fell by 16 percent in 2007 as supplies from Argentina, China, India, and Russia dropped precipitously. A fast-rising foreign supplier is Vietnam, ranking third after Argentina and China in terms of volume shipped to the U.S. and after Argentina and Canada in terms of value of shipments. Brazil and India round up the top six foreign honey suppliers. Although 2007 import prices at 70 cents per pound were 13 percent higher than in 2006, they still lagged behind prices in 1996-97 and in 2002-04. Import prices were about two-thirds that of domestic prices in 2007. Compared with price ratios of the past 2 decades, however, when they largely ranged from 70 percent to 96 percent, import prices in recent years have been highly competitive with domestic honey prices. Although larger imports represent to some extent a market challenge for domestic honey farmers, another factor also plays a part in this challenge: The elasticity of domestic supply with respect to price is less than 1 percent on average. This factor means that, historically, a 1-percent rise in honey prices results in less than a 1-percent jump in production the next year.

Figure 8

Imports in U.S. honey consumption are up sharply

Million pounds



Sources: USDA, NASS, *Honey*; U.S. Census Bureau.

Should the WASDE Forecast Miscellaneous Use?

Miscellaneous use is the only item in the sugar supply and use table not forecast by the World Agriculture Outlook Board in its monthly *World Agriculture Supply and Demand Estimates* (WASDE) report. This data point is a residual calculated after the fiscal year (FY) ends to match the WASDE supply to use and ending stocks published in the Farm Service Agency (FSA) *Sweetener Market Data* (SMD) report.

WASDE Miscellaneous

The WASDE miscellaneous, although wide ranging (from -132,000 tons to 160,000 tons), on average, is less than 0.01 percent of total domestic sugar use. At its highest, in FY 2003, miscellaneous represented only 1.6 percent of total domestic sugar use. The WASDE miscellaneous is calculated by subtracting exports, domestic deliveries, and ending stocks from supply. FSA supplies data on stocks, sugar production, exports, and domestic deliveries for the WASDE report. These data are reported to FSA monthly by the sugar processing and refining industries. Import data for the WASDE, however, are provided by the Foreign Agriculture Service (FAS) from data collected by the U.S. Customs Service and published by the U.S. Census Bureau. The timing of data reporting, end-of-year polarity adjustments, and data revisions account for differences between WASDE and SMD imports. These import differences, along with three industry-reported miscellaneous uses as described below (published in the SMD), account for the WASDE miscellaneous.

SMD Miscellaneous

The SMD miscellaneous is comprised of refining loss, inventory adjustments, and intra-industry sales less receipts. Processors and refiners report these data monthly to FSA to ensure a complete materials balance in their reporting.

Refining Loss

Refining loss is the difference between the actual quantity of refined cane sugar produced and the estimated quantity of refined sugar that should be produced from the raw cane sugar entering into the refining process. Some large, highly efficient, cane sugar refiners produce more refined sugar than what FSA's raw value conversion formula estimates (table 1A). Through thorough testing, these cane sugar refiners found that they realize 100 pounds of refined sugar from (approximately) every 105 pounds of 96-degree raw sugar introduced into the refinery. Because these companies produce more sugar than the USDA formula predicts, they show a sugar gain, which is reported as a negative refining loss.

In FY 2005, USDA began requiring all cane sugar refiners to report data using a 1.07 conversion factor for converting “as made” sugar production to a raw value equivalent. This change was in preparation for a web-based data reporting system that standardized the conversion factor in order to test data accuracy before submission. Highly efficient cane sugar refiners were required to increase the raw value equivalent of actual sugar production by as much as 2 percent (1.05 to 1.07) and therefore to report consistently negative refining losses (inventory gains), as displayed in table 2A. Although there appears to be a trend toward higher efficiency (fewer refining losses followed by refining gains) from FY 2000 on, these gains started increasing substantially in FY 2005.

Inventory Adjustment

Inventory adjustment contains data from all three sugar sectors and is a “catch-all” for adjusting monthly reported ending stocks. Processors and refiners adjust inventories for quarterly or monthly physical inventories, torn refined sugar packaging, return of rail cars with sugar remaining inside, and floor sweepings/overspray in packaging facilities. Also, some cane sugar refiners and sugarcane processors use the inventory-adjustment category to account for production estimate corrections. For example, since raw sugar warehouses are emptied every year, sugarcane processors assume sugar production must equal sugar sales. When warehouses are emptied, total sales are used as the final production report.

Table 1A--Raw value conversion for sugar derived from sugarcane 1/

| Raw sugar | Polarity | Refined sugar |
|---------------|---------------|---------------|
| <i>Pounds</i> | <i>Degree</i> | <i>Pounds</i> |
| 107.000 | 96.0 | 100 |
| 105.250 | 97.0 | 100 |
| 103.500 | 98.0 | 100 |
| 101.750 | 99.0 | 100 |
| 100.875 | 99.5 | 100 |
| 100.000 | 100.0 | 100 |

1/ Raw value = $\{[(\text{actual degree of polarization} - 92) \times 0.0175] + 0.93\} \times \text{actual weight}$.

Source: USDA, FSA.

Table 2A--Miscellaneous breakdown

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 3-Year average | 5-Year average | 10-Year average |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|-------------------|-------------------|--------------------|
| <i>Short tons, raw value (1,000)</i> | | | | | | | | | | | | | |
| WASDE miscellaneous | -2 | -58 | -137 | 124 | -23 | 160 | 26 | 95 | -68 | -132 | -35 | 16 | -1.5 |
| Imports difference | 50 | -28 | 11 | 15 | -91 | 118 | -64 | 238 | 105 | -47 | 99 | 70 | 31 |
| SMD miscellaneous | -53 | -28 | -150 | 67 | 67 | 43 | 91 | -144 | -172 | -85 | -133 | -53 | -36 |
| Refining loss | 43 | 53 | 120 | 40 | 1 | -20 | -53 | -124 | -17 | -91 | -77 | -61 | -5 |
| Inventory adjustment | -52 | -36 | -107 | -64 | -12 | -1 | 45 | 10 | 17 | 37 | 21 | 22 | -16 |
| Sales less receipts | -44 | -45 | -163 | 91 | 78 | 64 | 99 | -30 | -172 | -31 | -78 | -14 | -15 |
| Unexplained | -1 | 2 | -2 | -41 | -1 | 1 | 1 | -1 | 1 | 0 | 0 | 0 | -4 |

Source: Farm Service Agency, USDA.

Inventory adjustments appear to be level in recent years, although a pattern change was noted. Inventory adjustments since FY 2004 have been positive and averaged only 22,000 tons. Before FY 2004, inventory adjustments fluctuated significantly, ranging from -1,000 tons to -107,000 tons. There does not appear to be a clear reason behind the pattern change of consistent inventory gains, then inventory losses. However inventory adjustments have stabilized, 3- and 5-year averages were nearly equal, and the long-term (10-year average) data are small, 16,000 tons.

Intra-Industry Sales less Receipts

Intra-industry sales less receipts are used to track sugar in transit between sugar reporting companies. For example, when sugarcane processors sell raw sugar to cane sugar refiners, the sale and receipt will offset one another (in theory). Due to contractual details that identify when ownership changes hands, the sale could occur in one month and the receipt in the next, but over time, these transactions should balance.

FY 2005-07 data show an imbalance of receipts higher than sales. USDA conducted an exhaustive telephone survey to consider the possibility that cane refiners may have been purchasing imported raw sugar from traders. We concluded that no foreign-origin sugar was being reported as a “receipt” by cane sugar refiners, and therefore, FSA was not double counting domestic sugar supplies.

Imports

WASDE and SMD import data differ, as discussed. Technical differences, such as title transfer (denoting ownership) and/or reporting deadlines, cause differences between Customs data as reported in the WASDE and SMD imports. Refiners, for example, may not take title to imported sugar until it is offloaded into the refinery. Customs, however, will consider sugar entered into the US when the ship is anchored within 3 miles of the US coast.

Conclusion

WASDE miscellaneous appears to be too small to require being forecast due to offsetting biases. We compared SMD data available at the time the WASDE published each fiscal year’s data for the final time. SMD miscellaneous is biased negatively primarily because of refining losses and recent trends in sales less receipts. WASDE miscellaneous is biased positively because of the differences in imports. Thus, the WASDE and SMD miscellaneous biases offset one another. In the long run (10-year average), the WASDE miscellaneous appears to be small (table 2A).

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Global Biofuels Market Boosts Sugar Ethanol Industry in Latin America

Worldwide concerns about climate change from greenhouse gas (GHG) emissions paired with the current price environment of record-high and rising crude oil prices have led to a growing demand for renewable sources of energy for the transportation sector around the world. In most countries in Latin America, as is the case for various countries around the world, government policy incentives and programs have set the goal of significantly expanding liquid biofuels made from biomass as an alternative for transportation fuel in the coming decades.

The best known biofuels in the transportation sector are ethanol (produced from a variety of feedstocks) and biodiesel (derived from vegetable oil and animal fats). Brazil and India use sugarcane to produce ethanol, while U.S. producers rely most heavily on corn. China relies mostly on corn, although it also extracts fuel from rice and wheat. The European Union (EU) mainly produces biodiesel from rapeseed and other vegetable oils. The Americas, mostly the United States and Brazil, account for 70 percent of the world's biofuel production. Brazil alone produces 40 percent of the world's biofuels, whereas the United States, the EU, China, and India produce much of the balance. Brazil, a pioneer in the production and use of fuel ethanol in its transportation sector, plays a large role in global biofuels markets thanks to decades of public and private investment in agrifuels development and the Government's past and current incentives toward sugarcane, sugar, and ethanol production.

The Brazilian success at integrating sugar ethanol into the fuel supply to reduce dependence on petroleum is more significant given that the transportation sector accounts for 61 percent of liquid fuel consumption in the country (Empresa de Pesquisa Energética, EPE). Several countries in Latin America, as well as many other developed and developing countries around the world, are looking at Brazil as the model for developing biofuel programs in their own countries.

A Growing World Biofuel Market Influencing Energy Supply and Biomass Use in Latin America

Promotion of liquid biofuels made from biomass as the best alternative for transportation fuel is not a new effort. Over the past two decades the renewable share of world-marketed energy use has been expanding and it now accounts for 8 percent of total energy supplied. Global biofuel production has tripled since 2000, reaching 15.7 billion gallons in 2007. The United States and Brazil were the world's two largest producers of ethanol, contributing 6.5 billion and 5.3 billion gallons (F.O. Licht).

Total energy supply and use in Latin America remains modest compared with energy supply and use in the United States and other industrialized countries: In 2005 Latin America's total energy supply per capita was 14 percent of energy supply in the United States (IEA).

Latin America's current energy matrix includes production and use of oil, coal, gas, hydroelectric power, and biomass. Although the largest share of Latin America's total energy supply is crude oil (54 percent), the production of renewable fuels from

hydroelectric and biomass sources now represent 29 percent of its energy market compared with more than 40 percent in Brazil and 12 percent globally. Fully 18 percent of Latin America's energy came from biomass in 2006 compared with a high 27 percent for Brazil and 10 percent for the world (IEA). Biomass includes cane bagasse, alcohol, wood and coal.

With continuing expansion in economic activity, rising personal incomes and urbanization, demand for oil and other liquid fuels is expected to continue to increase in the transportation sector. Biofuels currently meet just over 1.59 percent of road-fuel demand worldwide, but the long-term prospects are for biofuels to play a much larger role in meeting world road-transport fuel demand. The International Energy Agency forecasts this share to quadruple by 2030. In the United States, biofuels such as ethanol and biodiesel represent 2.45 percent of the transportation fuels market, and 1.29 for the EU, and just 0.16 for Latin America, excluding Brazil. But, in the case of Brazil, biofuels represent over 26 percent of the transportation fuels market (fig. 1-B).

Brazil's Comparative Advantage in Sugar Ethanol Production

Brazil's ready availability of land, water and labor has made it the world's largest sugarcane producer and exporter of sugar and ethanol. Sugarcane production in Brazil reached 428 million tons, growing at a rate of 11 percent per year since 2000. Sugarcane production in 2007/08 is expected to reach an all-time high of 491 million tons, a 14.7-percent increase over the previous year (USDA/FAS).

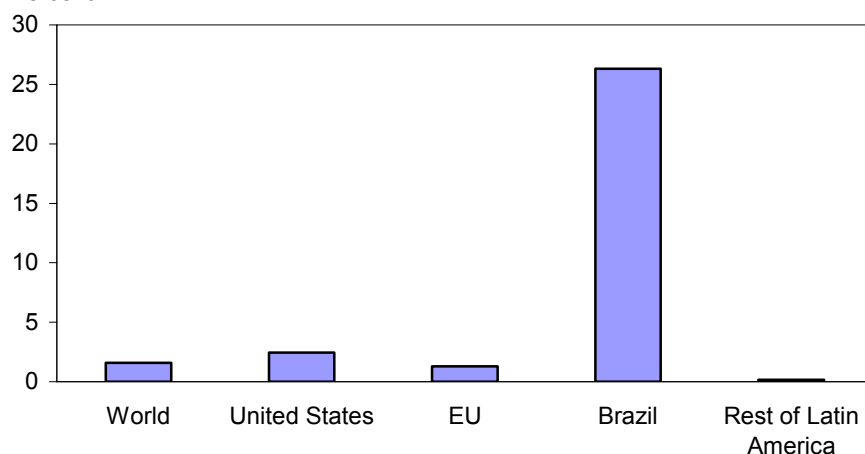
About 53 percent of Brazil's sugarcane harvest is being distilled into fuel ethanol ¹ (CEPEA), compared with a world average of 10 percent (Earth Policy Institute). The remaining 47 percent of Brazil's annual sugarcane harvest goes into producing sugar for domestic consumption and for export, a significant change from the 1970s when more than 80 percent of total sugarcane output went into sugar production.

¹ This represents 5.9 billion gallons (22.4 billion liters) of fuel ethanol -2.1 billion gallons of anhydrous and 3.8 billion gallons of hydrous ethanol.

Figure 1B

Brazil leads the world in the share of biofuels used as fuel for road transportation

Percent



Source: OECD, IEA, 2007.

Brazil is the largest exporter of ethanol in the world. Brazil's ethanol exports represent 56 percent of the world's ethanol export market (GTIS, 2007). Despite the large role that Brazil plays in global export markets, the country exports just 20 percent of its ethanol production. Brazil exports both anhydrous ethanol (which is added to gasoline) and hydrous ethanol (used as a gasoline substitute). Hydrous ethanol exports represent between 90 and 97 percent of the total value of ethanol exports, in any given year, with anhydrous ethanol exports accounting for the remainder.

Brazil's ethanol exports in 2007 were \$1.4 billion. Major Brazilian markets for fuel ethanol in 2007 included the United States (\$361 million), the EU (\$421 million) and Japan (US\$153 million). Exports of ethanol dehydrated in Central America were re-exported duty free to the United States because under the Caribbean Basin Initiative the United States exempts Central American countries from paying the 54-cent duty on U.S. ethanol imports. In 2007 the U.S. imported 245 million gallons of fuel ethanol under the CBI quota fill (ITC).

Brazil's production and use of fuel ethanol since 1975 represent the most successful program of renewable fuel for transportation implemented to date. In 2007 over 82 percent of the new car fleet in the country used fuel ethanol. The recent interest in converting biomass to biofuels throughout the world is leading to increased domestic and foreign demand. Brazil's ethanol and sugar industries are experiencing more rapid growth, expansion in arable land and increased yields from technological advancements in new sugarcane varieties. As demand for Brazilian ethanol continues to rise, the production of ethanol will continue to exceed that of sugar in the sugarcane production mix.

Brazilian Government officials and researchers expect area planted to sugarcane to expand by 3-4 million hectares over the next 5 years by expanding sugarcane cultivation in degraded pastureland. The expansion of Brazil's sugar/ethanol complex is leading to new investments in infrastructure and technology. However, despite recent rapid growth and new investments in the sector, ethanol supply still lags demand. At times when ethanol shortages have led to rapid price increases to levels above those agreed upon by refinery owners and the Federal Government, Brazilian authorities have intervened to reduce the percentage of ethanol mixed with gasoline sold at gas stations from 25 percent to 23 or 20 percent, which in turn has led to a reduction in the use of ethanol.

Latin America's Potential for Biofuels Production

In addition to Brazil, several other Latin American countries have potential for ethanol production. For Latin American countries, biofuel developments provide an opportunity to reduce their dependence on imported liquid fuel and an export opportunity for regionally produced ethanol for use as fuel abroad. Biofuel development is also seen as a means to reduce poverty in the region, by engaging more farmers in crop production and crop diversification. As ethanol can be produced from a variety of biomass crops grown in Latin American--sugarcane, corn, cassava and cellulosic feedstocks (i.e. wood, grasses, and agricultural residues)-- development of an ethanol industry holds great potential for the region (table 1-B).

For most Latin American countries and given their experience with sugarcane cultivation, ethanol produced from sugar cane as a feedstock is their primary interest. Out of 33 Latin American countries, excluding Brazil, 21 countries are growing sugarcane: Argentina, Bolivia, Colombia, Costa Rica, Chile, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Venezuela.

Biodiesel production from soyoil presents development potential in Argentina (third largest soybean producer), Paraguay and Uruguay. Other important palm oil producers include Colombia (fifth largest palm oil producer), and Ecuador (table 2-B).

Latin America's Foreign Demand Opportunities for Sugar Ethanol

Brazilian flex-fuel technology for automobiles is beginning to spread around the world. Although several countries are developing flex-fuel models in cooperation with Brazil, other countries, mostly in Europe and Asia, have already introduced "E85 models." E85 models are powered by an engine based on the Brazilian technology that can be fueled with 85 percent ethanol and 15 percent gasoline.

The vast markets of the United States, the EU and Asia represent important opportunities for sugar-ethanol producing Latin American countries, in a manner similar to that of Brazil. The United States is the world's largest consumer of ethanol and is seeking to use 36 billion gallons of renewable and other alternative fuels by 2022. The Clean Air Act requirement to add oxygenates (such as ethanol) to gasoline and the ban on methyl tertiary butyl ether (MTBE) as a gasoline additive is also, in addition to the blend subsidy, driving consumption in the United States. In addition, rising costs of crude oil, paired with drive to reduce dependence on foreign oil, have played an important role in the recent growth of the U.S. ethanol industry. The United States produced about 6.5 billion gallons of ethanol in 2007 and is forecast to more than double output by 2010.

The United States applies a 2.5-percent ad valorem tariff and an additional duty applicable under HTS subheading 9901.0050 of \$0.54 per gallon of ethanol (for fuel use) to imports into the United States. However, under the Caribbean Basin Initiative (CBI), countries in Central America and the Caribbean have had duty-free access to the United States since 1989 for ethanol from regional feedstocks. Access for ethanol derived from nonregional feedstocks has been limited by a CBI quota equal to 7 percent of total U.S. ethanol consumption.

Brazil and Central America are already exporting ethanol to the United States, and large U.S. corporations such as Cargill have plants in Latin America that produce ethanol for export to the United States. For example, exports from Brazil to the Central American countries of El Salvador, Jamaica, Costa Rica and Trinidad and Tobago totaling \$202 million in 2006, were imported by the United States under the CBI (GTIS data) (table 3-B). To further benefit from this tariff exemption, Brazil is jointly investing with Central American countries to build new distilleries in Mexico El Salvador, Jamaica, Guatemala, Panama, and the Dominican Republic.

Table 1B--Selected Western Hemisphere countries with potential for biofuels production

| Countries | Feedstock supplies | | Potential for exports | |
|-------------|--|---|-----------------------|-----------|
| | Ethanol | Biodiesel | Ethanol | Biodiesel |
| USA | Primarily corn | Soyoil, other oilseeds oil, animal fats, recycled fats/oils | x | x |
| Canada | Corn, wheat, straw | Vegetable oils, animal fats | x | x |
| Mexico | Sugarcane, corn, sorghum | Palm oil | x | |
| Brazil | Sugarcane | Castor seed oil, soyoil, palm oil | x | x |
| Argentina | Sugarcane, corn, sorghum, potatoes, rice, barley | Soyoil, sunflower oil | x | x |
| Uruguay | Rice | Soyoil | x | x |
| Chile | Beet | Soyoil | | |
| Colombia | Sugarcane, rice, potatoes, cassava, corn | Palm oil | x | x |
| Ecuador | Sugarcane | Palm oil, soyoil | | x |
| El Salvador | Sugarcane | Palm oil, soyoil | x | |
| Guatemala | Sugarcane, corn | Palm oil, soyoil | x | x |

Note: Other potential markets for biofuels include: Bahamas, Peru, Haiti, Suriname, Trinidad and Tobago, Venezuela.

Source: USDA/FAS, Countries Attaché Reports.

Table 2B--World rank in production and global export market share

| Table 22. World rank in production and global export market share | | | | | |
|---|-----------------------|--------------------|-----------------------------|------------------|----------------------|
| Item | World rank production | World rank exports | Global exports market share | Exports in 2006 | Growth rates 2000-06 |
| | | | Percent | U.S. \$ Millions | |
| Brazil | | | | | |
| Sugar | 1 | 1 | 42 | 3.919 | 20 |
| Ethanol | 2 | 1 | 51 | 766 | 79 |
| Soybeans | 2 | 1 | 35 | 5.345 | 22 |
| Corn | 3 | 4 | 35 | 121 | 48 |
| Argentina | | | | | |
| Soyoil | 3 | 1 | 55 | 2.789 | 21 |
| Paraguay | | | | | |
| Soybeans | 6 | 3 | 3 | 441 | 8 |
| Guatemala | | | | | |
| Sugar | 4 | 3 | 5 | 299 | 7 |
| Colombia | | | | | |
| Palm oil | 5 | 7 | 1 | 109 | 26 |

Source: USDA's Foreign Agricultural Service and Global Trade Information Services data.

Table 3B--U.S. imports of fuel ethanol, by source, 1996-2007

| Country | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|
| <i>Million gallons</i> | | | | | | | | | | | | |
| Jamaica | 21 | 9 | 13 | 24 | 28 | 29 | 29 | 39 | 39 | 36 | 67 | 80 |
| Costa Rica | 17 | 7 | 12 | 16 | 24 | 11 | 12 | 15 | 26 | 33 | 36 | 42 |
| El Salvador | 13 | 6 | 4 | 7 | 8 | 3 | 5 | 7 | 6 | 24 | 38 | 75 |
| Canada | | | 1 | 2 | 3 | 6 | 6 | 0 | 0 | 0 | 9 | 6 |
| Brazil | | | | | | | | | 94 | 31 | 434 | 189 |
| Trinidad & Tobago | | | | | | | | | | 10 | 25 | 43 |
| Netherlands | | | | | | | | | | | 2 | 0 |
| Pakistan | | | | | | | | | | | 6 | 0 |
| China | | | | | | | | | | | 37 | 1 |
| TOTAL | 52 | 22 | 31 | 49 | 63 | 50 | 52 | 61 | 164 | 135 | 653 | 436 |

Source: International Trade Commission.

Table 4B--Biofuel policies, programs and blend levels

| Current | | Blending targets |
|------------|----------------------|--|
| USA | E10 and E85 | The Energy Independence and Security Act of 2007 raises the renewable fuel standard from 4.7 billion gallons in 2007 to 36 billion gallons (about 15 billion gallons from corn and the rest from cellulose and other sources) by 2022. |
| Canada | E10 and E85 | Government plans to mandate a 5% ethanol content in gasoline by 2010, and a blend of 2% biodiesel in diesel by 2012. |
| Mexico | E10 | E10 mandatory since 2006. |
| Brazil | E20 to E25, and E100 | Current blending ratio of ethanol with gasoline is 25% (E25). A 2% blend of biodiesel with diesel (B2) is mandated for 2008, rising to 5% in 2013. Exports exempted from taxes. |
| Argentina | E2 | Mandatory E5 and B5 by 2010. Export tax for biodiesel 5% and 2.5% tax rebate is lower than for soyoil (24%). |
| Uruguay | E18 | |
| Colombia | E10 | E10 mandatory since 2005. To be raised to 25% by 2010. B5 mandatory by 2008. Tax exemption: VAT and income for biodiesel producers. |
| Peru | E7 | E7 mandatory since 2007. B5 mandatory in 2010. |
| Costa Rica | E10 | |
| Guatemala | E25 | E25 mandatory since 1985. VAT, income, import tax exemptions. |

Source: USDA/FAS, Countries Attaché Reports.

While Central America (particularly Guatemala and El Salvador) may offer some of the best prospects for biofuel production and increased exports, several other countries in Latin America with well established sugar industries including Colombia, Peru and Ecuador also have potential for sugar ethanol development. Brazil is partnering with other countries to develop technical standards that would allow fuel ethanol to become an international commodity that could soon be traded daily in international markets.

National Biofuel Programs in Latin America

Several countries in Central and South America have either initiated or are planning national biofuel programs of some kind, including Argentina, Costa Rica, Colombia, El Salvador, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Uruguay and Venezuela (table 4-B). Colombia is viewed as the country with the second most advanced biofuels program in South America, after Brazil (Jank et al.). In 2005, Colombia established a mandatory 10-percent ethanol blend (E10) in gasoline, which is to be raised to 25 percent by 2010. A 5-percent mandatory biodiesel blend is also required in some selected regions beginning in 2008. Mexico is planning to double current sugarcane area for sugar ethanol production in order to meet a 10-percent mandatory blend of fuel ethanol in gasoline by 2012.

In 2003, Guatemala, an important world sugar producer and the largest sugarcane producer in Central America, passed the Law of Incentives for the Development of Projects in Renewable Energy. Under this law, all biofuel projects are exempt from import duties, value-added taxes (VAT) on machinery imports for the stages of pre-investment and execution, and income taxes for 10 years during commercial operation. The Government expects ethanol producers to sell in the international market soon. In Honduras, the Government has encouraged sugar production to supply two ethanol distilleries. Costa Rica has set a target of substituting 7 percent of its gasoline with ethanol by the end of 2008.

El Salvador produces sugarcane and benefits from CBI preferential treatment to enter the U.S. market, under which a maximum quantity of 75 million gallons of ethanol was re-exported to the United States in 2007. This quantity is set to increase by 1.3 million gallons per year through 2020 (Jank et al.).

The Americas' agroenergy potential over the next two decades will be influenced by changes in macroeconomic policy and management, including exchange rate and trade policies, external factors (i.e, international prices of feedstock supplies and foreign demand for renewable fuel), and domestic production and use policies. These policies include blending targets, credit availability for biofuel production at subsidized interest rates, tax exemptions that favor production of feedstocks and/or processing of biofuels, and social policies that may impact the cost structure and profitability of biofuels.

Various other factors, such as increased public and private investment to improve the capacity and efficiency of transportation and marketing infrastructure, may impact the competitiveness of the region's biofuel sector. New technologies to advance the biofuels sector that focus on developing new varieties that increase sugarcane yields and the development of new technologies for a more efficient processing of products to increase ethanol production will also be crucial.

The new H-Bio technology patented by Petrobrás (Brazil's state-oil company) for mixing vegetable oils into diesel fuel, and Brazil's progress to date in "*second generation*" biofuels (refers to biofuels extracted from non-food crops) to obtain ethanol from sugarcane bagasse (cellulosic ethanol) will also be important factors. The Americas' efforts to create biofuels markets will also be affected by the various bilateral, regional and multilateral trade agreements in which these countries may participate.

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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

WASDE <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documented=1194>

Sugar Briefing Room, <http://www.ers.usda.gov/briefing/Sugar/>

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Table 9--World refined sugar price, monthly, quarterly, and by calendar and fiscal year 1/

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 13.39 | 13.40 | 13.86 | 12.90 | 12.99 | 13.94 | 14.73 | 14.40 | 13.09 | 13.03 | 12.71 | 12.46 | : | 13.55 | 13.28 | 14.07 | 12.73 | : | 13.41 | 13.71 |
| 1992 | 12.18 | 11.92 | 12.19 | 12.54 | 12.89 | 13.41 | 13.41 | 12.96 | 12.29 | 11.94 | 11.68 | 11.26 | : | 12.10 | 12.95 | 12.89 | 11.63 | : | 12.39 | 12.67 |
| 1993 | 11.60 | 11.97 | 13.05 | 13.38 | 13.39 | 12.64 | 12.20 | 13.05 | 12.90 | 13.23 | 13.15 | 12.97 | : | 12.21 | 13.14 | 12.72 | 13.12 | : | 12.79 | 12.42 |
| 1994 | 13.14 | 14.11 | 15.46 | 14.92 | 15.77 | 16.05 | 15.54 | 15.62 | 15.42 | 15.46 | 17.77 | 18.65 | : | 14.24 | 15.58 | 15.53 | 17.29 | : | 15.66 | 14.62 |
| 1995 | 18.75 | 18.17 | 17.45 | 16.31 | 17.05 | 19.16 | 20.27 | 20.01 | 16.58 | 17.29 | 17.64 | 17.21 | : | 18.12 | 17.51 | 18.95 | 17.38 | : | 17.99 | 17.97 |
| 1996 | 17.36 | 17.90 | 18.14 | 18.02 | 17.79 | 18.00 | 16.99 | 16.81 | 15.74 | 14.87 | 14.09 | 13.95 | : | 17.80 | 17.94 | 16.51 | 14.30 | : | 16.64 | 17.41 |
| 1997 | 13.87 | 13.98 | 14.05 | 14.19 | 14.61 | 14.93 | 15.07 | 15.66 | 14.51 | 13.58 | 13.81 | 13.64 | : | 13.97 | 14.58 | 15.08 | 13.68 | : | 14.33 | 14.48 |
| 1998 | 13.52 | 12.78 | 12.23 | 11.63 | 12.00 | 11.80 | 11.65 | 11.62 | 10.05 | 10.00 | 10.78 | 10.97 | : | 12.84 | 11.81 | 11.11 | 10.58 | : | 11.59 | 12.36 |
| 1999 | 10.99 | 10.50 | 9.85 | 8.79 | 9.13 | 9.93 | 9.47 | 9.04 | 8.28 | 7.85 | 7.73 | 7.61 | : | 10.45 | 9.28 | 8.93 | 7.73 | : | 9.10 | 9.81 |
| 2000 | 7.70 | 7.67 | 7.83 | 8.66 | 9.06 | 10.63 | 11.38 | 11.29 | 11.74 | 11.76 | 11.02 | 10.95 | : | 7.73 | 9.45 | 11.47 | 11.24 | : | 9.97 | 9.10 |
| 2001 | 11.27 | 10.65 | 10.26 | 10.61 | 11.71 | 12.68 | 12.60 | 12.08 | 10.66 | 10.19 | 11.27 | 11.52 | : | 10.73 | 11.67 | 11.78 | 10.99 | : | 11.29 | 11.35 |
| 2002 | 11.88 | 10.80 | 10.81 | 10.09 | 10.28 | 10.02 | 10.23 | 10.33 | 9.68 | 9.72 | 10.16 | 10.25 | : | 11.16 | 10.13 | 10.08 | 10.04 | : | 10.35 | 10.59 |
| 2003 | 10.64 | 11.10 | 10.51 | 10.14 | 9.95 | 9.66 | 9.84 | 9.74 | 8.95 | 8.39 | 8.67 | 9.23 | : | 10.75 | 9.92 | 9.51 | 8.76 | : | 9.74 | 10.06 |
| 2004 | 9.16 | 9.54 | 10.59 | 11.19 | 10.78 | 10.73 | 11.81 | 11.80 | 11.12 | 11.21 | 11.27 | 11.23 | : | 9.76 | 10.90 | 11.58 | 11.24 | : | 10.87 | 10.25 |
| 2005 | 11.63 | 12.09 | 12.02 | 11.76 | 11.75 | 12.61 | 14.70 | 14.81 | 14.60 | 14.18 | 13.10 | 15.00 | : | 11.91 | 12.04 | 14.70 | 14.09 | : | 13.19 | 12.47 |
| 2006 | 16.92 | 19.99 | 20.45 | 21.35 | 21.81 | 20.93 | 20.95 | 18.16 | 17.32 | 17.92 | 16.41 | 15.86 | : | 19.12 | 21.36 | 18.81 | 16.73 | : | 19.01 | 18.35 |
| 2007 | 15.13 | 14.92 | 15.59 | 14.21 | 14.94 | 14.36 | 14.13 | 12.87 | 12.54 | 12.56 | 13.00 | 13.78 | : | 15.21 | 14.50 | 13.18 | 13.11 | : | 14.00 | 14.91 |
| 2008 | 15.17 | 16.61 | 15.79 | 15.87 | | | | | | | | | | | | | | | | 15.86 |

1/ Contract No. 5, London Daily Price, for refined sugar, f.o.b. Europe, spot, through June 2006. Starting in July 2006, spot price replaced by average of nearest futures month for which an entire month of prices is available.

Source: London International Financial Futures and Options Exchange (LIFFE).

Table 10--World raw sugar price, monthly, quarterly, and by calendar and fiscal year 1/

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 8.88 | 8.57 | 9.22 | 8.55 | 7.88 | 9.37 | 10.26 | 9.45 | 9.39 | 9.10 | 8.79 | 9.03 | : | 8.89 | 8.60 | 9.70 | 8.97 | : | 9.04 | 9.26 |
| 1992 | 8.43 | 8.06 | 8.22 | 9.53 | 9.62 | 10.52 | 10.30 | 9.78 | 9.28 | 8.66 | 8.54 | 8.15 | : | 8.24 | 9.89 | 9.79 | 8.45 | : | 9.09 | 9.22 |
| 1993 | 8.27 | 8.61 | 10.75 | 11.30 | 11.87 | 10.35 | 9.60 | 9.30 | 9.52 | 10.27 | 10.10 | 10.47 | : | 9.21 | 11.17 | 9.47 | 10.28 | : | 10.03 | 9.58 |
| 1994 | 10.29 | 10.80 | 11.71 | 11.10 | 11.79 | 12.04 | 11.73 | 12.05 | 12.62 | 12.75 | 13.88 | 14.76 | : | 10.93 | 11.64 | 12.13 | 13.80 | : | 12.13 | 11.25 |
| 1995 | 14.87 | 14.43 | 14.58 | 13.63 | 13.49 | 13.99 | 13.46 | 13.75 | 12.72 | 11.94 | 11.96 | 12.40 | : | 14.63 | 13.70 | 13.31 | 12.10 | : | 13.44 | 13.86 |
| 1996 | 12.57 | 12.97 | 13.07 | 12.43 | 11.94 | 12.54 | 12.83 | 12.33 | 11.87 | 11.65 | 11.29 | 11.38 | : | 12.87 | 12.30 | 12.34 | 11.44 | : | 12.24 | 12.40 |
| 1997 | 11.13 | 11.06 | 11.17 | 11.50 | 11.54 | 12.02 | 12.13 | 12.54 | 12.65 | 12.86 | 13.19 | 12.90 | : | 11.12 | 11.69 | 12.44 | 12.98 | : | 12.06 | 11.67 |
| 1998 | 11.71 | 11.06 | 10.66 | 10.27 | 10.17 | 9.33 | 9.70 | 9.50 | 8.21 | 8.24 | 8.73 | 8.59 | : | 11.14 | 9.92 | 9.14 | 8.52 | : | 9.68 | 10.80 |
| 1999 | 8.40 | 7.05 | 6.11 | 5.44 | 5.83 | 6.67 | 6.11 | 6.39 | 6.98 | 6.90 | 6.54 | 6.00 | : | 7.19 | 5.98 | 6.49 | 6.48 | : | 6.54 | 7.05 |
| 2000 | 5.64 | 5.51 | 5.54 | 6.48 | 7.33 | 8.72 | 10.18 | 11.14 | 10.35 | 10.96 | 10.02 | 10.23 | : | 5.56 | 7.51 | 10.56 | 10.40 | : | 8.51 | 7.53 |
| 2001 | 10.63 | 10.26 | 9.64 | 9.27 | 9.96 | 9.80 | 9.48 | 8.77 | 8.60 | 7.15 | 7.80 | 8.02 | : | 10.18 | 9.68 | 8.95 | 7.66 | : | 9.12 | 9.80 |
| 2002 | 7.96 | 6.81 | 7.27 | 7.12 | 7.33 | 7.07 | 8.02 | 7.86 | 8.54 | 8.84 | 8.87 | 8.81 | : | 7.35 | 7.17 | 8.14 | 8.84 | : | 7.88 | 7.58 |
| 2003 | 8.56 | 9.14 | 8.50 | 7.92 | 7.41 | 6.85 | 7.18 | 7.30 | 6.70 | 6.74 | 6.83 | 6.95 | : | 8.73 | 7.39 | 7.06 | 6.84 | : | 7.51 | 8.01 |
| 2004 | 6.42 | 7.01 | 8.23 | 8.21 | 8.08 | 8.41 | 9.19 | 8.99 | 9.10 | 9.84 | 9.65 | 10.19 | : | 7.22 | 8.23 | 9.09 | 9.89 | : | 8.61 | 7.85 |
| 2005 | 10.33 | 10.51 | 10.57 | 10.19 | 10.23 | 10.45 | 10.89 | 11.09 | 11.59 | 12.40 | 12.86 | 15.09 | : | 10.47 | 10.29 | 11.19 | 13.45 | : | 11.35 | 10.46 |
| 2006 | 17.27 | 18.93 | 18.01 | 18.21 | 17.83 | 16.19 | 16.61 | 13.58 | 12.42 | 12.09 | 12.38 | 12.47 | : | 18.07 | 17.41 | 14.20 | 12.31 | : | 15.50 | 15.78 |
| 2007 | 11.85 | 11.63 | 11.44 | 10.85 | 10.78 | 11.05 | 12.18 | 11.66 | 11.61 | 11.86 | 11.83 | 12.47 | : | 11.64 | 10.89 | 11.82 | 12.05 | : | 11.60 | 11.67 |
| 2008 | 13.75 | 15.16 | 14.60 | 13.68 | | | | | | | | | | | | | | | | 14.50 |

1/ Contract No. 11 f.o.b. stowed Caribbean port, including Brazil, bulk spot price, plus freight to Far East.

Source: New York Board of Trade (www.nybot.com).

Table 11--U.S. raw sugar price, duty fee paid, New York, monthly, quarterly, and by calendar and fiscal year 1/

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 21.86 | 21.42 | 21.46 | 21.23 | 21.29 | 21.42 | 21.25 | 21.83 | 22.06 | 21.76 | 21.75 | 21.50 | : | 21.58 | 21.31 | 21.71 | 21.67 | : | 21.57 | 21.89 |
| 1992 | 21.38 | 21.56 | 21.36 | 21.38 | 21.04 | 20.92 | 21.10 | 21.34 | 21.55 | 21.61 | 21.39 | 21.11 | : | 21.43 | 21.11 | 21.33 | 21.37 | : | 21.31 | 21.39 |
| 1993 | 20.76 | 21.16 | 21.56 | 21.76 | 21.36 | 21.42 | 21.89 | 21.85 | 21.97 | 21.80 | 21.87 | 22.00 | : | 21.16 | 21.51 | 21.90 | 21.89 | : | 21.62 | 21.49 |
| 1994 | 22.00 | 21.95 | 21.95 | 22.08 | 22.18 | 22.44 | 22.72 | 21.84 | 21.78 | 21.58 | 21.57 | 22.35 | : | 21.97 | 22.23 | 22.11 | 21.83 | : | 22.04 | 22.05 |
| 1995 | 22.65 | 22.69 | 22.46 | 22.76 | 23.10 | 23.09 | 24.47 | 23.18 | 23.21 | 22.67 | 22.60 | 22.63 | : | 22.60 | 22.98 | 23.62 | 22.63 | : | 22.96 | 22.76 |
| 1996 | 22.39 | 22.68 | 22.57 | 22.71 | 22.62 | 22.48 | 21.80 | 22.51 | 22.38 | 22.37 | 22.12 | 22.14 | : | 22.55 | 22.60 | 22.23 | 22.21 | : | 22.40 | 22.50 |
| 1997 | 21.88 | 22.07 | 21.81 | 21.79 | 21.70 | 21.62 | 22.04 | 22.21 | 22.30 | 22.27 | 21.90 | 21.93 | : | 21.92 | 21.70 | 22.18 | 22.03 | : | 21.96 | 22.00 |
| 1998 | 21.85 | 21.79 | 21.74 | 22.14 | 22.31 | 22.42 | 22.66 | 22.19 | 21.92 | 21.67 | 21.83 | 22.19 | : | 21.79 | 22.29 | 22.26 | 21.90 | : | 22.06 | 22.09 |
| 1999 | 22.41 | 22.38 | 22.55 | 22.57 | 22.65 | 22.61 | 22.61 | 21.24 | 20.10 | 19.50 | 17.45 | 17.87 | : | 22.45 | 22.61 | 21.32 | 18.27 | : | 21.16 | 22.07 |
| 2000 | 17.70 | 17.24 | 18.46 | 19.43 | 19.12 | 19.31 | 17.64 | 18.12 | 18.97 | 21.15 | 21.39 | 20.56 | : | 17.80 | 19.29 | 18.24 | 21.03 | : | 19.09 | 18.40 |
| 2001 | 20.81 | 21.18 | 21.40 | 21.51 | 21.19 | 21.04 | 20.64 | 21.10 | 20.87 | 20.90 | 21.19 | 21.43 | : | 21.13 | 21.25 | 20.87 | 21.17 | : | 21.11 | 21.07 |
| 2002 | 21.03 | 20.69 | 19.92 | 19.73 | 19.52 | 19.93 | 20.86 | 20.91 | 21.65 | 21.94 | 22.22 | 22.03 | : | 20.55 | 19.73 | 21.14 | 22.06 | : | 20.87 | 20.65 |
| 2003 | 21.62 | 21.91 | 22.14 | 21.87 | 21.80 | 21.62 | 21.32 | 21.26 | 21.34 | 20.92 | 20.91 | 20.37 | : | 21.89 | 21.76 | 21.31 | 20.73 | : | 21.42 | 21.76 |
| 2004 | 20.54 | 20.57 | 20.86 | 20.88 | 20.69 | 20.03 | 20.14 | 20.10 | 20.47 | 20.31 | 20.40 | 20.55 | : | 20.66 | 20.53 | 20.24 | 20.42 | : | 20.46 | 20.54 |
| 2005 | 20.57 | 20.36 | 20.54 | 21.21 | 21.96 | 21.89 | 21.94 | 20.49 | 21.10 | 21.71 | 21.83 | 21.74 | : | 20.49 | 21.69 | 21.18 | 21.76 | : | 21.28 | 20.94 |
| 2006 | 23.61 | 24.05 | 23.10 | 23.56 | 23.48 | 23.32 | 22.44 | 21.38 | 21.27 | 20.22 | 19.66 | 19.59 | : | 23.59 | 23.45 | 21.70 | 19.82 | : | 22.14 | 22.62 |
| 2007 | 20.03 | 20.59 | 20.85 | 20.91 | 21.27 | 21.33 | 22.72 | 21.80 | 21.42 | 20.56 | 20.25 | 20.12 | : | 20.49 | 21.17 | 21.98 | 20.31 | : | 20.99 | 20.87 |
| 2008 | 20.24 | 20.21 | 20.65 | 20.54 | | | | | | | | | | 20.37 | | | | | | |

1/ Contract No. 14, duty fee paid New York. Average of nearest futures month for which an entire month of prices will be available. For example, April 2001's price average of 21.51 cents is the average of closes for the July 2001 futures during the month of April since there was not a full month of May 2001 futures in April (the May 2001 futures expired April 10, July 2001 became the nearest futures, so July 2001 was used for the entire month of April).

Source: New York Board of Trade (www.nybot.com).

Table 12--U.S. wholesale refined beet sugar price, Midwest markets, monthly, quarterly, and by calendar and fiscal year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 26.88 | 26.50 | 26.50 | 26.13 | 26.00 | 25.75 | 25.50 | 25.50 | 25.00 | 24.94 | 24.60 | 24.50 | : | 26.63 | 25.96 | 25.33 | 24.68 | : | 25.65 | 26.57 |
| 1992 | 25.40 | 26.50 | 26.50 | 26.50 | 26.40 | 26.00 | 25.00 | 25.00 | 25.00 | 24.90 | 24.13 | 23.90 | : | 26.13 | 26.30 | 25.00 | 24.31 | : | 25.44 | 25.53 |
| 1993 | 23.25 | 23.00 | 23.00 | 23.50 | 23.50 | 23.50 | 25.50 | 27.75 | 27.50 | 27.50 | 27.25 | 26.50 | : | 23.08 | 23.50 | 26.92 | 27.08 | : | 25.15 | 24.45 |
| 1994 | 25.75 | 25.50 | 25.50 | 24.50 | 24.75 | 25.25 | 25.00 | 25.00 | 24.70 | 25.00 | 25.38 | 25.50 | : | 25.58 | 24.83 | 24.90 | 25.29 | : | 25.15 | 25.60 |
| 1995 | 25.50 | 25.50 | 25.50 | 25.50 | 25.13 | 25.10 | 24.75 | 24.75 | 25.50 | 25.75 | 28.13 | 28.85 | : | 25.50 | 25.24 | 25.00 | 27.58 | : | 25.83 | 25.26 |
| 1996 | 28.69 | 29.00 | 29.50 | 29.50 | 29.70 | 29.50 | 29.50 | 29.00 | 29.00 | 29.00 | 29.00 | 29.00 | : | 29.06 | 29.57 | 29.17 | 29.00 | : | 29.20 | 28.84 |
| 1997 | 29.00 | 29.00 | 28.13 | 28.00 | 28.00 | 27.50 | 27.00 | 26.65 | 26.38 | 24.90 | 25.00 | 25.50 | : | 28.71 | 27.83 | 26.68 | 25.13 | : | 27.09 | 28.06 |
| 1998 | 25.50 | 25.50 | 25.50 | 25.50 | 26.00 | 26.00 | 26.00 | 26.00 | 26.50 | 26.90 | 27.00 | 27.00 | : | 25.50 | 25.83 | 26.17 | 26.97 | : | 26.12 | 25.66 |
| 1999 | 27.20 | 27.13 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 26.00 | 26.00 | 25.20 | : | 27.11 | 27.00 | 27.00 | 25.73 | : | 26.71 | 27.02 |
| 2000 | 23.38 | 22.25 | 21.50 | 21.00 | 19.75 | 19.00 | 19.00 | 19.00 | 20.70 | 21.25 | 21.00 | 21.80 | : | 22.38 | 19.92 | 19.57 | 21.35 | : | 20.80 | 21.90 |
| 2001 | 23.13 | 22.75 | 22.00 | 20.50 | 21.38 | 21.90 | 22.50 | 22.50 | 24.63 | 25.75 | 26.20 | 26.50 | : | 22.63 | 21.26 | 23.21 | 26.15 | : | 23.31 | 22.11 |
| 2002 | 26.75 | 26.00 | 25.95 | 24.63 | 24.50 | 24.00 | 24.00 | 25.40 | 26.25 | 26.75 | 27.40 | 27.88 | : | 26.23 | 24.38 | 25.22 | 27.34 | : | 25.79 | 25.49 |
| 2003 | 27.80 | 26.50 | 27.13 | 27.63 | 28.00 | 28.00 | 27.63 | 25.50 | 24.00 | 24.70 | 23.94 | 23.63 | : | 27.14 | 27.88 | 25.71 | 24.09 | : | 26.21 | 27.02 |
| 2004 | 23.70 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.38 | 23.20 | : | 23.57 | 23.50 | 23.50 | 23.36 | : | 23.48 | 23.66 |
| 2005 | 23.50 | 23.50 | 23.25 | 23.80 | 24.75 | 25.88 | 26.00 | 26.75 | 40.10 | 40.00 | 40.00 | 36.90 | : | 23.42 | 24.81 | 30.95 | 38.97 | : | 29.54 | 25.63 |
| 2006 | 34.50 | 36.50 | 37.10 | 36.38 | 35.00 | 35.00 | 35.00 | 34.50 | 31.20 | 28.75 | 27.19 | 26.10 | : | 36.03 | 35.46 | 33.57 | 27.35 | : | 33.10 | 36.01 |
| 2007 | 25.50 | 25.00 | 24.90 | 25.00 | 25.00 | 25.00 | 25.38 | 25.60 | 25.38 | 25.00 | 24.50 | 24.50 | : | 25.13 | 25.00 | 25.45 | 24.67 | : | 25.06 | 25.73 |
| 2008 | 24.13 | 26.40 | 28.00 | 28.00 | | | | | | | | | | 26.18 | | | | | | |

Source: *Milling & Baking News*. Simple average of the lower end of the range of quotations for days in that month. Quotations are weekly.

Table 13--U.S. retail refined sugar price, monthly, quarterly, and by calendar and fiscal year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | Calendar | Fiscal | | |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|----------|--------|-------|-------|
| Cents per pound | | | | | | | | | | | | | | | | | | | | |
| 1991 | 43.40 | 43.00 | 43.40 | 43.30 | 43.10 | 43.20 | 43.50 | 42.80 | 42.20 | 42.00 | 41.90 | 41.80 | : | 43.27 | 43.20 | 42.83 | 41.90 | : | 42.80 | 43.08 |
| 1992 | 42.50 | 42.40 | 41.90 | 41.70 | 41.70 | 41.50 | 41.50 | 41.10 | 41.00 | 41.20 | 41.20 | 40.60 | : | 42.27 | 41.63 | 41.20 | 41.00 | : | 41.53 | 41.75 |
| 1993 | 41.20 | 41.00 | 40.60 | 40.80 | 40.80 | 40.30 | 40.20 | 40.60 | 40.40 | 40.50 | 40.30 | 39.80 | : | 40.93 | 40.63 | 40.40 | 40.20 | : | 40.54 | 40.74 |
| 1994 | 40.70 | 40.50 | 40.10 | 39.90 | 40.10 | 39.70 | 40.00 | 39.70 | 40.30 | 40.20 | 39.50 | 39.20 | : | 40.43 | 39.90 | 40.00 | 39.63 | : | 39.99 | 40.13 |
| 1995 | 39.70 | 39.90 | 39.80 | 39.40 | 39.70 | 39.50 | 39.70 | 39.60 | 39.80 | 40.40 | 40.70 | 39.80 | : | 39.80 | 39.53 | 39.70 | 40.30 | : | 39.83 | 39.67 |
| 1996 | 40.50 | 40.30 | 40.60 | 40.40 | 41.50 | 41.80 | 42.40 | 42.80 | 42.60 | 43.20 | 42.60 | 42.80 | : | 40.47 | 41.23 | 42.60 | 42.87 | : | 41.79 | 41.15 |
| 1997 | 43.40 | 42.90 | 43.10 | 43.50 | 43.40 | 43.60 | 43.30 | 43.60 | 43.60 | 43.00 | 42.90 | 42.80 | : | 43.13 | 43.50 | 43.50 | 42.90 | : | 43.26 | 43.25 |
| 1998 | 43.00 | 42.90 | 43.30 | 43.10 | 42.80 | 43.10 | 43.20 | 43.60 | 43.20 | 42.30 | 42.50 | 42.70 | : | 43.07 | 43.00 | 43.33 | 42.50 | : | 42.98 | 43.08 |
| 1999 | 43.60 | 43.00 | 43.70 | 43.20 | 43.60 | 43.10 | 43.20 | 43.10 | 43.70 | 43.80 | 42.60 | 42.60 | : | 43.43 | 43.30 | 43.33 | 43.00 | : | 43.27 | 43.14 |
| 2000 | 43.70 | 43.20 | 42.90 | 41.40 | 42.40 | 42.80 | 42.50 | 42.40 | 42.40 | 42.50 | 41.30 | 41.40 | : | 43.27 | 42.20 | 42.43 | 41.73 | : | 42.41 | 42.73 |
| 2001 | 42.80 | 43.50 | 43.70 | 42.90 | 43.80 | 43.50 | 44.30 | 43.30 | 44.20 | 44.00 | 42.50 | 42.50 | : | 43.33 | 43.40 | 43.93 | 43.00 | : | 43.42 | 43.10 |
| 2002 | 44.10 | 43.70 | 42.60 | 44.40 | 42.70 | 43.00 | 43.30 | 43.30 | 43.70 | 42.40 | 41.90 | 42.10 | : | 43.47 | 43.37 | 43.43 | 42.13 | : | 43.10 | 43.32 |
| 2003 | 43.00 | 42.70 | 42.70 | 42.70 | 43.10 | 42.90 | 43.10 | 43.50 | 42.60 | 42.50 | 41.10 | 42.20 | : | 42.80 | 42.90 | 43.07 | 41.93 | : | 42.68 | 42.73 |
| 2004 | 42.90 | 42.60 | 42.60 | 42.70 | 42.50 | 42.50 | 42.90 | 42.60 | 42.60 | 42.60 | 42.20 | 43.00 | : | 42.70 | 42.57 | 42.70 | 42.60 | : | 42.64 | 42.48 |
| 2005 | 43.70 | 43.50 | 43.30 | 43.60 | 42.70 | 42.80 | 42.40 | 43.20 | 43.70 | 44.20 | 44.50 | 44.90 | : | 43.50 | 43.03 | 43.10 | 44.53 | : | 43.54 | 43.06 |
| 2006 | 46.10 | 46.80 | 47.10 | 48.00 | 49.90 | 50.40 | 50.50 | 51.60 | 51.50 | 51.20 | 51.30 | 50.60 | : | 46.67 | 49.43 | 51.20 | 51.03 | : | 49.58 | 47.96 |
| 2007 | 51.90 | 51.40 | 51.80 | 50.80 | 51.30 | 52.10 | 52.20 | 51.80 | 51.80 | 51.30 | 51.00 | 50.30 | : | 51.70 | 51.40 | 51.93 | 50.87 | : | 51.48 | 51.52 |
| 2008 | 51.90 | 51.30 | 50.40 | 51.70 | | | | | | | | | | 51.20 | | | | | | |

Source: Bureau of Labor Statistics.

Table 14--U.S. producer price index for corn sweeteners and sugar, monthly

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | Annual |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| <i>Corn sweeteners (liquids and solids), incl. glucose, dextrose, and HFCS, June 1985=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 98.9 | 98.0 | 97.8 | 98.0 | 97.9 | 97.9 | 97.8 | 98.0 | 98.0 | 97.6 | 99.2 | 100.3 | 98.3 |
| 2001 | 111.3 | 111.6 | 111.6 | 111.5 | 111.9 | 111.3 | 111.3 | 111.3 | 112.2 | 112.3 | 113.9 | 114.0 | 112.0 |
| 2002 | 116.5 | 120.1 | 119.7 | 119.8 | 117.4 | 119.6 | 121.2 | 121.0 | 127.4 | 127.9 | 125.9 | 126.5 | 121.9 |
| 2003 | 130.0 | 131.4 | 131.3 | 131.3 | 131.5 | 131.9 | -- | 132.2 | 131.9 | 130.6 | 130.9 | 130.7 | 131.3 |
| 2004 | 131.9 | 132.0 | 131.9 | 131.7 | 131.6 | 131.7 | 131.8 | 131.5 | 131.6 | 131.5 | 131.6 | 131.6 | 131.7 |
| 2005 | 133.1 | 133.3 | 133.5 | 133.1 | 133.1 | 133.1 | 133.2 | 132.9 | 133.2 | 137.2 | 133.1 | 133.2 | 133.5 |
| 2006 | 144.5 | 144.8 | 145.1 | 153.4 | 151.1 | 151.2 | 151.2 | 150.9 | 150.9 | 150.9 | 151.1 | 151.0 | 149.7 |
| 2007 | 175.5 | 176.8 | 176.8 | 176.8 | 176.9 | 177.1 | 176.8 | 176.8 | 176.5 | 176.9 | 177.0 | 176.6 | 176.7 |
| 2008 2/ | 205.5 | 206.8 | 206.7 | 198.3 | | | | | | | | | |
| <i>Raw cane sugar and other can mill products and byproducts, June 1982=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 92.7 | 89.4 | 95.1 | 97.4 | 97.0 | 99.5 | 92.7 | 90.7 | 95.9 | 106.1 | 106.9 | 103.4 | 97.2 |
| 2001 | 106.3 | 107.6 | 107.6 | 108.6 | 107.8 | 106.1 | 107.7 | 107.4 | 107.1 | 107.4 | 108.2 | 109.8 | 107.6 |
| 2002 | 109.2 | 107.0 | 103.8 | 103.4 | 101.4 | 102.7 | 106.7 | 106.9 | 111.2 | 111.6 | 113.9 | 112.7 | 107.5 |
| 2003 | 108.8 | 111.3 | 113.5 | 111.6 | 112.1 | 111.1 | 109.8 | 109.8 | 108.0 | 106.8 | 107.4 | 105.2 | 109.6 |
| 2004 | 104.7 | 104.5 | 106.4 | 105.6 | 105.8 | 102.7 | 104.6 | 103.3 | 107.1 | 104.2 | 104.2 | 106.5 | 105.0 |
| 2005 | 106.5 | 105.6 | 120.0 | 121.4 | 122.9 | 124.5 | 125.0 | 127.2 | 123.3 | 125.0 | 126.4 | 126.3 | 121.2 |
| 2006 | 129.5 | 133.2 | 129.9 | 132.9 | 134.6 | 135.4 | 134.2 | 132.0 | 132.1 | 127.5 | 124.4 | 123.0 | 130.7 |
| 2007 | 123.9 | 125.4 | 125.9 | 125.9 | 127.0 | 127.2 | 129.0 | 127.4 | 127.6 | 126.2 | 124.7 | 123.0 | 126.1 |
| 2008 2/ | 123.8 | 121.1 | 124.2 | 123.8 | | | | | | | | | |
| <i>Refined beet sugar and byproducts, June 1982=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 105.4 | 101.5 | 100.3 | 99.1 | 98.3 | 98.3 | 97.7 | 96.2 | 95.5 | 94.7 | 95.0 | 94.0 | 98.0 |
| 2001 | 97.5 | 97.6 | 97.8 | 98.0 | 99.4 | 99.5 | 99.5 | 100.9 | 102.0 | 103.3 | 105.0 | 106.8 | 100.6 |
| 2002 | 108.5 | 109.8 | 110.5 | 111.2 | 111.1 | 110.9 | 111.3 | 111.3 | 114.2 | 114.3 | 116.1 | 117.9 | 112.3 |
| 2003 | 118.7 | 118.8 | 119.1 | 119.5 | 119.2 | 119.4 | 119.3 | 119.4 | 113.7 | 116.6 | 116.4 | 116.2 | 118.0 |
| 2004 | 116.1 | 116.3 | 116.4 | 116.8 | 116.3 | 116.6 | 116.6 | 116.7 | 116.9 | 115.5 | 115.8 | 116.1 | 116.4 |
| 2005 | 116.3 | 117.8 | 115.9 | 116.5 | 117.3 | 118.6 | 118.5 | 118.4 | 118.2 | 122.6 | 136.0 | 141.5 | 121.5 |
| 2006 | 141.9 | 147.4 | 148.8 | 149.0 | 148.6 | 149.2 | 152.0 | 151.2 | 146.2 | 145.0 | 143.5 | 138.1 | 146.7 |
| 2007 | 136.2 | 136.5 | 133.8 | 132.9 | 129.4 | 126.6 | 126.2 | 126.1 | 125.9 | 126.3 | 124.3 | 123.9 | 129.0 |
| 2008 2/ | 119.7 | 119.8 | 121.6 | 121.3 | | | | | | | | | |
| <i>Refined cane sugar and byproducts, June 1982=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 124.7 | 121.8 | 121.7 | 119.8 | 120.4 | 119.8 | 120.5 | 119.2 | 117.5 | 113.9 | 113.2 | 114.4 | 118.9 |
| 2001 | 112.8 | 117.5 | 116.2 | 114.6 | 115.1 | 115.3 | 115.6 | 116.6 | 115.5 | 115.2 | 115.2 | 116.3 | 115.5 |
| 2002 | 117.4 | 117.9 | 121.0 | 122.3 | 119.7 | 121.2 | 121.3 | 120.8 | 120.8 | 121.0 | 119.5 | 120.1 | 120.2 |
| 2003 | 119.1 | 122.3 | 122.8 | 122.9 | 122.9 | 123.5 | 123.8 | 124.5 | 125.5 | 124.3 | 122.3 | 123.4 | 123.1 |
| 2004 | 120.5 | 120.4 | 121.6 | 121.6 | 123.0 | 124.3 | 123.3 | 123.5 | 123.1 | 123.6 | 122.5 | 121.6 | 122.4 |
| 2005 | 122.8 | 121.9 | 121.5 | 121.4 | 122.6 | 123.7 | 122.4 | 124.4 | 125.3 | 130.4 | 133.6 | 140.8 | 125.9 |
| 2006 | 142.8 | 146.2 | 155.5 | 156.9 | 155.5 | 150.7 | 156.4 | 153.1 | 152.3 | 148.2 | 143.9 | 142.3 | 150.3 |
| 2007 | 144.9 | 140.4 | 137.9 | 136.1 | 134.9 | 132.0 | 132.4 | 128.5 | 130.0 | 124.7 | 130.1 | 129.9 | 133.5 |
| 2008 2/ | 126.4 | 129.0 | 127.5 | 128.0 | | | | | | | | | |

1/ Based on a sample of domestic producers. 2/ Preliminary, all indexes are subject to revision four months after original publishing.

Source: Bureau of Labor Statistics.

Table 15--U.S. Consumer Price Index for sugar and selected sweetener-containing products 1/

| Year and month | Sugar and sweets | Sugar and artificial sweeteners | Flour and prepared flour mixes | Cereals and bakery products | Breakfast cereal | White bread | Cakes, cupcakes, and cookies | Other bakery products |
|----------------|------------------|---------------------------------|--------------------------------|-----------------------------|------------------|-------------|------------------------------|-----------------------|
| | 2/ | 3/ | 4/ | 5/ | 6/ | 7/ | 8/ | 9/ |
| 1982-84=100 | | | | | | | | |
| 2000 | 154.0 | 137.1 | 160.2 | 188.3 | 198.0 | 199.1 | 187.9 | 191.5 |
| 2001 | 155.7 | 140.3 | 164.3 | 193.8 | 199.7 | 208.3 | 192.0 | 199.1 |
| 2002 | 159.0 | 143.2 | 171.0 | 198.0 | 203.0 | 213.4 | 196.7 | 203.0 |
| 2003 | 162.0 | 145.7 | 178.4 | 202.8 | 204.3 | 218.6 | 202.8 | 207.3 |
| 2004 | 163.2 | 146.9 | 177.8 | 206.0 | 203.5 | 223.8 | 206.4 | 211.8 |
| 2005 | 165.2 | 149.1 | 179.6 | 209.0 | 203.6 | 232.1 | 209.8 | 211.4 |
| 2006 | 171.5 | 163.9 | 182.2 | 212.8 | 199.9 | 238.0 | 214.2 | 215.5 |
| 2007 | 176.8 | 167.1 | 191.6 | 222.1 | 205.0 | 258.0 | 221.7 | 220.5 |
| 2007 | | | | | | | | |
| Jan. | 175.2 | 167.4 | 189.9 | 216.3 | 197.5 | 249.2 | 215.8 | 219.3 |
| Feb. | 174.3 | 168.0 | 189.0 | 219.0 | 204.1 | 250.4 | 219.0 | 218.9 |
| Mar. | 174.6 | 168.3 | 189.2 | 218.5 | 201.7 | 247.5 | 219.8 | 217.5 |
| Apr. | 175.9 | 166.7 | 189.6 | 220.5 | 204.2 | 255.4 | 220.6 | 218.1 |
| May | 175.5 | 167.7 | 191.1 | 220.9 | 204.6 | 254.8 | 219.1 | 219.3 |
| June | 176.7 | 168.0 | 192.8 | 222.6 | 206.3 | 257.1 | 219.6 | 224.3 |
| July | 178.2 | 169.1 | 194.2 | 223.3 | 205.6 | 259.0 | 221.6 | 223.1 |
| Aug. | 178.3 | 168.3 | 195.7 | 224.0 | 205.7 | 259.9 | 221.4 | 226.3 |
| Sep. | 178.2 | 168.4 | 194.9 | 223.4 | 206.2 | 258.2 | 222.7 | 223.9 |
| Oct. | 177.2 | 167.0 | 191.8 | 224.7 | 207.3 | 267.5 | 224.3 | 220.4 |
| Nov. | 178.6 | 163.4 | 190.8 | 225.7 | 209.3 | 264.6 | 228.3 | 217.2 |
| Dec. | 178.6 | 162.5 | 190.0 | 226.5 | 207.8 | 272.2 | 228.7 | 217.5 |
| 2008 | | | | | | | | |
| Jan. | 180.2 | 167.0 | 202.3 | 228.7 | 203.1 | 273.1 | 227.9 | 221.7 |
| Feb. | 180.6 | 167.7 | 208.8 | 233.4 | 205.9 | 278.9 | 229.2 | 227.2 |
| Mar. | 182.2 | 165.4 | 215.5 | 236.3 | 211.4 | 287.9 | 232.7 | 225.0 |
| Apr. | 184.9 | 168.5 | 224.3 | 240.0 | 208.6 | 291.4 | 234.5 | 233.8 |

Continued--

Table 15--U.S. Consumer Price Index for sugar and selected sweetener-containing products 1/

| Year and month | Non-alcoholic beverages | Carbonated drinks | Non-carbonated juices and drinks | Canned fruits | Candy and chewing gum | Ice cream and related products | Food |
|--------------------|-------------------------|-------------------|----------------------------------|---------------|-----------------------|--------------------------------|-------|
| | 10/ | 11/ | 12/ | 13/ | 14/ | 15/ | 16/ |
| <i>1982-84=100</i> | | | | | | | |
| 2000 | 137.8 | 123.4 | 104.2 | 106.9 | 103.8 | 164.4 | 167.8 |
| 2001 | 139.2 | 125.4 | 106.0 | 109.0 | 104.3 | 173.4 | 173.1 |
| 2002 | 139.2 | 125.6 | 106.4 | 111.6 | 106.2 | 179.1 | 176.2 |
| 2003 | 139.8 | 125.6 | 106.5 | 113.7 | 107.8 | 175.5 | 180.0 |
| 2004 | 140.4 | 127.9 | 105.7 | 114.0 | 108.4 | 178.3 | 186.2 |
| 2005 | 144.4 | 131.9 | 106.5 | 118.4 | 109.5 | 177.6 | 190.7 |
| 2006 | 147.4 | 134.2 | 109.5 | 121.5 | 112.2 | 179.3 | 195.2 |
| 2007 | 153.4 | 140.1 | 112.9 | 125.2 | 116.1 | 183.4 | 202.9 |
| 2007 | | | | | | | |
| Jan. | 151.1 | 137.8 | 112.1 | 122.9 | 114.5 | 185.5 | 198.8 |
| Feb. | 151.7 | 138.0 | 112.1 | 124.4 | 113.5 | 181.6 | 200.0 |
| Mar. | 153.9 | 141.4 | 113.4 | 123.3 | 113.9 | 183.6 | 200.4 |
| Apr. | 151.8 | 138.9 | 111.0 | 123.8 | 115.5 | 180.0 | 200.8 |
| May | 152.9 | 139.3 | 113.1 | 125.6 | 114.8 | 179.5 | 201.8 |
| June | 153.1 | 139.5 | 113.0 | 126.7 | 115.6 | 181.3 | 202.4 |
| July | 153.4 | 140.8 | 112.3 | 127.8 | 117.1 | 180.2 | 203.1 |
| Aug. | 154.8 | 141.5 | 113.4 | 126.8 | 117.4 | 181.8 | 203.9 |
| Sep. | 155.0 | 142.7 | 113.4 | 125.9 | 117.1 | 184.4 | 204.9 |
| Oct. | 155.5 | 142.7 | 113.7 | 126.6 | 116.3 | 186.1 | 205.8 |
| Nov. | 154.3 | 140.7 | 113.7 | 123.4 | 118.6 | 188.0 | 206.3 |
| Dec. | 153.6 | 138.2 | 114.0 | 125.7 | 118.6 | 188.5 | 206.7 |
| 2008 | | | | | | | |
| Jan. | 157.9 | 143.7 | 116.8 | 128.3 | 118.8 | 189.5 | 208.6 |
| Feb. | 157.8 | 146.5 | 116.1 | 132.3 | 119.1 | 190.2 | 209.2 |
| Mar. | 158.1 | 144.5 | 116.1 | 130.2 | 120.6 | 188.8 | 209.4 |
| Apr. | 159.7 | 147.0 | 117.2 | 130.7 | 122.5 | 190.7 | 211.1 |

1/ All-urban, unadjusted, U.S. city average. 2/ Series:SEFR, Base: 1982-84=100. 3/ Series: SEFR01, Base: 1982-84=100.

4/ Series: SEFA01, Base: 1982-84=100; 5/ Series: SAF111, Base: 1982-84=100. 6/ Series: SEFA02, Base: 1982-84=100.

7/ Series: SS02011, Base: 1982-84=100. 8/ Series: SEFB03, Base: 1982-84=100. 9/ Series: SEFB04, Base: 1982-84=100.

10/ Series: SAF114, Base: 1982-84=100. 11/ Series: SEFN01, Base: 1982-84=100. 12/ Series: SEFN03, Base: Dec. 1997=100.

13/ Series: SS13031, Base: Dec. 1997=100. 14/ Series: SEFR02, Base: Dec. 1997=100. 15/ Series: SEFJ03, Base: 1982-84=100.

16/ Series: SAF1, Base: 1982-84=100.

Source: Bureau of Labor Statistics.

Table 16--U.S. cane and beet sugar deliveries, monthly, quarterly, and by fiscal and calendar year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | Fiscal | Calendar |
|---|------|------|------|------|-----|------|------|------|------|------|------|------|--------|--------|--------|--------|--------|----------|
| <i>1,000 short tons, raw value</i> | | | | | | | | | | | | | | | | | | |
| U.S. beet sugar for domestic consumption: | | | | | | | | | | | | | | | | | | |
| 1993 | 303 | 287 | 397 | 299 | 328 | 367 | 358 | 372 | 367 | 346 | 325 | 338 | 988 | 994 | 1,097 | 1,008 | 4,134 | 4,087 |
| 1994 | 312 | 313 | 370 | 303 | 338 | 406 | 360 | 406 | 437 | 338 | 304 | 282 | 995 | 1,047 | 1,204 | 924 | 4,254 | 4,170 |
| 1995 | 301 | 311 | 378 | 311 | 356 | 399 | 384 | 450 | 465 | 404 | 395 | 331 | 989 | 1,066 | 1,300 | 1,131 | 4,279 | 4,486 |
| 1996 | 316 | 342 | 361 | 343 | 338 | 325 | 350 | 335 | 300 | 333 | 315 | 267 | 1,018 | 1,006 | 984 | 915 | 4,139 | 3,923 |
| 1997 | 280 | 272 | 315 | 312 | 326 | 332 | 351 | 373 | 428 | 375 | 316 | 317 | 867 | 970 | 1,152 | 1,009 | 3,903 | 3,997 |
| 1998 | 324 | 316 | 362 | 344 | 342 | 401 | 393 | 388 | 409 | 392 | 334 | 308 | 1,002 | 1,087 | 1,190 | 1,034 | 4,288 | 4,313 |
| 1999 | 319 | 325 | 374 | 346 | 361 | 417 | 400 | 427 | 416 | 438 | 392 | 321 | 1,018 | 1,124 | 1,244 | 1,151 | 4,419 | 4,536 |
| 2000 | 320 | 340 | 385 | 341 | 393 | 384 | 348 | 411 | 392 | 412 | 378 | 329 | 1,045 | 1,118 | 1,152 | 1,119 | 4,465 | 4,433 |
| 2001 | 366 | 346 | 401 | 375 | 405 | 403 | 414 | 450 | 408 | 429 | 373 | 311 | 1,113 | 1,183 | 1,272 | 1,112 | 4,686 | 4,680 |
| 2002 | 349 | 315 | 347 | 340 | 375 | 332 | 369 | 365 | 380 | 423 | 396 | 300 | 1,012 | 1,047 | 1,114 | 1,119 | 4,285 | 4,291 |
| 2003 | 315 | 307 | 341 | 338 | 338 | 365 | 380 | 366 | 388 | 395 | 335 | 353 | 962 | 1,041 | 1,134 | 1,082 | 4,255 | 4,219 |
| 2004 | 359 | 367 | 407 | 387 | 333 | 438 | 408 | 433 | 392 | 423 | 378 | 342 | 1,133 | 1,159 | 1,233 | 1,143 | 4,607 | 4,668 |
| 2005 | 358 | 368 | 395 | 387 | 370 | 416 | 384 | 415 | 449 | 457 | 375 | 337 | 1,120 | 1,173 | 1,248 | 1,169 | 4,684 | 4,710 |
| 2006 | 342 | 306 | 357 | 323 | 362 | 381 | 348 | 406 | 366 | 369 | 329 | 306 | 1,005 | 1,067 | 1,120 | 1,004 | 4,360 | 4,195 |
| 2007 | 339 | 330 | 378 | 396 | 414 | 404 | 422 | 456 | 420 | 423 | 402 | 311 | 1,047 | 1,214 | 1,297 | 1,149 | 4,562 | 4,707 |
| 2008 | 365 | 401 | 401 | | | | | | | | | | 1,167 | | | | | |
| Cane sugar for domestic consumption: | | | | | | | | | | | | | | | | | | |
| 1993 | 311 | 339 | 391 | 387 | 351 | 423 | 422 | 441 | 469 | 427 | 424 | 395 | 1,042 | 1,161 | 1,332 | 1,246 | 4,734 | 4,781 |
| 1994 | 332 | 358 | 422 | 361 | 400 | 448 | 411 | 427 | 473 | 443 | 434 | 420 | 1,112 | 1,209 | 1,310 | 1,298 | 4,877 | 4,929 |
| 1995 | 340 | 332 | 432 | 380 | 424 | 438 | 369 | 444 | 423 | 431 | 413 | 381 | 1,104 | 1,243 | 1,236 | 1,226 | 4,880 | 4,808 |
| 1996 | 353 | 376 | 443 | 425 | 452 | 471 | 463 | 488 | 565 | 547 | 500 | 456 | 1,172 | 1,349 | 1,515 | 1,504 | 5,262 | 5,539 |
| 1997 | 397 | 396 | 481 | 444 | 474 | 509 | 462 | 476 | 500 | 525 | 459 | 431 | 1,274 | 1,427 | 1,437 | 1,416 | 5,641 | 5,553 |
| 1998 | 369 | 391 | 470 | 430 | 429 | 481 | 432 | 438 | 506 | 486 | 467 | 451 | 1,230 | 1,339 | 1,377 | 1,404 | 5,361 | 5,349 |
| 1999 | 355 | 379 | 453 | 452 | 500 | 476 | 433 | 490 | 485 | 483 | 481 | 433 | 1,186 | 1,429 | 1,407 | 1,396 | 5,427 | 5,419 |
| 2000 | 383 | 404 | 484 | 425 | 452 | 488 | 455 | 530 | 471 | 534 | 481 | 398 | 1,272 | 1,365 | 1,456 | 1,414 | 5,490 | 5,508 |
| 2001 | 410 | 371 | 470 | 413 | 431 | 458 | 419 | 446 | 417 | 487 | 467 | 384 | 1,251 | 1,302 | 1,282 | 1,338 | 5,248 | 5,172 |
| 2002 | 392 | 378 | 437 | 424 | 458 | 490 | 472 | 486 | 549 | 468 | 444 | 407 | 1,208 | 1,373 | 1,507 | 1,320 | 5,424 | 5,407 |
| 2003 | 372 | 377 | 467 | 434 | 408 | 475 | 421 | 488 | 415 | 476 | 486 | 413 | 1,216 | 1,317 | 1,324 | 1,375 | 5,177 | 5,232 |
| 2004 | 346 | 393 | 406 | 377 | 415 | 408 | 404 | 448 | 415 | 528 | 466 | 383 | 1,144 | 1,200 | 1,268 | 1,377 | 4,987 | 4,989 |
| 2005 | 377 | 363 | 459 | 400 | 437 | 441 | 418 | 477 | 458 | 476 | 429 | 401 | 1,199 | 1,277 | 1,353 | 1,306 | 5,207 | 5,136 |
| 2006 | 405 | 383 | 440 | 405 | 434 | 466 | 435 | 494 | 441 | 487 | 456 | 384 | 1,228 | 1,305 | 1,369 | 1,327 | 5,209 | 5,230 |
| 2007 | 399 | 363 | 455 | 426 | 426 | 429 | 400 | 497 | 435 | 448 | 470 | 376 | 1,217 | 1,281 | 1,332 | 1,295 | 5,157 | 5,124 |
| 2008 | 408 | 411 | 443 | | | | | | | | | | 1,262 | | | | | |
| Imports to nonreporters | | | | | | | | | | | | | | | | | | |
| 1993 | 4 | 2 | 3 | 2 | 5 | 9 | 1 | 2 | 1 | 9 | 6 | 8 | 10 | 17 | 3 | 23 | 48 | 52 |
| 1994 | 5 | 3 | 6 | 1 | 4 | 4 | 5 | 5 | 7 | 10 | 15 | 12 | 14 | 9 | 18 | 38 | 63 | 78 |
| 1995 | 9 | 1 | 1 | 2 | 0 | 0 | 1 | 1 | 4 | 17 | 5 | 0 | 12 | 3 | 6 | 22 | 59 | 44 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 10 | 1 | 1 | 1 | 1 | 20 | 12 | 44 | 33 |
| 1997 | 1 | 0 | 1 | 2 | 1 | 1 | 1 | 0 | 1 | 15 | 2 | 2 | 2 | 4 | 2 | 19 | 20 | 27 |
| 1998 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 13 | 5 | 1 | 1 | 2 | 1 | 19 | 23 | 24 |
| 1999 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 27 | 3 | 4 | 4 | 0 | 4 | 33 | 28 | 41 |
| 2000 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 26 | 4 | 1 | 1 | 0 | 3 | 31 | 38 | 36 |
| 2001 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 21 | 3 | 6 | 10 | 8 | 6 | 1 | 27 | 24 | 65 | 58 |
| 2002 | 3 | 1 | 4 | 7 | 1 | 12 | 3 | 6 | 14 | 36 | 19 | 2 | 8 | 20 | 24 | 58 | 76 | 109 |
| 2003 | 3 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 4 | 25 | 16 | 5 | 5 | 2 | 6 | 47 | 71 | 60 |
| 2004 | 1 | 2 | 6 | 4 | 3 | 3 | 4 | 11 | 4 | 16 | 11 | 1 | 9 | 9 | 19 | 27 | 84 | 64 |
| 2005 | 1 | 1 | 13 | 6 | 4 | 11 | 2 | 6 | 57 | 17 | 24 | 55 | 16 | 21 | 65 | 96 | 128 | 197 |
| 2006 | 92 | 6 | 104 | 26 | 29 | 60 | 71 | 70 | 61 | 32 | 22 | 5 | 202 | 115 | 202 | 58 | 615 | 577 |
| 2007 | 16 | 22 | 4 | 15 | 22 | 4 | 21 | 13 | 19 | 21 | 35 | 15 | 43 | 40 | 53 | 70 | 194 | 206 |
| 2008 | 16 | 27 | 29 | | | | | | | | | | 72 | | | | | |
| Total sugar for domestic consumption: | | | | | | | | | | | | | | | | | | |
| 1993 | 619 | 629 | 791 | 688 | 685 | 799 | 782 | 815 | 836 | 783 | 755 | 740 | 2,039 | 2,172 | 2,432 | 2,277 | 8,916 | 8,920 |
| 1994 | 649 | 674 | 798 | 665 | 742 | 857 | 776 | 838 | 918 | 792 | 754 | 714 | 2,121 | 2,265 | 2,532 | 2,260 | 9,195 | 9,177 |
| 1995 | 651 | 644 | 811 | 694 | 780 | 837 | 755 | 894 | 892 | 853 | 813 | 713 | 2,105 | 2,311 | 2,542 | 2,379 | 9,218 | 9,337 |
| 1996 | 670 | 718 | 804 | 769 | 790 | 796 | 813 | 823 | 883 | 891 | 816 | 724 | 2,191 | 2,355 | 2,519 | 2,430 | 9,445 | 9,496 |
| 1997 | 678 | 668 | 797 | 758 | 801 | 841 | 813 | 849 | 928 | 915 | 778 | 750 | 2,143 | 2,401 | 2,591 | 2,443 | 9,565 | 9,578 |
| 1998 | 694 | 707 | 832 | 774 | 772 | 883 | 826 | 826 | 915 | 892 | 806 | 760 | 2,233 | 2,428 | 2,568 | 2,458 | 9,672 | 9,686 |
| 1999 | 676 | 704 | 827 | 798 | 861 | 894 | 833 | 916 | 905 | 947 | 876 | 757 | 2,208 | 2,553 | 2,655 | 2,580 | 9,873 | 9,996 |
| 2000 | 703 | 745 | 870 | 766 | 845 | 872 | 804 | 941 | 867 | 973 | 863 | 728 | 2,318 | 2,484 | 2,611 | 2,564 | 9,993 | 9,977 |
| 2001 | 781 | 718 | 871 | 788 | 837 | 861 | 835 | 917 | 828 | 922 | 849 | 703 | 2,370 | 2,486 | 2,580 | 2,474 | 10,000 | 9,911 |
| 2002 | 744 | 695 | 788 | 771 | 834 | 834 | 844 | 858 | 943 | 927 | 860 | 709 | 2,227 | 2,439 | 2,645 | 2,497 | 9,785 | 9,808 |
| 2003 | 689 | 685 | 809 | 772 | 746 | 841 | 802 | 856 | 807 | 896 | 837 | 771 | 2,183 | 2,360 | 2,464 | 2,504 | 9,504 | 9,511 |
| 2004 | 706 | 762 | 819 | 767 | 751 | 850 | 817 | 893 | 810 | 967 | 855 | 726 | 2,286 | 2,368 | 2,520 | 2,547 | 9,678 | 9,722 |
| 2005 | 737 | 732 | 866 | 793 | 811 | 867 | 804 | 897 | 964 | 951 | 828 | 793 | 2,335 | 2,471 | 2,666 | 2,571 | 10,019 | 10,043 |
| 2006 | 839 | 695 | 901 | 755 | 825 | 907 | 853 | 969 | 868 | 888 | 806 | 694 | 2,436 | 2,487 | 2,690 | 2,389 | 10,184 | 10,002 |
| 2007 | 754 | 715 | 838 | 837 | 862 | 837 | 843 | 966 | 873 | 892 | 907 | 702 | 2,307 | 2,535 | 2,682 | 2,514 | 9,913 | 10,038 |
| 2008 | 789 | 840 | 873 | | | | | | | | | | 2501 | | | | | |

Continued--

Table 16--U.S. cane and beet sugar deliveries, monthly, quarterly, and by fiscal and calendar year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Fiscal | Calendar | |
|--|------|------|------|------|-----|------|------|------|------|------|------|------|----------|--------|--------|--------|-------|--------|----------|--------|
| 1,000 short tons, raw value | | | | | | | | | | | | | | | | | | | | |
| Reexported in products: | | | | | | | | | | | | | | | | | | | | |
| 1993 | 10 | 4 | 9 | 7 | 7 | 12 | 14 | 22 | 20 | 8 | 8 | 7 | : | 23 | 26 | 57 | 24 | : | 132 | 129 |
| 1994 | 7 | 7 | 7 | 9 | 15 | 15 | 10 | 17 | 17 | 12 | 11 | 5 | : | 20 | 39 | 44 | 28 | : | 127 | 131 |
| 1995 | 3 | 7 | 7 | 8 | 4 | 7 | 15 | 18 | 5 | 6 | 8 | 7 | : | 18 | 18 | 39 | 21 | : | 103 | 96 |
| 1996 | 5 | 5 | 10 | 14 | 8 | 8 | 8 | 13 | 11 | 9 | 7 | 6 | : | 20 | 30 | 32 | 22 | : | 104 | 104 |
| 1997 | 32 | 30 | 6 | 6 | 7 | 10 | 12 | 16 | 17 | 7 | 6 | 8 | : | 68 | 22 | 45 | 21 | : | 157 | 156 |
| 1998 | 6 | 9 | 9 | 12 | 10 | 10 | 14 | 15 | 16 | 18 | 15 | 11 | : | 24 | 32 | 46 | 44 | : | 123 | 146 |
| 1999 | 26 | 19 | 12 | 14 | 11 | 10 | 15 | 10 | 7 | 9 | 5 | 7 | : | 58 | 35 | 32 | 21 | : | 169 | 145 |
| 2000 | 7 | 7 | 7 | 7 | 8 | 7 | 6 | 11 | 5 | 6 | 6 | 7 | : | 21 | 22 | 22 | 18 | : | 86 | 84 |
| 2001 | 8 | 5 | 8 | 9 | 10 | 10 | 11 | 11 | 8 | 10 | 16 | 13 | : | 21 | 29 | 30 | 40 | : | 98 | 120 |
| 2002 | 15 | 13 | 11 | 12 | 12 | 11 | 12 | 14 | 15 | 17 | 12 | 14 | : | 39 | 35 | 42 | 43 | : | 156 | 158 |
| 2003 | 16 | 13 | 14 | 14 | 15 | 20 | 19 | 15 | 13 | 16 | 10 | 9 | : | 44 | 49 | 47 | 35 | : | 183 | 175 |
| 2004 | 9 | 10 | 9 | 10 | 18 | 11 | 12 | 15 | 13 | 10 | 9 | 9 | : | 28 | 40 | 39 | 28 | : | 142 | 135 |
| 2005 | 7 | 8 | 9 | 11 | 9 | 17 | 11 | 11 | 11 | 6 | 14 | 6 | : | 24 | 37 | 33 | 25 | : | 121 | 118 |
| 2006 | 6 | 10 | 9 | 10 | 6 | 7 | 7 | 10 | 15 | 11 | 8 | 12 | : | 25 | 23 | 32 | 31 | : | 106 | 111 |
| 2007 | 18 | 11 | 14 | 17 | 22 | 16 | 16 | 13 | 11 | 8 | 12 | 16 | : | 43 | 55 | 40 | 35 | : | 169 | 173 |
| 2008 | 11 | 7 | 9 | | | | | | | | | | | 27 | | | | | | |
| Polyhydric alcohol and livestock feed use: | | | | | | | | | | | | | | | | | | | | |
| 1993 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | : | 5 | 4 | 3 | 2 | : | 15 | 14 |
| 1994 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | : | 4 | 3 | 4 | 4 | : | 13 | 14 |
| 1995 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | : | 4 | 5 | 4 | 4 | : | 17 | 17 |
| 1996 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | : | 4 | 5 | 5 | 5 | : | 18 | 18 |
| 1997 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | : | 4 | 6 | 6 | 5 | : | 21 | 21 |
| 1998 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | : | 4 | 5 | 5 | 6 | : | 20 | 21 |
| 1999 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | : | 5 | 6 | 6 | 8 | : | 24 | 26 |
| 2000 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | : | 9 | 8 | 7 | 7 | : | 32 | 30 |
| 2001 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 4 | 10 | 4 | 3 | 2 | : | 8 | 10 | 17 | 9 | : | 42 | 44 |
| 2002 | 3 | 2 | 2 | 2 | 3 | 4 | 4 | 2 | 2 | 2 | 2 | 1 | : | 7 | 8 | 8 | 5 | : | 33 | 28 |
| 2003 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | : | 6 | 7 | 7 | 7 | : | 24 | 27 |
| 2004 | 3 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 3 | 4 | : | 9 | 11 | 13 | 10 | : | 41 | 44 |
| 2005 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 5 | 4 | 4 | 5 | : | 12 | 13 | 13 | 13 | : | 48 | 51 |
| 2006 | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | : | 13 | 12 | 12 | 12 | : | 50 | 49 |
| 2007 | 4 | 5 | 5 | 4 | 5 | 4 | 4 | 5 | 5 | 5 | 5 | 4 | : | 14 | 14 | 13 | 14 | : | 53 | 54 |
| 2008 | 6 | 4 | 6 | | | | | | | | | | | 16 | | | | | | |
| Total U.S. sugar deliveries 1/: | | | | | | | | | | | | | | | | | | | | |
| 1993 | 630 | 635 | 801 | 697 | 693 | 812 | 797 | 838 | 857 | 792 | 763 | 748 | : | 2,067 | 2,201 | 2,492 | 2,303 | : | 9,063 | 9,063 |
| 1994 | 657 | 682 | 806 | 675 | 758 | 873 | 787 | 856 | 936 | 804 | 767 | 720 | : | 2,145 | 2,307 | 2,579 | 2,291 | : | 9,334 | 9,322 |
| 1995 | 655 | 653 | 820 | 703 | 786 | 846 | 772 | 914 | 899 | 861 | 823 | 721 | : | 2,127 | 2,334 | 2,585 | 2,405 | : | 9,337 | 9,451 |
| 1996 | 676 | 724 | 815 | 785 | 800 | 806 | 822 | 838 | 896 | 901 | 824 | 731 | : | 2,215 | 2,390 | 2,557 | 2,457 | : | 9,567 | 9,619 |
| 1997 | 712 | 699 | 804 | 766 | 810 | 854 | 827 | 867 | 948 | 924 | 785 | 760 | : | 2,215 | 2,429 | 2,641 | 2,469 | : | 9,742 | 9,755 |
| 1998 | 701 | 718 | 843 | 787 | 784 | 894 | 843 | 843 | 933 | 912 | 823 | 773 | : | 2,261 | 2,465 | 2,619 | 2,508 | : | 9,815 | 9,854 |
| 1999 | 704 | 725 | 842 | 814 | 875 | 906 | 850 | 928 | 915 | 958 | 883 | 767 | : | 2,271 | 2,594 | 2,693 | 2,609 | : | 10,066 | 10,167 |
| 2000 | 713 | 755 | 880 | 776 | 855 | 881 | 813 | 954 | 875 | 981 | 871 | 737 | : | 2,348 | 2,513 | 2,641 | 2,589 | : | 10,111 | 10,091 |
| 2001 | 792 | 726 | 882 | 800 | 851 | 874 | 849 | 932 | 847 | 936 | 869 | 718 | : | 2,399 | 2,524 | 2,628 | 2,524 | : | 10,140 | 10,075 |
| 2002 | 761 | 710 | 801 | 786 | 848 | 849 | 860 | 874 | 960 | 946 | 874 | 724 | : | 2,272 | 2,483 | 2,694 | 2,544 | : | 9,973 | 9,994 |
| 2003 | 707 | 701 | 825 | 788 | 764 | 863 | 823 | 873 | 823 | 914 | 849 | 783 | : | 2,233 | 2,415 | 2,519 | 2,546 | : | 9,711 | 9,713 |
| 2004 | 718 | 775 | 832 | 782 | 773 | 864 | 833 | 912 | 827 | 980 | 866 | 739 | : | 2,324 | 2,419 | 2,572 | 2,586 | : | 9,861 | 9,901 |
| 2005 | 748 | 744 | 879 | 808 | 824 | 889 | 820 | 912 | 979 | 960 | 846 | 803 | : | 2,370 | 2,521 | 2,711 | 2,609 | : | 10,188 | 10,212 |
| 2006 | 850 | 709 | 914 | 768 | 835 | 919 | 865 | 984 | 886 | 903 | 818 | 710 | : | 2,474 | 2,522 | 2,734 | 2,432 | : | 10,339 | 10,162 |
| 2007 | 776 | 731 | 857 | 858 | 889 | 857 | 862 | 984 | 888 | 918 | 923 | 721 | : | 2,364 | 2,604 | 2,735 | 2,563 | : | 10,134 | 10,265 |
| 2008 | 806 | 851 | 887 | | | | | | | | | | | 2,544 | | | | | | |

Totals may not add due to rounding.

Note: This table commenced in October 1991 when USDA began reporting monthly production data. Puerto Rico data were added beginning October 1993.

1/ Fiscal year totals prior to 1994 differ from supply and use (table) since WASDE includes Puerto Rico.

Source: USDA, FSA, *Sweetener Market Data*.

Table 17--U.S. sugar: supply and use, by fiscal year 1/

| Items | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 Projection May-08 |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------------------------|
| 1,000 short tons, raw value | | | | | | | | | | | | | |
| Beginning stocks 2 | 1,492 | 1,488 | 1,679 | 1,639 | 2,216 | 2,180 | 1,528 | 1,670 | 1,897 | 1,332 | 1,698 | 1,799 | 1,756 |
| Total production 3,4 | 7,204 | 8,021 | 8,366 | 9,050 | 8,769 | 7,900 | 8,426 | 8,649 | 7,876 | 7,399 | 8,445 | 8,391 | 8,115 |
| Beet sugar | 4,013 | 4,389 | 4,421 | 4,974 | 4,680 | 3,915 | 4,462 | 4,692 | 4,611 | 4,444 | 5,008 | 4,810 | 4,400 |
| Cane sugar | 3,191 | 3,632 | 3,945 | 4,076 | 4,089 | 3,985 | 3,964 | 3,957 | 3,265 | 2,955 | 3,438 | 3,581 | 3,715 |
| Florida | 1,679 | 1,924 | 2,127 | 1,966 | 2,057 | 1,980 | 2,129 | 2,154 | 1,693 | 1,367 | 1,719 | 1,691 | 1,865 |
| Louisiana | 1,054 | 1,262 | 1,325 | 1,683 | 1,585 | 1,580 | 1,367 | 1,377 | 1,157 | 1,190 | 1,320 | 1,490 | 1,410 |
| Texas | 91 | 80 | 107 | 105 | 206 | 174 | 191 | 175 | 158 | 175 | 177 | 163 | 200 |
| Hawaii | 340 | 350 | 384 | 318 | 241 | 251 | 276 | 251 | 258 | 223 | 222 | 238 | 240 |
| Puerto Rico | 27 | 16 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total imports | 2,774 | 2,163 | 1,823 | 1,636 | 1,590 | 1,535 | 1,730 | 1,750 | 2,100 | 3,443 | 2,080 | 2,251 | 2,249 |
| Tariff-rate quota imports 5 | 2,277 | 1,729 | 1,256 | 1,124 | 1,277 | 1,158 | 1,210 | 1,226 | 1,408 | 2,588 | 1,624 | 1,251 | 1,274 |
| Other Program Imports | 493 | 349 | 386 | 388 | 238 | 296 | 488 | 464 | 500 | 349 | 390 | 425 | 425 |
| Nonprogram imports | 4 | 85 | 181 | 124 | 76 | 81 | 32 | 60 | 192 | 506 | 66 | 575 | 550 |
| Mexico 6 | | | | | | | | | | | 60 | 575 | 550 |
| Total supply | 11,471 | 11,672 | 11,868 | 12,325 | 12,575 | 11,615 | 11,684 | 12,070 | 11,873 | 12,174 | 12,223 | 12,441 | 12,120 |
| Total exports 3 | 211 | 179 | 230 | 124 | 141 | 137 | 142 | 288 | 259 | 203 | 422 | 250 | 250 |
| Quota-exempt for reexport | 211 | 179 | 230 | 124 | 141 | 137 | 142 | 288 | 259 | 203 | 422 | 250 | 250 |
| Other exports | 0 | 0 | 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 | 0 | 0 |
| Statistical difference 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Miscellaneous | 30 | -1 | -67 | -126 | 123 | -24 | 161 | 23 | 94 | -67 | -132 | 0 | 0 |
| CCC disposal, for domestic non-food use | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Refining loss adjustment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Statistical adjustment 8 | 30 | -1 | -67 | -126 | 113 | -24 | 161 | 23 | 94 | -67 | -132 | 0 | 0 |
| Deliveries for domestic use | 9,742 | 9,815 | 10,066 | 10,111 | 10,132 | 9,974 | 9,711 | 9,862 | 10,188 | 10,340 | 10,135 | 10,435 | 10,535 |
| Transfer to sugar containing products for exports under reexport program | 157 | 123 | 169 | 86 | 98 | 156 | 183 | 142 | 121 | 106 | 169 | 150 | 150 |
| Transfer to polyhydric alcohol, feed | 21 | 20 | 24 | 32 | 33 | 33 | 24 | 41 | 48 | 51 | 53 | 60 | 60 |
| Deliveries for domestic food and beverage use | 9,564 | 9,672 | 9,873 | 9,993 | 10,000 | 9,785 | 9,504 | 9,678 | 10,019 | 10,184 | 9,913 | 10,225 | 10,325 |
| Total use | 9,983 | 9,992 | 10,238 | 10,090 | 10,396 | 10,087 | 10,014 | 10,172 | 10,542 | 10,476 | 10,424 | 10,685 | 10,785 |
| Ending stocks /3 | 1,488 | 1,679 | 1,639 | 2,216 | 2,180 | 1,528 | 1,670 | 1,897 | 1,332 | 1,698 | 1,799 | 1,756 | 1,335 |
| Privately owned | 1,488 | 1,679 | 1,639 | 1,919 | 1,395 | 1,316 | | | | | | | |
| CCC | 0 | 0 | 0 | 297 | 784 | 212 | | | | | | | |
| Percent | | | | | | | | | | | | | |
| Stocks-to-use ratio | 14.91 | 16.81 | 16.01 | 21.96 | 20.97 | 15.15 | 16.68 | 18.65 | 12.63 | 16.21 | 17.25 | 16.43 | 12.38 |

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 FSA (formerly ASCS), Sweetener Market Data, and USDA, NASS, Sugar Market Statistics prior to 1992. 4/ Production reflects processors' projections compiled by the Farm Service Agency. 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 2007/08 available TRQ assumes shortfall of 170,000 tons. 6/ Does not include Mexico TRQ imports after FY 2007.

7/ Receipts compiled by NASS and FSA Customs data. 8/ Calculated as a residual. Largely consists of invisible stocks change.

Table 18--Net cost of corn starch to U.S. wet-millers, Midwest markets

| Period | Corn byproducts | | | | Byproduct credits | | | | Net cost | | |
|--------|---------------------------|-----------------|------------------------|------------------------|--------------------------|------------------------|------------------------|--------------------|-------------------|------------------|-------------------|
| | Yellow dent corn 1/ | Corn oil | Corn gluten feed | Corn gluten meal | Corn oil | Corn gluten feed | Corn gluten meal | Total byproduct | Corn | Corn starch | Corn sweetener |
| | Dollars per bu | Cents per lb | Dollars per short ton | | ----Cents per bushel---- | | | Dollars per bu | Dollars per bu | --Cents per lb-- | |
| 1991 | 2.40 | 28.36 | 101.57 | 256.07 | 43.96 | 68.56 | 33.93 | 1.46 | 0.94 | 2.97 | 2.81 |
| 1992 | 2.33 | 23.89 | 102.80 | 259.72 | 37.03 | 69.39 | 34.41 | 1.41 | 0.92 | 2.93 | 2.77 |
| 1993 | 2.27 | 21.52 | 87.99 | 296.53 | 33.35 | 59.39 | 39.29 | 1.32 | 0.95 | 3.02 | 2.85 |
| 1994 | 2.40 | 27.22 | 89.59 | 262.50 | 42.19 | 60.47 | 34.78 | 1.37 | 1.03 | 3.26 | 3.08 |
| 1995 | 2.70 | 26.67 | 88.34 | 244.02 | 41.33 | 59.63 | 32.33 | 1.33 | 1.37 | 4.34 | 4.10 |
| 1996 | 3.82 | 24.52 | 116.25 | 332.40 | 38.00 | 78.47 | 44.04 | 1.61 | 2.22 | 7.04 | 6.65 |
| 1997 | 2.67 | 24.87 | 83.99 | 345.22 | 38.55 | 56.69 | 45.74 | 1.41 | 1.26 | 4.00 | 3.78 |
| 1998 | 2.23 | 29.90 | 64.86 | 260.54 | 46.34 | 43.78 | 34.52 | 1.25 | 0.98 | 3.12 | 2.95 |
| 1999 | 1.92 | 23.59 | 58.77 | 231.88 | 36.56 | 39.67 | 30.72 | 1.07 | 0.85 | 2.68 | 2.54 |
| 2000 | 1.88 | 14.66 | 51.71 | 237.63 | 22.72 | 34.90 | 31.49 | 0.89 | 0.98 | 3.13 | 2.95 |
| 2001 | 1.90 | 15.75 | 62.46 | 253.98 | 24.41 | 42.16 | 33.65 | 1.00 | 0.90 | 2.86 | 2.70 |
| 2002 | 2.17 | 20.78 | 60.33 | 243.72 | 32.21 | 40.72 | 32.29 | 1.05 | 1.12 | 3.55 | 3.36 |
| 2003 | 2.29 | 28.65 | 72.15 | 251.36 | 44.40 | 48.70 | 33.31 | 1.26 | 1.02 | 3.25 | 3.07 |
| 2004 | 2.39 | 27.59 | 72.01 | 308.44 | 42.76 | 48.61 | 40.87 | 1.32 | 1.07 | 3.39 | 3.20 |
| 2005 | 1.90 | 28.42 | 51.33 | 288.09 | 44.04 | 34.65 | 38.17 | 1.17 | 0.73 | 2.33 | 2.20 |
| 2006 | 2.41 | 25.06 | 59.87 | 264.89 | 38.84 | 40.41 | 35.10 | 1.14 | 1.27 | 4.02 | 3.80 |
| 2006 | | | | | | | | | | | |
| Jan. | 1.98 | 25.22 | 55.75 | 303.75 | 39.09 | 37.63 | 40.25 | 1.17 | 0.81 | 2.57 | 2.43 |
| Feb. | 2.07 | 23.65 | 57.75 | 259.38 | 36.66 | 38.98 | 34.37 | 1.10 | 0.97 | 3.08 | 2.91 |
| Mar. | 2.04 | 22.61 | 61.63 | 263.75 | 35.05 | 41.60 | 34.95 | 1.12 | 0.92 | 2.93 | 2.77 |
| I | 2.03 | 23.83 | 58.38 | 275.63 | 36.93 | 39.40 | 36.52 | 1.13 | 0.90 | 2.86 | 2.70 |
| Apr. | 2.18 | 23.19 | 57.88 | 250.63 | 35.94 | 39.07 | 33.21 | 1.08 | 1.10 | 3.49 | 3.29 |
| May | 2.22 | 25.25 | 60.38 | 251.70 | 39.14 | 40.76 | 33.35 | 1.13 | 1.09 | 3.45 | 3.26 |
| June | 2.15 | 25.70 | 58.25 | 250.00 | 39.84 | 39.32 | 33.13 | 1.12 | 1.03 | 3.26 | 3.08 |
| II | 2.18 | 24.71 | 58.84 | 250.78 | 38.31 | 39.71 | 33.23 | 1.11 | 1.07 | 3.40 | 3.21 |
| July | 2.22 | 25.75 | 56.13 | 240.00 | 39.91 | 37.89 | 31.80 | 1.10 | 1.12 | 3.57 | 3.37 |
| Aug. | 2.07 | 25.42 | 56.00 | 229.25 | 39.40 | 37.80 | 30.38 | 1.08 | 0.99 | 3.16 | 2.98 |
| Sept. | 2.21 | 24.71 | 55.90 | 237.50 | 38.30 | 37.73 | 31.47 | 1.08 | 1.13 | 3.60 | 3.40 |
| III | 2.17 | 25.29 | 56.01 | 235.58 | 39.20 | 37.81 | 31.21 | 1.08 | 1.08 | 3.44 | 3.25 |
| Oct. | 2.82 | 24.70 | 60.20 | 272.20 | 38.29 | 40.64 | 36.07 | 1.15 | 1.67 | 5.30 | 5.01 |
| Nov. | 3.43 | 26.47 | 68.63 | 306.25 | 41.03 | 46.33 | 40.58 | 1.28 | 2.15 | 6.83 | 6.45 |
| Dec. | 3.53 | 28.05 | 69.88 | 314.31 | 43.48 | 47.17 | 41.65 | 1.32 | 2.21 | 7.01 | 6.62 |
| IV | 3.26 | 26.41 | 66.24 | 297.59 | 40.93 | 44.71 | 39.43 | 1.25 | 2.01 | 6.38 | 6.03 |
| 2007 | | | | | | | | | | | |
| Jan. | 3.66 | 28.05 | 92.00 | 333.00 | 43.48 | 62.10 | 44.12 | 1.50 | 2.16 | 6.87 | 6.49 |
| Feb. | 3.90 | 28.66 | 85.38 | 346.88 | 44.42 | 57.63 | 45.96 | 1.48 | 2.42 | 7.68 | 7.26 |
| Mar. | 3.76 | 29.08 | 84.94 | 361.50 | 45.07 | 57.33 | 47.90 | 1.50 | 2.26 | 7.16 | 6.77 |
| I | 3.77 | 28.60 | 87.44 | 347.13 | 44.32 | 59.02 | 45.99 | 1.49 | 2.28 | 7.24 | 6.84 |
| Apr. | 3.36 | 29.93 | 72.82 | 363.33 | 46.39 | 49.15 | 48.14 | 1.44 | 1.92 | 6.11 | 5.77 |
| May | 3.52 | 31.56 | 59.50 | 344.00 | 48.92 | 40.16 | 45.58 | 1.35 | 2.17 | 6.90 | 6.52 |
| June | 3.68 | 34.71 | 62.25 | 352.75 | 53.80 | 42.02 | 46.74 | 1.43 | 2.25 | 7.16 | 6.76 |
| II | 3.52 | 32.07 | 64.86 | 353.36 | 49.70 | 43.78 | 46.82 | 1.40 | 2.12 | 6.72 | 6.35 |
| July | 3.03 | 37.25 | 66.40 | 398.50 | 57.74 | 44.82 | 52.80 | 1.55 | 1.48 | 4.69 | 4.43 |
| Aug. | 3.08 | 39.61 | 75.00 | 404.38 | 61.40 | 50.63 | 53.58 | 1.66 | 1.42 | 4.52 | 4.27 |
| Sept. | 3.15 | 43.61 | 85.50 | 414.38 | 67.60 | 57.71 | 54.91 | 1.80 | 1.35 | 4.28 | 4.04 |
| III | 3.09 | 40.16 | 75.63 | 405.75 | 62.24 | 51.05 | 53.76 | 1.67 | 1.42 | 4.50 | 4.25 |
| Oct. | 3.28 | 52.50 | 105.00 | 472.50 | 81.38 | 70.88 | 62.61 | 2.15 | 1.13 | 3.59 | 3.39 |
| Nov. | 3.66 | 56.32 | 129.38 | 495.63 | 87.30 | 87.33 | 65.67 | 2.40 | 1.26 | 3.99 | 3.77 |
| Dec. | 4.03 | 59.47 | 134.17 | 540.79 | 92.18 | 90.56 | 71.65 | 2.54 | 1.49 | 4.72 | 4.46 |
| IV | 3.66 | 56.10 | 122.85 | 502.97 | 86.95 | 82.92 | 66.64 | 2.37 | 1.29 | 4.10 | 3.87 |
| 2008 | | | | | | | | | | | |
| Jan. | 4.55 | 63.35 | 135.60 | 545.00 | 98.19 | 91.53 | 72.21 | 2.62 | 1.93 | 6.13 | 5.79 |
| Feb. | 4.91 | 74.89 | 128.75 | 543.13 | 116.08 | 86.91 | 71.96 | 2.75 | 2.16 | 6.86 | 6.48 |
| Mar. | 5.16 | 83.55 | 117.19 | 561.88 | 129.50 | 79.10 | 74.45 | 2.83 | 2.33 | 7.40 | 6.99 |
| I | 4.87 | 73.93 | 127.18 | 550.00 | 114.59 | 85.85 | 72.88 | 2.73 | 2.14 | 6.79 | 6.42 |
| Apr. | 5.59 | 87.05 | | | | | | | | | |

NQ = no quote.

Sources: USDA, AMS, <http://marketnews.usda.gov/portal/lg> ;

USDA, byproduct credits and net cost calculations.

Note: To calculate the net cost of corn, it is assumed that the average bushel of corn wet-milled in the United States contains 31.5 pounds of recoverable starch, dry weight, as well as 1.55 pounds of corn oil (crude weight), 13.5 pounds of corn gluten feed (commercial weight), and 2.65 pounds of corn gluten meal, (commercial weight). Also, 31.5 pounds of starch, dry weight, produces about 33.33 pounds of corn sweetener (dry weight) because of the chemical gain converting starch to sweetener.

Table 19--U.S. use of field corn, by crop year 1/

| Description | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/2000 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 2/ | 2008/09 2/ |
|-------------------------------------|---------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------------|---------------|
| HFCS | 473 | 492 | 513 | 530 | 540 | 530 | 541 | 532 | 530 | 521 | 529 | 510 | 500 | 500 |
| Glucose syrup and dextrose | 227 | 233 | 229 | 219 | 222 | 218 | 217 | 219 | 228 | 222 | 229 | 239 | 240 | 240 |
| Total corn sweetener | 700 | 725 | 742 | 749 | 761 | 748 | 758 | 751 | 758 | 743 | 758 | 749 | 740 | 740 |
| Corn starch | 226 | 238 | 246 | 240 | 251 | 247 | 246 | 256 | 272 | 278 | 275 | 272 | 270 | 270 |
| Wet milling excluding alcohol | 926 | 963 | 988 | 989 | 1,013 | 995 | 1,003 | 1,007 | 1,030 | 1,021 | 1,033 | 1,021 | 1,010 | 1,010 |
| Alcohol | | | | | | | | | | | | | | |
| Fuel | 396 | 429 | 481 | 526 | 566 | 628 | 714 | 996 | 1,168 | 1,323 | 1,603 | 2,117 | 3,000 | 4,000 |
| Beverage | 125 | 130 | 133 | 127 | 130 | 130 | 131 | 131 | 132 | 133 | 135 | 136 | 135 | 134 |
| Total | 521 | 559 | 614 | 653 | 696 | 758 | 845 | 1,127 | 1,300 | 1,456 | 1,738 | 2,253 | 3,135 | 4,134 |
| Total | 1,447 | 1,522 | 1,602 | 1,642 | 1,709 | 1,753 | 1,848 | 2,133 | 2,329 | 2,477 | 2,771 | 3,274 | 4,145 | 5,144 |
| U.S. corn crop | 7,374 | 9,233 | 9,207 | 9,759 | 9,431 | 9,915 | 9,503 | 8,967 | 10,089 | 11,807 | 11,114 | 10,535 | 13,074 | 12,125 |
| Corn sweetener share | 9.49 | 7.85 | 8.06 | 7.67 | 8.07 | 7.54 | 7.97 | 8.38 | 7.51 | 6.29 | 6.82 | 7.11 | 5.66 | 6.10 |
| Wet milling excluding alcohol share | 12.56 | 10.43 | 10.73 | 10.13 | 10.74 | 10.04 | 10.56 | 11.23 | 10.21 | 8.64 | 9.30 | 9.69 | 7.73 | 8.33 |
| Alcohol share | 7.07 | 6.05 | 6.67 | 6.69 | 7.38 | 7.64 | 8.89 | 12.56 | 12.88 | 12.33 | 15.64 | 21.39 | 23.98 | 34.09 |
| Total | 19.62 | 16.48 | 17.40 | 16.83 | 18.12 | 17.68 | 19.45 | 23.79 | 23.09 | 20.97 | 24.93 | 31.08 | 31.71 | 42.42 |

1/ September/August crop year. 2/ Forecast.

Source: USDA, ERS, Sugar and Sweeteners Group.

Table 20--U.S. high fructose corn syrup (HFCS) deliveries, quarterly, by fiscal and calendar year 1/

| Quarter and Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quarter | | | | | | | | | |
| I | 2,129 | 2,165 | 2,114 | 2,122 | 2,185 | 2,128 | 2,195 | 2,087 | 2,003 |
| II | 2,482 | 2,370 | 2,527 | 2,469 | 2,438 | 2,408 | 2,431 | 2,363 | |
| III | 2,400 | 2,433 | 2,491 | 2,408 | 2,361 | 2,392 | 2,356 | 2,266 | |
| IV | 2,103 | 2,181 | 2,161 | 2,136 | 2,076 | 2,130 | 2,073 | 2,073 | |
| Year | | | | | | | | | |
| Fiscal | 9,200 | 9,072 | 9,313 | 9,160 | 9,119 | 9,004 | 9,113 | 8,789 | |
| Calendar | 9,114 | 9,149 | 9,294 | 9,135 | 9,060 | 9,058 | 9,056 | 8,788 | |

1/ Includes Puerto Rico.

Source: Estimates by USDA, ERS, Sugar and Sweetener Group.

Table 21--U.S. raw sugar tariff-rate quota (TRQ) World Trade Organization allocations and entries by month, fiscal year 2008

| | Entries by month | | | | | | | | | | Entries to date | FY 2008 TRQ allocation | |
|---------------------|------------------------|--------------------|--------------------|-------------------|---------------------|---------------------|---------------------|--------|--------|--------|-----------------|------------------------|-----------|
| | Oct-07 10/31/07 | Nov-07 11/26/07 | Dec-07 12/31/07 | Jan-08 1/29/08 | Feb-08 2/25/2008 | Mar-08 3/31/2008 | Apr-08 4/28/2008 | May-08 | Jun-08 | Jul-08 | | | Aug-08 |
| | Metric tons, raw value | | | | | | | | | | | | |
| Argentina | 704 | 0 | 0 | 12 | 0 | 0 | 0 | | | | | 715 | 45,281 |
| Australia | 31,350 | 31,350 | 0 | 235 | 0 | 544 | 0 | | | | | 63,479 | 87,402 |
| Barbados | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,371 |
| Belize | 0 | 0 | 0 | 0 | 0 | 100 | 0 | | | | | 100 | 11,583 |
| Bolivia | 0 | 0 | 8,424 | 0 | 0 | 0 | 0 | | | | | 8,424 | 8,424 |
| Brazil | 27,546 | 27,945 | 42,383 | 6,492 | 29,106 | 6,365 | 10,217 | | | | | 150,055 | 152,691 |
| Colombia | 161 | 225 | 533 | 380 | 291 | 257 | 285 | | | | | 2,131 | 25,273 |
| Congo | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Costa Rica | 0 | 0 | 0 | 0 | 0 | 483 | 13,145 | | | | | 13,628 | 15,796 |
| Cote d'Ivoire | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Dominican Republic | 6,472 | 305 | 14,042 | 6,113 | 29,629 | 18,190 | 28,359 | | | | | 103,110 | 185,335 |
| Ecuador | 0 | 0 | 12 | -1 | 51 | 112 | 0 | | | | | 175 | 11,583 |
| El Salvador | 0 | 0 | 0 | 14,615 | 1,689 | 9,017 | 0 | | | | | 25,322 | 27,379 |
| Fiji | 0 | 9,477 | 0 | 0 | 0 | 0 | 0 | | | | | 9,477 | 9,477 |
| Gabon | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Guatemala | 0 | 0 | 0 | 5,436 | 7,113 | 5,543 | 31,551 | | | | | 49,643 | 50,546 |
| Guyana | 0 | 23 | 0 | 12 | 0 | 42 | 19 | | | | | 96 | 12,636 |
| Haiti | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Honduras | 0 | 0 | 0 | 0 | 0 | 4,885 | 5,645 | | | | | 10,530 | 10,530 |
| India | 0 | 0 | 0 | 0 | 0 | 309 | 0 | | | | | 309 | 8,424 |
| Jamaica | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 11,583 |
| Madagascar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Malawi | 207 | 228 | 269 | 148 | 766 | 115 | 385 | | | | | 2,118 | 10,530 |
| Mauritius | 124 | 0 | 0 | 81 | 0 | -205 | 204 | | | | | 204 | 12,636 |
| Mexico 1/ | 0 | 0 | 7,258 | 0 | 0 | 0 | 0 | | | | | 7,258 | 7,258 |
| Mozambique | 0 | 0 | 0 | 0 | 0 | 244 | 0 | | | | | 244 | 13,690 |
| Nicaragua | 0 | 0 | 6,417 | 0 | 7,820 | 320 | 0 | | | | | 14,557 | 22,114 |
| Panama | 16,618 | 47 | 0 | 76 | 0 | 212 | 0 | | | | | 16,953 | 30,538 |
| Papua New Guinea | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Paraguay | 21 | 0 | 0 | 0 | 0 | 178 | 223 | | | | | 422 | 7,258 |
| Peru | 15,466 | 27,710 | 0 | -11,570 | 0 | 0 | 11,569 | | | | | 43,175 | 43,175 |
| Philippines | 8,119 | 0 | 0 | 13 | 0 | 11,903 | 27,945 | | | | | 47,980 | 142,160 |
| South Africa | 0 | 23,902 | 0 | 0 | 0 | 318 | 0 | | | | | 24,220 | 24,220 |
| St. Kitts and Nevis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Swaziland | 0 | 0 | 16,493 | 0 | 0 | 356 | 0 | | | | | 16,849 | 16,849 |
| Taiwan | 0 | 0 | 0 | 0 | 0 | 489 | 0 | | | | | 489 | 12,636 |
| Thailand | 0 | 0 | 0 | 0 | 0 | 298 | 0 | | | | | 298 | 14,743 |
| Trinidad-Tobago | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,371 |
| Uruguay | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | 0 | 7,258 |
| Zimbabwe | 12,636 | 0 | 0 | -203 | 0 | 203 | | | | | | 12,636 | 12,636 |
| Total | 119,424 | 121,211 | 95,831 | 21,840 | 76,464 | 60,278 | 129,547 | | | | | 624,595 | 1,117,195 |

1/ This amount is also included in Table 24, U.S. imports of sugar and certain sugar-containing products from Mexico, FY 2008.

Source: United States Customs and Border Protection, *Weekly Commodity Status Report*.http://www.fas.usda.gov/smi_arc.asp

Table 22--U.S. refined sugar tariff-rate quota (TRQ) WTO allocations and entries by month, fiscal year 2008

| | Entries by month | | | | | | | | | | | | Entries to date | FY 2008 TRQ allocation | Entries as share of allocation |
|--------------|-----------------------|------------|------------|-----------|-----------|-----------|-----------|--------|--------|--------|--------|--------|--------------------|---------------------------|-----------------------------------|
| | Oct-07 | Nov-07 | Dec-07 | Jan-08 | Feb-08 | Mar-08 | Apr-08 | May-08 | Jun-08 | Jul-08 | Aug-08 | Sep-08 | | | |
| | 10/29/2007 | 11/26/2007 | 12/31/2007 | 1/28/2008 | 2/25/2008 | 3/31/2008 | 4/28/2008 | | | | | | | | |
| | Metric tons raw value | | | | | | | | | | | | | | Percent |
| Global | 7,090 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 7,090 | 7,090 | 100.0 |
| Canada | 4,167 | 822 | 1,882 | 1,526 | 1,236 | 338 | 57 | | | | | | 10,028 | 10,300 | 97.4 |
| Mexico 1/ | 2,954 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 2,954 | 2,954 | 100.0 |
| Specialty 2/ | 1,656 | 22,544 | 0 | 0 | 13,653 | 0 | 0 | | | | | | 37,853 | 65,159 | 58.1 |
| Total | 15,867 | 23,366 | 1,882 | 1,526 | 14,889 | 338 | 57 | | | | | | 57,925 | 82,549 | 70.2 |

1/ This amount is also included in Table 24, U.S. imports of sugar and certain sugar-containing products from Mexico, FY 2008.

2/ The tranches of the FY 2008 specialty sugar TRQ have opened or will open as follows:

Tranche 1 – Opens 10/24/2007 – 1,656 metric tons

Tranche 2 – Opens 11/15/2007 – 22,544 metric tons

Tranche 3 – Opens 01/30/2008 – 13,653 metric tons

Tranche 4 – Opens 05/14/2008 – 13,653 metric tons

Tranche 5 – Opens 08/27/2008 – 13,653 metric tons

The second, third, fourth, and fifth tranches will be reserved for organic sugar and other specialty sugars not currently produced commercially in the United States or reasonably available from domestic sources.

Source: United States Customs and Border Protection, *Weekly Commodity Status Report*,
http://www.fas.usda.gov/smi_arc.asp

Table 23--U.S. sugar and sugar-containing product tariff-rate quota (TRQ) allocations and entries by month under the Dominican Republic, Central America-United Central America-United States Free Trade Agreement (CAFTA-DR), calendar year 2008 ^{1/}

| Central America - United States Free Trade Agreement (CAFTA-DR), calendar year 2008 - n | | | | | | | | | | | | | | |
|---|------------------|---------|-----------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------|------------------------|
| Country | Entries by month | | | | | | | | | | | | Entries to date | FY 2008 TRQ allocation |
| | Jan-08 | Feb-08 | Mar-08 | Apr-08 | May-08 | Jun-08 | Jul-08 | Aug-08 | Sep-08 | Oct-08 | Nov-08 | Dec-08 | | |
| | 1/28/08 | 2/25/08 | 3/31/2008 | 4/28/2008 | | | | | | | | | | |
| Metric tons raw value | | | | | | | | | | | | | | |
| Costa Rica ^{2/} | n/a | n/a | n/a | n/a | | | | | | | | | n/a | n/a |
| Dominican Republic ^{3/} | n/a | n/a | n/a | n/a | | | | | | | | | n/a | 0 |
| El Salvador | 15 | 24,945 | 0 | 0 | | | | | | | | | 24,960 | 24,960 |
| Guatemala | 10,196 | 960 | 3,982 | 5,866 | | | | | | | | | 21,004 | 33,280 |
| Honduras | 0 | 0 | 2,470 | 0 | | | | | | | | | 2,470 | 8,320 |
| Nicaragua | 0 | 8,147 | 0 | 0 | | | | | | | | | 8,147 | 22,880 |
| Total | 10,211 | 34,053 | 6,452 | 5,866 | | | | | | | | | 56,582 | 89,440 |

NA = Not available.

1/ For details on items eligible for these TRQs, see CAFTA-DR Annex 3.3, U.S. Notes, pages 6-9: http://www.ustr.gov/assets/Trade_Agreements/Bilateral/CAFTA/CAFTA-DR_Final_Texts/asset_upload_file971_3958.pdf.
See *Federal Register* Vol. 72, No. 244, December 20, 2007.

2/ TRQ allocation is pending final implementation of the agreement by Costa Rica.

3/ The TRQ under CAFTA-DR is zero due to the determination for CY 2008 that Dominican Republic's trade surplus is negative.

Source: United States Customs and Border Protection, *Weekly Commodity Status Report*.

http://www.fas.usda.gov/smi_arc.asp

Table 24--U.S. imports of sugar and certain sugar-containing products from Mexico, FY 2008 1/

| Imports | Entries by month | | | | | | | | | | | | Entries to date |
|--|---------------------------------------|----------------------|----------------------|---------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|-----------------|
| | Oct-07 10/31/2007 | Nov-07 11/31/2007 | Dec-07 12/31/2007 | Jan-08 1/31/2008 | Feb-08 2/29/2008 | Mar-08 | Apr-08 | May-08 | Jun-08 | Jul-08 | Aug-08 | Sep-08 | |
| | <i>Metric tons, raw value</i> | | | | | | | | | | | | |
| Raw sugar 2/ | 2,045 | 2,312 | 25,376 | 18,360 | 41,375 | 39,382 | 1,973 | | | | | | 130,823 |
| Refined sugar 3/ | 5,050 | 13,227 | 11,019 | 5,101 | 15,860 | 23,588 | 48,425 | | | | | | 122,270 |
| Total sugar | 7,095 | 15,539 | 36,395 | 23,461 | 57,235 | 62,970 | 50,398 | | | | | | 253,093 |
| | <i>Metric tons, commercial weight</i> | | | | | | | | | | | | |
| Powdered drink crystals, flavored sugar 4/ | 4,094 | 2,673 | 2,521 | 2,060 | 3,091 | | | | | | | | 14,439 |
| Cocoa powder 5/ | 7,767 | 5,710 | 4,383 | 6,412 | 5,846 | | | | | | | | 30,118 |
| Tea mixes 6/ | 1,976 | 2,700 | 1,211 | 753 | 1,862 | | | | | | | | 8,502 |

1/ Beginning 1/1/08, no duty or quota applies to sugar from Mexico. From 10/1/07 - 12/31/07, Mexico had duty-free access of 2,954 metric tons allocated under the refined TRQ and 175,000 metric tons (which included WTO raw sugar allocation to Mexico) established by Presidential Proclamation 8180 issued on September 28, 2007.

2/ Includes imports under Mexico's WTO TRQ allocation for raw sugar. U.S. Harmonized Tariff Schedule (HTS) lines 1701.11.10.00 and 1701.11.50.00. Entries under these HTS lines may include some sugar for direct consumption.

3/ Includes items in HTS lines 1701.91.10.00, 1701.91.30.00, 1701.99.10.10, 1701.99.10.90, 1701.99.50.10, and 1701.99.50.90. Entries under these HTS lines may include some sugar for further processing.

4/ HTS lines 1701.91.48.00 and 1701.91.58.00.

5/ HTS line 1806.10.55.

6/ HTS line 2101.20.58.



Briefing Rooms

Sugar and Sweeteners

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The U.S. sweetener market is the largest and most diverse in the world. The United States is the largest consumer of sweeteners, including high fructose corn syrup, and is one of the largest global sugar importers. The United States ranks among the top sugar producers, and is one of the few countries with significant production of both sugarbeets and sugarcane.

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[Global Biofuels Market Boosts Sugar Ethanol Industry in Latin America](#)  (May 2008, page 41 of PDF) reports that several countries in Latin America, besides Brazil, have policies and programs to expand production of liquid biofuels from biomass in the coming decades. This article analyzes developments that aim to reduce dependence on imported transportation fuels and to reduce poverty by engaging farmers in growing ethanol-producing crops.

[Sugar Backgrounder](#) (July 2007) addresses key domestic and international market and policy developments that have affected the U.S. sugar sector in recent years. It provides descriptions and analyses of farm-level production of U.S. sugar crops, cane and beet sugar processing and refining industries, sugar imports and exports, and sugar consumption.

Recommended Readings

[Sugar and Sweeteners Outlook](#) (January, May, and September) provide an update of current market and policy developments and their impacts on the sugar and corn sweetener industries.

[Western Hemisphere Sugar](#)  (May 2008, page 22 of PDF) analyzes the sugar industries of leading sugar-producing countries in the Western Hemisphere. This article highlights recent developments and trends in production, consumption, trade, and policy in Argentina, Brazil, Colombia, the Dominican Republic, Guatemala, Jamaica, and Peru.

[Processor Production Forecast Accuracy](#)  (January 2008, page 37 of PDF) analyzes forecasts from processors for U.S. sugar beet and sugarcane production before and after implementation of the 2002 Farm Act. Accurate forecasts are needed to administer marketing allotments, which are part of the price support program for sugar. Have processors become more accurate in their forecasts? Has there been a tendency to overestimate or underestimate production since 2002?

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Recommended Data Products

[Sugar and Sweeteners Yearbook tables](#) contain the latest data and historical information on the production, use, prices, imports, and exports of sugar and sweeteners.

[Tropical Products: World Markets and Trade](#), published biannually by USDA's Foreign Agricultural Service, contains data on global sugar production, consumption, and prices.

[Historical Sweetener Marketing Data](#) from USDA's Farm Service Agency contains statistics on U.S. sugar production, deliveries, trade, and stocks.

[U.S. Sugar Statistical Compendium](#) provides historical data (1970-90) on U.S. sugar production and consumption, imports and exports, and prices. Regional and state data are included. Tables are in Lotus 123 (*.wk1) spreadsheet files.

[U.S. Corn Sweetener Statistical Compendium](#) provides historical data (1970-92) on U.S. corn sweetener supply and use (high fructose corn syrup, dextrose, and glucose), imports and exports, and prices. Tables are in Lotus 123 (*.wk1) spreadsheet files.

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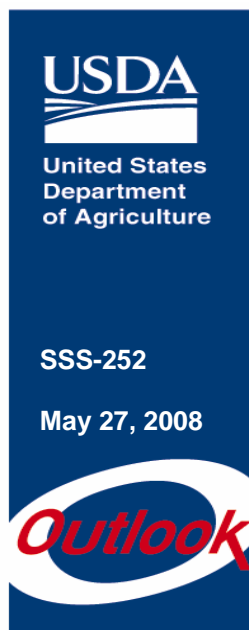
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A Report from the Economic Research Service

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Sugar and Sweeteners Outlook

**Stephen Haley, Jose Toasa, Constanza Valdes
and Andy Jerardo**

USDA Projects U.S. and Mexican Sugar Supply and Use for Fiscal Year 2009

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The next release is
September 2008

Approved by the
World Agricultural
Outlook Board.

At the end of March 2008, the National Agricultural Statistics Service (NASS) projected sugar beet acreage intentions for the 2008 crop year at 1.132 million acres, about 10.9 percent lower than 2007 crop year area planted. Assuming normal sucrose levels and continued improvement in productivity, the U.S. Department of Agriculture (USDA) projects fiscal year (FY) 2009 national beet sugar production at 4.400 million short tons, raw value (STRV), about 410,000 STRV less than the projection for FY 2008 (4.810 million STRV).

The USDA projects FY 2009 cane sugar production at 3.715 million STRV, an increase of 134,000 STRV over FY 2008. Because area harvested is not forecast by NASS, current cane sugar projections assume the same area harvested for sugar as the previous year. Florida cane sugar production for FY 2009 is forecast at 1.865 million STRV. This forecast assumes a return to normal weather patterns. If dry conditions seen in the last two seasons persist, cane sugar production could be reduced by 130,000 STRV. The USDA projects Texas production at 200,000 STRV. However, like Florida, Texas has faced dry conditions this past year. If these conditions prevail this coming year, production can be expected to be 35,000 STRV less. The USDA projects FY 2009 Louisiana cane sugar at 1.410 million STRV and Hawaiian cane sugar at 240,000 STRV.

Although the raw and refined sugar tariff-rate quotas (TRQ) for FY 2009 have not yet been announced, the USDA projects them in the *World Agricultural Supply and Demand Estimates* (WASDE) report at minimum levels implied by existing international commitments to the World Trade Organization (WTO) and at the allocated levels from the Dominican Republic and Central American Free Trade Agreement (DR-CAFTA). The projection in the May WASDE is, therefore, at 1.274 million STRV, assuming a shortfall of 100,000 STRV. Included in the total minimum access quantity is the refined sugar TRQ, the minimum access commitment of which is 24,251 STRV, or 22,000 metric tons, raw value (MTRV). Until the TRQ is announced, there is no projection for additional specialty sugar. This sugar is mostly organic sugar, and its allocation for FY 2008 was set at 70,000 STRV in addition to the 1,825 STRV included in the minimum access quantity. The USDA projects imports from Mexico at 550,000 STRV.

Other program sugar imports outside the sugar TRQ for FY 2009 are projected to total 425,000 STRV. Other USDA import programs include the Refined Sugar Re-export Program, the Sugar-Containing Products Program, and the Polyhydric Alcohol Program.

Sugar exports for FY 2009 are forecast at 250,000 STRV. Most of these exports are expected to go to Mexico, where they are used in Mexico's product re-export (IMMEX) program. Almost all such sugar-containing products are expected to be exported to the United States.

Deliveries for domestic food and beverage use for FY 2009 are projected at 10.325 million STRV, an increase of 100,000 STRV over the FY 2008 delivery estimate. Deliveries for domestic food and beverage use for FY 2008 were increased by 175,000 STRV to 10.225 million STRV in the May 2008 WASDE. Deliveries to industrial end users for the first 6 months of FY 2008 are 6.6 percent higher than the average of the same corresponding period of the two previous years. Likewise, deliveries to nonindustrial end users for the first 6 months are 2.1 percent higher.

The projection for Sugar-Containing Product Re-export deliveries is 150,000 STRV, the same level as that estimated for FY 2008. The FY 2009 projection for deliveries is 25,000 STRV for the manufacture of polyhydric alcohol and 35,000 STRV for feed uses, the same as the FY 2008 estimates.

Ending stocks are the difference between supply and use. For FY 2009, ending stocks are projected at 1.335 million STRV, implying an ending stocks-to-use ratio of 12.4 percent. For FY 2008, ending stocks are estimated at 1.756 million STRV, implying an ending stocks-to-use ratio of 16.4 percent.

The refined beet sugar price reported by *Milling and Baking News* is 30-33 cents/pound (lb) as of May 16. The price had increased 4 cents to 28 cents/lb after the explosion at the Imperial Sugar refinery on February 7. According to *Milling and Baking News*, there is concern that area planted may be less than indicated in NASS's *Planting Intentions*. The nearby no.14 New York raw sugar contract price is averaging 20.7 cents/lb through the first half of May. With the minimum price to avoid forfeiture in Florida projected by the Farm Service Agency at above 21 cents per pound, there may be raw sugar forfeitures this fiscal year.

The USDA projects 2008/09 Mexican sugar production at 5.850 million MTRV. Sugarcane area harvested is projected at 668,000 hectares, about the same level as this year. Sugarcane production for 2008/09 is projected at 51.0 million metric tons (mt), implying sugar recovery at 11.5 percent, raw basis (10.8 percent, tel quel basis).

The USDA estimates 2007/08 Mexican sugar production at 5.950 million MTRV. After a slow start to the harvest season, the pace picked up substantially. Sucrose recovery through the end of April was 12.15 percent, raw basis (11.46 percent, tel quel). With several more weeks to the harvest season, the recovery rate is forecast by the Economic Research Service to be at 12.18 percent, raw basis (11.48 percent, tel quel).

The USDA projects 2008/09 Mexican sugar deliveries for human consumption at 5.430 million MTRV, an increase of 80,000 MTRV over 2007/08. Consumption of high fructose corn syrup is projected at 800,000 mt, dry basis, the same level as estimated for 2007/08. Mexican 2008/09 sugar exports are projected at 500,000 MTRV, and 2007/08 exports are estimated at 530,000 MTRV. The destination for almost all of this sugar is the United States.

Deliveries to Mexico's IMMEX program are projected at 375,000 MTRV in 2008/09, 5,000 MTRV more than estimated deliveries in the previous year. Ending stocks for 2008/09 are projected at 1.413 million MTRV, implying a stocks-to-consumption ratio of 26.0 percent. This level is below the average 1997/98-2006/07 ending stocks-to-consumption ratio of 26.7 percent. Ending stocks for 2007/08 are estimated at 1.643 million MTRV, implying a stocks-to-consumption ratio of 30.7 percent.

U.S. Sugar

On May 11, 2008, the U.S. Department of Agriculture (USDA) released its latest supply and use estimates for fiscal year (FY) 2008 and first projections for FY 2009 in the World Agricultural Supply and Demand Estimates (WASDE) report.

Production

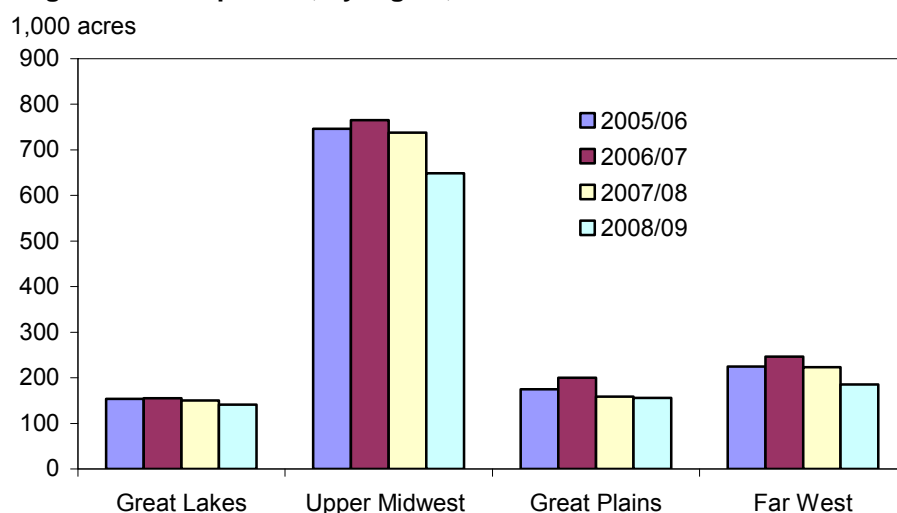
For most of the year, the USDA's Interagency Commodity Estimates Committee (ICEC) for sugar does not project sugar production for the out-year crop. For the most part, the USDA accepts the production estimates and projections provided by beet sugar processors and cane sugar millers to the Farm Service Agency (FSA). However, the processors' and millers' forecasts are not available until July of the preceding crop year. Therefore, in the meantime, WASDE reflects ICEC projections for FY 2009 sugar in May and June.

FY 2009 Beet Sugar Production

At the end of March 2008, the National Agricultural Statistics Service (NASS) projected 2008/09 crop year sugar beet acreage intentions at 1.132 million acres, about 13.7 percent lower than the average of the last 3 crop years' area planted. Most of the decrease in area is attributable to higher alternative crop prices, taking place when carryover sugar stocks have been expected to be high relative to expected total use in the 2007/08 crop year (i.e., average ending-year stocks-to-use projected in WASDE at 18.77 percent, October 2007 through March, 2008).

Figure 1 shows the distribution of area planted across the major producing regions since 2005/06. The largest acreage decrease takes place in the Upper Midwest (Minnesota and eastern North Dakota), over 100,000 acres relative to the

Figure 1
Sugar beet area planted, by region, 2005/06-2008/09



Source: USDA, NASS, Crop Production, *Planting Intentions*.

2005/06-2007/08 average, for about a 13.4-percent reduction. The second largest area reduction takes place in the Far West (Idaho, California, Oregon, and Washington State), 46,000 acres, for a 19.8-percent reduction. The Great Plains (Colorado, Wyoming, Nebraska, Montana, and western North Dakota) has 21,600 fewer acres, a 12.2-percent reduction. The Great Lakes (Michigan) has 12,000 fewer acres, a 7.8-percent decline.

Table 1 summarizes the methodology used to arrive at a projection for FY 2009 beet sugar production. The first column shows the NASS planted acreage intentions. The next column shows the average harvested-to-planted area ratios. Nationally, an average of 97.6 percent of area planted is harvested, implying that 1.105 million acres in aggregate for FY 2008 will be harvested. A State-by-State analysis of sugar beet yield trends implies a national yield projection of 26.0 tons per acre. Trend yields in certain States are higher than in prior years because of recent-year observed improvements in yield levels. These States include Minnesota, North Dakota, Michigan, Idaho, and Nebraska.

The resulting sugar beet production projection is 28.722 million tons, 10.0 percent less than FY 2008. Assuming normal sucrose levels and trend improvement in productivity, national sugar yield is projected at 3.965 tons/acre. Therefore, national beet sugar production is projected (sugar yield times area harvested) at 4.400 million short tons, raw value (STRV). This projection is 410,000 STRV less than FY 2008 estimated production (4.810 million STRV).

FY 2009 Cane Sugar Production

Table 2 shows cane sugar projections by State, along with underlying assumptions made by the sugar ICEC. The first column shows projected area harvested for sugar. Because NASS does not forecast area harvested until the end of June, the same area is assumed to be harvested as in the previous year. State sugar yields are projected based on sugarcane yields, trend productivity improvement, and normal sucrose levels. Sugar production is the multiplication of sugar yield and area harvested.

Florida cane sugar production for FY 2009 is forecast at 1.865 million STRV. This forecast assumes a return to normal weather patterns after 2 years of dry conditions, implying an expected sugar yield of 4.93 tons/acre. However, if dry conditions similar to the past 2 years persist, sugar yield could be expected to be 0.341 tons/acre lower at 4.59 tons/acre, which would imply production at 1.735 million STRV. Factoring in a drought probability of 50 percent implies an expected production level of 1.800 million STRV.

Texas is similar to Florida. Dry conditions in FY 2008 reduced expected sugar yield by 0.863 tons/ acre. Nonetheless, with the reemergence of normal weather, the USDA projects Texas production at 200,000 STRV. Conditions similar to those of FY 2008 imply production at 166,000 STRV, and 50-percent probability of these conditions implies expected production at 176,000 STRV.

The USDA projects FY 2009 Louisiana cane sugar at 1.410 million STRV and Hawaiian cane sugar at 240,000 STRV.

Table 1--ERS projection of beet sugar production for FY 2009

| Sugar beet States | Area planted 1/ | Estimated ratio: harvested-to- planted area 2/ | Area harvested | Trend yield | Sugar beet production | National sugar yield 3/ | Beet sugar |
|-------------------|-----------------|--|-----------------|-----------------|--------------------------|--------------------------------|--------------------------------|
| | A | α | B = α *A | C | D = B*C | ϕ | E = ϕ *B |
| | 1,000 acres | Ratio | 1,000 acres | Short tons/acre | 1,000 short tons | (Short ton, raw value)/acre | 1,000 short tons, raw value |
| California | 31.6 | 0.978 | 30.9 | 39.16 | 1,210 | -- | -- |
| Colorado | 35.8 | 0.952 | 34.1 | 24.56 | 837 | -- | -- |
| Idaho | 144.0 | 0.991 | 142.7 | 33.28 | 4,748 | -- | -- |
| Michigan | 141.0 | 0.969 | 136.6 | 23.84 | 3,257 | -- | -- |
| Minnesota | 432.0 | 0.978 | 422.4 | 24.56 | 10,375 | -- | -- |
| Montana | 35.8 | 0.982 | 35.2 | 24.19 | 851 | -- | -- |
| Nebraska | 52.0 | 0.930 | 48.3 | 23.64 | 1,143 | -- | -- |
| North Dakota | 217.0 | 0.981 | 212.9 | 24.77 | 5,273 | -- | -- |
| Oregon | 8.2 | 0.972 | 8.0 | 30.36 | 242 | -- | -- |
| Washington | 1.8 | 0.983 | 1.8 | 39.27 | 69 | -- | -- |
| Wyoming | 32.6 | 0.973 | 31.7 | 22.59 | 717 | -- | -- |
| Total | 1,131.8 | 0.976 | 1,104.5 | 26.00 | 28,722 | 3.965 | 4,379 |

1/ USDA, NASS, Acreage Intentions.

2/ Excludes payment-in-kind crop years of 2000/01 and 2001/02.

3/ National sugar yield = $0.02467 \times \text{Trend} (=39) + 0.115463 \times \text{sugar beet yield}$.

Source: USDA, ERS, Sugar and Sweetener Group.

Table 2--ERS projection of cane sugar production, FY 2009

| State | Climatic condition | Area harvested 1/ | Sugar yield 2/ | Cane sugar production |
|-----------|------------------------------|-------------------|--------------------------------|-----------------------------|
| | | 1,000 acres | (Short ton, raw value)/acre | 1,000 short tons, raw value |
| Florida | Normal | 378.0 | 4.93 | 1,864 |
| | 50 percent chance of drought | 378.0 | 4.76 | 1,799 |
| | Drought | 378.0 | 4.59 | 1,735 |
| Louisiana | Normal | 390.0 | 3.61 | 1,408 |
| Texas | Normal | 43.5 | 4.69 | 204 |
| | 50 percent chance of drought | 43.5 | 4.04 | 176 |
| | Drought | 43.5 | 3.83 | 166 |
| Hawaii | Normal | 20.2 | 11.82 | 239 |

1/ Assumed to equal area harvested for sugar from 2007/08.

2/ Florida sugar yield = $-0.846 - 0.341 \times (1 \text{ for fiscal years } 2006, 2007, 2008; 0, \text{ otherwise}) + 0.0282 \times \text{Trend} (= 38 \text{ for FY } 2009) + 0.126 \times \text{Florida sugarcane yield}$ Louisiana sugar yield = $-0.736 + 0.025 \times \text{Trend} + 0.116 \times \text{Louisiana sugarcane yield}$ Texas sugar yield = $-1.766 - 0.863 \times (1 \text{ for fiscal year } 2008; 0, \text{ otherwise}) + 0.155 \times \text{Texas sugarcane yield}$ Hawaii sugar yield = $-1.863 + 0.050 \times \text{Trend} + 0.132 \times \text{Hawaii sugarcane yield}$

Source: USDA, ERS, Sugar and Sweetener Group.

FY 2008 Production

At half way through the fiscal year, the beet processors' estimate of FY 2008 beet sugar production is 4.810 million STRV. Beet producers have produced 3.713 million through the end of March, about 76 percent of the expected total. With a NASS estimate of area harvested at 1.247 million acres, sugar recovery per harvested acre is calculated at a record 3.858 STRV. (Sugar recovery for FY 2007 was estimated at only slightly less, 3.841 STRV.)

In the latest FSA survey, Florida cane sugar millers estimate FY 2008 sugar production at 1.691 million STRV. This estimate implies sugar yield at 4.47 STRV/acre, about the same as in FY 2007 (4.50 STRV/acre) but below the historical trend (4.83 STRV/acre). The Louisiana sugarcane harvest ended in January, and sugar production was estimated at 1.442 million STRV. The USDA expects about 48,000 STRV of production next September, the last month of the fiscal year. Production is, therefore, projected at 1.490 million STRV for the fiscal year. (Production in Louisiana for September 2007 was 40,938 STRV.) Processors in Hawaii estimate production at 238,000 STRV, and the processor in Texas estimates production at 162,500 STRV.

Trade

Although the raw and refined sugar tariff-rate quotas (TRQ) for FY 2009 have not yet been announced, the USDA projects them in the WASDE report at minimum levels implied by existing international commitments to the World Trade Organization (WTO) and at the allocated levels from the Dominican Republic and Central American Free Trade Agreement (DR-CAFTA). The projection in the May WASDE is, therefore, at 1.274 million STRV, assuming a shortfall of 100,000 STRV (table 3). Included in the total minimum access quantity is the refined sugar TRQ, the minimum access commitment of which is 24,251 STRV, or 22,000 metric tons, raw value (MTRV). Until the TRQ is actually announced, there is no projection for additional specialty sugar. This sugar is mostly organic sugar, and its allocation for FY 2008 was set at 70,000 STRV in addition to the 1,825 STRV included in the minimum access quantity. The USDA projects imports from Mexico at 550,000 STRV.

Other program sugar imports outside the sugar TRQ for FY 2009 are projected to total 425,000 STRV. Other USDA import programs include the Refined Sugar Re-export Program, the Sugar-Containing Products Program, and the Polyhydric Alcohol Program.

Sugar exports for FY 2009 are forecast at 250,000 STRV. Most of these exports are expected to go to Mexico where they are used in Mexico's product re-export (IMMEX) program. Almost all such sugar-containing products are expected to be exported to the United States.

Based on reliable information, the FY 2008 raw sugar TRQ shortfall was increased by 70,000 STRV in the May 2008 WASDE to 170,000 STRV. The resulting total (1.061 million STRV), when summed with other import components (refined sugar TRQ, DR-CAFTA, Mexico, and re-export imports), brings the FY 2008 import estimate to 2.251 million STRV (table 4).

Table 3--USDA estimate of sugar imports, FY 2009

| Item | Metric tons, raw value | Short tons, raw value |
|-----------------------------------|------------------------|-----------------------|
| Raw sugar TRQ | 1,117,195 | 1,231,497 |
| Less shortfall | -90,719 | -100,000 |
| Total raw sugar TRQ | 1,026,476 | 1,131,497 |
| Refined sugar TRQ | | |
| Allocation to Canada | 10,300 | 11,354 |
| Global | 7,090 | 7,815 |
| Specialty | | |
| Base | 1,656 | 1,825 |
| Additional | 0 | |
| Specialty total | 1,656 | 1,825 |
| Total refined sugar TRQ | 19,046 | 20,994 |
| CAFTA/DR TRQ | 110,460 | 121,760 |
| Total estimate TRQ entries | 1,155,982 | 1,274,251 |
| Mexico | 498,957 | 550,000 |
| Re-export program imports | 385,557 | 425,000 |
| Sugar syrups, high-tier | 0 | 0 |
| Total projected imports | 2,040,496 | 2,249,251 |

1/ Mexico allocated 7,258 MTRV (8,000 STRV) under raw cane TRQ.

Source: USDA, FAS.

Table 4--USDA estimate of sugar imports, FY 2008

| Item | Metric tons, raw value | Short tons, raw value |
|-----------------------------------|------------------------|-----------------------|
| Raw sugar TRQ | 1,117,195 | 1,231,497 |
| Less shortfall | -154,223 | -170,000 |
| Total raw sugar TRQ | 962,972 | 1,061,497 |
| Refined sugar TRQ | | |
| Allocation to Canada | 10,300 | 11,354 |
| Global | 7,090 | 7,815 |
| Specialty | | |
| Base | 1,656 | 1,825 |
| Additional | 63,503 | 70,000 |
| Specialty total | 65,159 | 71,825 |
| Total refined sugar TRQ | 82,549 | 90,994 |
| CAFTA/DR TRQ | 89,440 | 98,590 |
| Total estimate TRQ entries | 1,134,961 | 1,251,081 |
| Mexico | 521,637 | 575,000 |
| Re-export program imports | 385,557 | 425,000 |
| Sugar syrups, high-tier | 0 | 0 |
| Total projected imports | 2,042,155 | 2,251,081 |

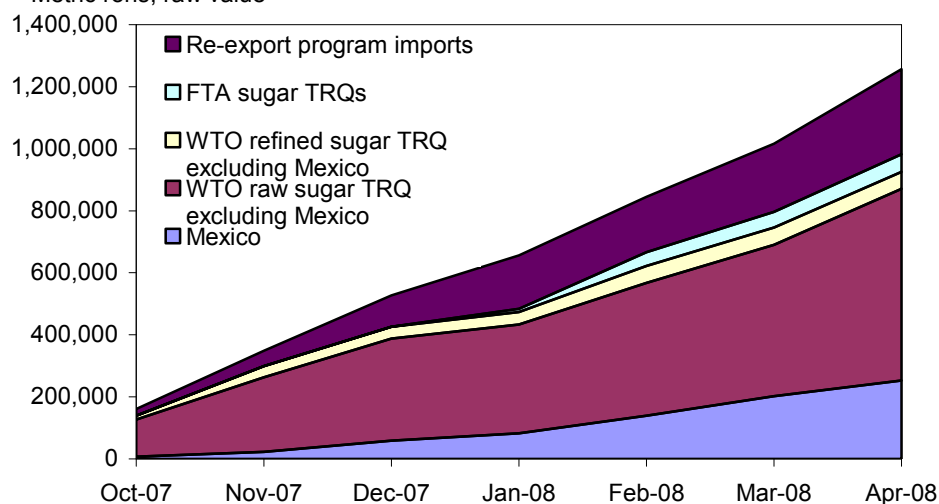
1/ Mexico allocated 7,258 MTRV (8,000 STRV) under raw cane TRQ.

Source: USDA, FAS.

Figure 2

Cumulative U.S. sugar imports, by month, FY 2008

Metric tons, raw value



Source: U.S. Customs and Border Protection.

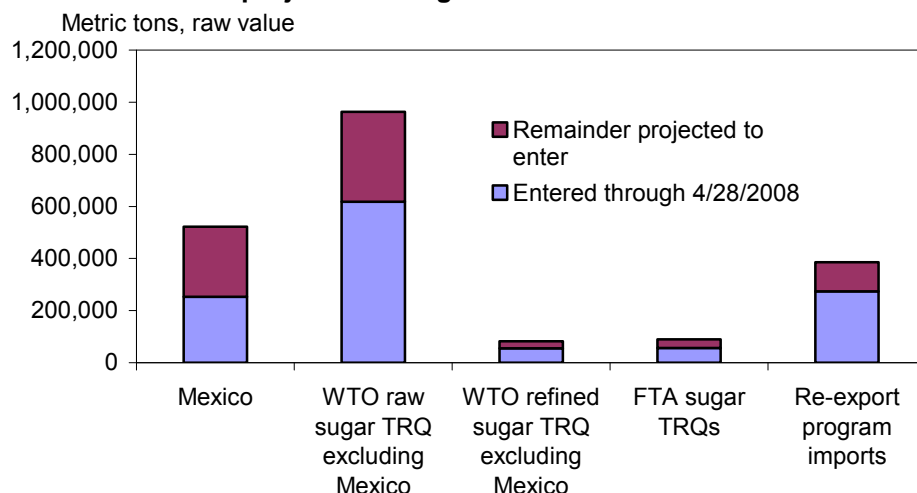
Based on data found in tables 21-24, figure 2 shows monthly cumulative imports through the end of April 2008, the seventh month of the fiscal year. Figure 3 shows this same information, along with the amounts expected to enter by the end of September. Through April 2008, raw sugar TRQ entries have equaled 688,496 STRV (624,593 MTRV), or about 65 percent of the expected total. Entries of specialty (mostly organic) sugar under the refined sugar TRQ are restricted by tranches that open on pre-specified dates during the fiscal year. The latest tranche opened on May 14, 2008, for 15,050 STRV (13,653 MTRV). The last tranche for the same quantity opens on August 27, 2008. Sugar from Mexico for the year is estimated at 575,000 STRV. Of this amount, 48.5 percent has entered through April.

Sugar Deliveries, Sugar-Containing Products, Ending Stocks

Deliveries for domestic food and beverage use for FY 2008 are projected at 10.225 million STRV, a seemingly large increase of 3.1 percent over the FY 2007 delivery estimate of 9.913 million STRV. However, as analyzed in earlier editions of the *Sugar and Sweetener Outlook*, FY 2007 deliveries were probably understated by 185,000 STRV. That analysis suggested that, in FY 2007, entities that do not report to the USDA held early-season, unrecorded draw-downs of sugar stocks. This refined sugar was imported in late FY 2006 and was recorded as a delivery upon entry into U.S. customs territory. Deliveries in the first quarter of FY 2007 were unusually low as the normal delivery pattern was altered by the presence of the earlier-imported refined sugar. As a consequence of these factors, the actual increase for FY 2008 is more on the order of 1.3 percent. Further, in making its forecast for FY 2009, the USDA assumed an increase of about 1 percent in deliveries for human consumption, making it 10.325 million STRV.

Figure 3

FY 2008 U.S. sugar imports, by type, actual through 4/30/2008 and projected through 9/30/2008



Source: U.S. Customs and Border Protection (data), USDA (projection).

The problem described immediately above is compounded by the unusually high level of imports of refined sugar throughout the whole of FY 2006, 615,000 STRV. Because the end use of this sugar cannot be tracked, comparisons of FY 2008 end use data with corresponding data in FY 2006 and FY 2007 are suspect. The only clear trend for sugar in industrial uses is the increase of sugar for beverage manufacturing. Deliveries for the first half of FY 2008 have amounted to 170,983 STRV, 42.5 percent higher than the average for corresponding periods in FY 2006 and FY 2007.

In spite of these analytical difficulties, deliveries since the beginning of the year have been stronger than the pattern of the last few years. After the refinery explosion in February, there was some concern that firms would increase their sugar purchases to guard against effects of possible market shortages due to reduced refining capacity. Although the data may contain an element of this concern, the strength in deliveries through the end of March seems to outweigh the concern.

FY 2008 sugar in imported products through two quarters (October 2007-March 2008) is estimated at 614,601 STRV, a decrease of 3.7 percent compared with the same period in FY 2007 (tables 5 and 6). The upward trend in sugar in imported products, in evidence since 1995, has reached a plateau, at least for the present. In individual product categories, sugar in sugar confectionery has decreased 9.3 percent. Although part of this decrease is due to fewer imports of flavored sugar from Mexico (Harmonized Tariff Schedule (HTS) 1701.91.4800 and 1701.91.5800), the decrease without the inclusion of these products is 7.0 percent. Interestingly, imports of sugar in carbonated and other beverages have decreased 4.9 percent in the first half of FY 2008 compared with FY 2007. Sales of these beverages are believed to be targeted to immigrant groups from Mexico and other countries living in the United States. The sugar in the other import product categories are about the same as in the first half of the previous fiscal year. Sugar in product exports for the same periods increased 14.3 percent to 323,000 STRV.

Table 5--Estimated U.S. sugar deliveries and sugar in traded sugar-containing products 1/

| Fiscal year | Oct-Dec | Jan-Mar | Apr-June | July-Sept | FY Total |
|--|---------|---------|----------|-----------|----------|
| <i>1,000 short tons, raw value (STRV)</i> | | | | | |
| Domestic sugar deliveries for food and beverage use: | | | | | |
| 1993 | 2,280 | 2,046 | 2,172 | 2,432 | 8,930 |
| 1994 | 2,277 | 2,121 | 2,265 | 2,533 | 9,196 |
| 1995 | 2,260 | 2,105 | 2,311 | 2,542 | 9,218 |
| 1996 | 2,379 | 2,191 | 2,355 | 2,519 | 9,445 |
| 1997 | 2,430 | 2,143 | 2,401 | 2,591 | 9,565 |
| 1998 | 2,443 | 2,233 | 2,428 | 2,568 | 9,672 |
| 1999 | 2,458 | 2,208 | 2,553 | 2,655 | 9,873 |
| 2000 | 2,580 | 2,318 | 2,484 | 2,611 | 9,993 |
| 2001 | 2,564 | 2,370 | 2,486 | 2,580 | 10,000 |
| 2002 | 2,474 | 2,227 | 2,439 | 2,645 | 9,785 |
| 2003 | 2,497 | 2,183 | 2,360 | 2,464 | 9,504 |
| 2004 | 2,504 | 2,286 | 2,368 | 2,520 | 9,678 |
| 2005 | 2,547 | 2,335 | 2,471 | 2,666 | 10,019 |
| 2006 | 2,571 | 2,436 | 2,487 | 2,690 | 10,184 |
| 2007 | 2,389 | 2,307 | 2,535 | 2,682 | 9,913 |
| 2008 | 2,514 | 2,501 | | | |
| Estimated sugar in imported sugar-containing products: | | | | | |
| 1993 | 75 | 81 | 79 | 74 | 309 |
| 1994 | 76 | 62 | 68 | 84 | 290 |
| 1995 | 79 | 83 | 92 | 100 | 354 |
| 1996 | 99 | 85 | 95 | 110 | 389 |
| 1997 | 112 | 100 | 119 | 128 | 459 |
| 1998 | 125 | 115 | 138 | 151 | 529 |
| 1999 | 140 | 140 | 163 | 177 | 620 |
| 2000 | 173 | 162 | 177 | 191 | 704 |
| 2001 | 185 | 174 | 195 | 216 | 769 |
| 2002 | 215 | 192 | 223 | 250 | 879 |
| 2003 | 236 | 226 | 256 | 284 | 1,002 |
| 2004 | 266 | 251 | 288 | 315 | 1,119 |
| 2005 | 291 | 277 | 298 | 340 | 1,205 |
| 2006 | 322 | 313 | 358 | 352 | 1,345 |
| 2007 | 334 | 304 | 321 | 352 | 1,311 |
| 2008 | 323 | 292 | 0 | 0 | |
| Estimated sugar in exported sugar-containing products: | | | | | |
| 1993 | 59 | 56 | 52 | 62 | 229 |
| 1994 | 74 | 63 | 63 | 66 | 267 |
| 1995 | 68 | 74 | 78 | 91 | 311 |
| 1996 | 97 | 85 | 90 | 103 | 376 |
| 1997 | 103 | 98 | 102 | 108 | 411 |
| 1998 | 109 | 91 | 98 | 103 | 401 |
| 1999 | 106 | 96 | 99 | 109 | 409 |
| 2000 | 116 | 104 | 107 | 128 | 456 |
| 2001 | 134 | 115 | 129 | 130 | 508 |
| 2002 | 130 | 112 | 118 | 125 | 485 |
| 2003 | 138 | 123 | 130 | 140 | 531 |
| 2004 | 150 | 137 | 140 | 148 | 575 |
| 2005 | 152 | 142 | 160 | 161 | 616 |
| 2006 | 175 | 143 | 150 | 150 | 618 |
| 2007 | 157 | 145 | 150 | 156 | 608 |
| 2008 | 179 | 166 | 0 | 0 | |

Continued--

Table 5--Estimated U.S. sugar deliveries and sugar in traded sugar-containing products 1/

| Fiscal year | Oct-Dec | Jan-Mar | Apr-June | July-Sept | FY Total |
|--|---------|---------|----------|-----------|----------|
| <i>1,000 short tons, raw value (STRV)</i> | | | | | |
| Estimated sugar in USDA sugar-containing product re-export program: | | | | | |
| 1993 | 26 | 23 | 26 | 57 | 132 |
| 1994 | 24 | 20 | 39 | 43 | 126 |
| 1995 | 28 | 18 | 18 | 39 | 103 |
| 1996 | 21 | 20 | 30 | 32 | 104 |
| 1997 | 22 | 68 | 22 | 45 | 157 |
| 1998 | 21 | 24 | 32 | 46 | 123 |
| 1999 | 44 | 58 | 35 | 32 | 169 |
| 2000 | 21 | 21 | 22 | 22 | 86 |
| 2001 | 18 | 21 | 29 | 30 | 98 |
| 2002 | 40 | 39 | 35 | 42 | 156 |
| 2003 | 43 | 44 | 49 | 47 | 183 |
| 2004 | 35 | 28 | 40 | 39 | 142 |
| 2005 | 28 | 24 | 37 | 33 | 121 |
| 2006 | 25 | 25 | 23 | 32 | 106 |
| 2007 | 31 | 43 | 55 | 40 | 169 |
| 2008 | 35 | 27 | | | |
| Estimated sugar deliveries for domestic consumption (adjusted for trade in sugar-containing products): | | | | | |
| 1993 | 2,322 | 2,094 | 2,226 | 2,500 | 9,142 |
| 1994 | 2,303 | 2,140 | 2,309 | 2,594 | 9,346 |
| 1995 | 2,299 | 2,132 | 2,343 | 2,590 | 9,364 |
| 1996 | 2,402 | 2,211 | 2,390 | 2,558 | 9,561 |
| 1997 | 2,461 | 2,213 | 2,439 | 2,656 | 9,770 |
| 1998 | 2,480 | 2,281 | 2,500 | 2,662 | 9,923 |
| 1999 | 2,536 | 2,311 | 2,651 | 2,755 | 10,253 |
| 2000 | 2,658 | 2,396 | 2,576 | 2,697 | 10,328 |
| 2001 | 2,632 | 2,450 | 2,580 | 2,697 | 10,359 |
| 2002 | 2,599 | 2,346 | 2,580 | 2,811 | 10,335 |
| 2003 | 2,637 | 2,330 | 2,534 | 2,656 | 10,158 |
| 2004 | 2,655 | 2,428 | 2,555 | 2,726 | 10,364 |
| 2005 | 2,714 | 2,493 | 2,646 | 2,877 | 10,730 |
| 2006 | 2,743 | 2,630 | 2,719 | 2,924 | 11,016 |
| 2007 | 2,597 | 2,510 | 2,761 | 2,917 | 10,785 |
| 2008 | 2,693 | 2,654 | | | |

1/ includes Puerto Rico.

Source: USDA, FAS, *Sweetener Market Data*, (deliveries data); USDA, ERS, Sugar and Sweetener Group, (sugar in traded products).

Table 6--Estimated sugar in U.S. product imports and exports, by quarter, 2000-08.

| Year | Quarter | Sugar confectionery 1/ | Cocoa and cocoa preparations | Cereal and bakers preparations | Bread, pastry, cakes, etc. | Misc. edible preparations | Carbonated soft drinks | Total sugar in imported products | Total sugar in exported products | Net sugar inflow in products |
|--|---------|---------------------------|---------------------------------|-----------------------------------|-------------------------------|------------------------------|---------------------------|--|--|------------------------------------|
| <i>1,000 short tons, refined value</i> | | | | | | | | | | |
| 2000 | 1 | 55,893 | 30,093 | 4,310 | 21,857 | 27,881 | 11,143 | 151,177 | 97,575 | 53,602 |
| | 2 | 53,582 | 30,872 | 5,170 | 22,083 | 36,656 | 17,432 | 165,795 | 99,551 | 66,244 |
| | 3 | 65,986 | 34,019 | 4,913 | 27,118 | 28,847 | 17,963 | 178,846 | 119,852 | 58,994 |
| | 4 | 64,452 | 35,423 | 5,154 | 28,682 | 26,983 | 12,206 | 172,901 | 125,618 | 47,282 |
| 2001 | 1 | 58,397 | 34,603 | 4,074 | 24,710 | 28,332 | 12,465 | 162,581 | 107,209 | 55,371 |
| | 2 | 61,638 | 34,705 | 4,655 | 25,440 | 35,711 | 19,667 | 181,816 | 120,818 | 60,998 |
| | 3 | 73,570 | 43,077 | 4,695 | 31,255 | 29,866 | 19,248 | 201,711 | 121,239 | 80,472 |
| | 4 | 66,370 | 47,965 | 4,672 | 34,512 | 33,422 | 13,581 | 200,523 | 121,725 | 78,797 |
| 2002 | 1 | 60,027 | 41,174 | 5,219 | 25,223 | 33,770 | 13,928 | 179,341 | 104,652 | 74,690 |
| | 2 | 71,349 | 44,276 | 4,667 | 26,511 | 39,860 | 21,486 | 208,149 | 110,141 | 98,007 |
| | 3 | 85,942 | 55,501 | 4,651 | 32,380 | 34,310 | 20,545 | 233,329 | 116,380 | 116,949 |
| | 4 | 81,685 | 52,658 | 4,881 | 33,724 | 32,429 | 14,894 | 220,272 | 128,759 | 91,513 |
| 2003 | 1 | 74,278 | 48,212 | 5,805 | 28,656 | 36,622 | 17,870 | 211,444 | 115,366 | 96,077 |
| | 2 | 86,456 | 48,091 | 5,860 | 31,781 | 41,386 | 25,534 | 239,108 | 121,482 | 117,626 |
| | 3 | 105,086 | 58,865 | 6,132 | 36,510 | 35,778 | 23,268 | 265,639 | 130,461 | 135,178 |
| | 4 | 96,965 | 53,092 | 7,342 | 37,552 | 37,073 | 16,769 | 248,794 | 140,640 | 108,154 |
| 2004 | 1 | 85,890 | 50,762 | 6,134 | 31,286 | 40,580 | 19,620 | 234,272 | 127,941 | 106,331 |
| | 2 | 95,481 | 51,296 | 5,907 | 32,740 | 54,497 | 28,812 | 268,733 | 130,813 | 137,920 |
| | 3 | 116,929 | 60,192 | 6,322 | 36,703 | 46,746 | 27,341 | 294,234 | 138,317 | 155,917 |
| | 4 | 102,519 | 57,817 | 6,719 | 38,169 | 44,505 | 21,958 | 271,687 | 142,166 | 129,521 |
| 2005 | 1 | 95,894 | 52,593 | 6,408 | 32,231 | 48,754 | 22,577 | 258,458 | 132,481 | 125,976 |
| | 2 | 104,711 | 53,727 | 6,060 | 33,878 | 50,268 | 30,151 | 278,795 | 149,868 | 128,927 |
| | 3 | 132,330 | 63,740 | 6,766 | 38,352 | 45,958 | 30,447 | 317,594 | 150,723 | 166,871 |
| | 4 | 124,034 | 61,262 | 6,778 | 39,280 | 42,859 | 26,571 | 300,784 | 163,888 | 136,896 |
| 2006 | 1 | 113,189 | 64,153 | 6,180 | 32,874 | 48,623 | 27,419 | 292,436 | 133,673 | 158,763 |
| | 2 | 141,139 | 66,249 | 6,299 | 33,896 | 53,490 | 33,916 | 334,988 | 139,891 | 195,097 |
| | 3 | 126,324 | 73,329 | 5,828 | 39,611 | 47,260 | 36,336 | 328,687 | 140,145 | 188,543 |
| | 4 | 118,895 | 71,719 | 6,425 | 42,214 | 44,320 | 29,044 | 312,616 | 147,126 | 165,490 |
| 2007 | 1 | 103,240 | 65,694 | 6,530 | 34,817 | 44,275 | 29,515 | 284,071 | 135,107 | 148,964 |
| | 2 | 102,477 | 67,848 | 6,132 | 37,448 | 52,509 | 33,670 | 300,083 | 140,211 | 159,872 |
| | 3 | 119,503 | 77,208 | 6,172 | 41,088 | 48,744 | 36,070 | 328,785 | 145,788 | 182,997 |
| | 4 | 107,843 | 70,971 | 6,253 | 41,433 | 44,870 | 30,096 | 301,465 | 167,188 | 134,277 |
| 2008 | 1 | 93,572 | 65,601 | 6,673 | 35,596 | 45,872 | 25,615 | 272,929 | 155,501 | 117,428 |

1/ Includes flavored sugars -- HTS 1701.91.4800 and 1701.91.5800.

Source: USDA, ERS, Sugar and Sweetener Group.

Ending-year stocks for FY 2008 are estimated at 1.766 million STRV, implying an ending-year stocks-to-use ratio of 16.4 percent. The ratio projected in December 2007 had been at a high of 9.4 percent. Since December, the estimate for beet sugar production has been lowered by 86,000 STRV and Florida cane sugar production has been lowered by 84,000 STRV. (The decrease in Texas cane sugar production, 36,000 STRV, was offset by an increase in Louisiana cane sugar production, 40,000 STRV.) The estimate of deliveries for human consumption was increased by 125,000 STRV, from December to May. (An increase in estimated sugar from Mexico, 100,000 STRV, was offset by an increased estimate of shortfall, (70,000 STRV), no sugar expected from Costa Rica under the DR-CAFTA, and no imports of sugar syrups.)

The initial projection of ending-year stocks for FY 2009 is 1.335 million STRV, implying an ending-year stocks-to-use ratio of 12.4 percent. Compared with that of FY 2008, production is projected to be lower by 276,000 STRV. The projected decrease in beet sugar production of 410,000 STRV is offset by a projected increase in cane sugar production of 134,000 STRV. FY 2009 beginning stocks are 43,000 lower than in FY 2008; imports are projected about the same as in FY 2008; and deliveries are projected to be 100,000 STRV more than in FY 2008.

Prices

The refined beet sugar price reported by *Milling and Baking News* is 30-33 cents/pound (lb) as of May 16, 2008. The price had increased 4 cents to 28 cents/lb after the explosion at the Imperial Sugar refinery on February 7. According to *Milling and Baking News*, there is concern that area planted may be less than indicated in NASS's *Planting Intentions*.

The nearby no.14 New York raw sugar contract price is averaging 20.7 cents/lb through the first half of May. With the minimum price to avoid forfeiture in Florida projected by the FSA at above 21 cents per pound (table 7), there may be raw sugar forfeitures this fiscal year. The forfeiture concern stems from the loss of the refinery in February. Other refineries were able to take up the refining slack but only by running above normal pace. Demand for raw sugar is, therefore, hypothesized to be reduced by the lack of sufficient refining capacity.

Table 7--Calculation of minimum prices of raw cane and refined beet sugar to avoid forfeiture, 2007/08 crop

| State/region | Cost of loan redemption and marketing | | | | | Minimum price 3/ |
|---|---------------------------------------|---------------------|--------------------|--------------------|--------------------|------------------|
| | Loan rate | Interest expense 1/ | Transport costs 2/ | Location discounts | Cash discount (2%) | |
| | <i>Cents per pound</i> | | | | | |
| Raw cane sugar | | | | | | |
| Florida | 18.07 | 0.58 | 2.39 | 0.00 | -- | 21.04 |
| Hawaii | 16.64 | 0.53 | 2.80 | 1.25 | -- | 21.22 |
| Louisiana | 18.27 | 0.58 | 0.52 | 0.46 | -- | 19.83 |
| Texas | 17.27 | 0.55 | 1.95 | 0.40 | -- | 20.17 |
| Refined beet sugar | | | | | | |
| Michigan and Ohio | 24.17 | 0.77 | -- | -- | 0.51 | 25.45 |
| Minnesota and eastern North Dakota | 22.89 | 0.73 | -- | -- | 0.48 | 24.10 |
| Colorado, Nebraska, eastern Wyoming | 22.95 | 0.73 | -- | -- | 0.48 | 24.16 |
| Montana, western Wyoming, and western North Dakota | 23.00 | 0.73 | -- | -- | 0.48 | 24.21 |
| Idaho, Oregon, Washington State | 22.03 | 0.70 | -- | -- | 0.46 | 23.19 |
| California | 23.62 | 1.98 | -- | -- | 0.52 | 26.12 |

1/ Commodity Credit Corporation interest rate = 4.25 percent.

2/ Based on 4/21/08 freight reporting.

3/ The unit amount that the borrower repays.

Source: USDA, FSA.

Mexico Sugar and HFCS

The USDA estimates 2007/08 Mexican sugar production at 5.950 million metric tons, raw value (MTRV). After a slow start to the harvest season due to labor unrest, the pace picked up substantially. Sucrose recovery through the end of April was at a high level of 12.15 percent, raw basis (11.46 percent, tel quel). With several more weeks to the harvest season, the recovery rate is forecast by the Economic Research Service (ERS) Sugar Group to be at 12.18 percent, raw basis (11.48 percent, tel quel). Although ERS estimates that the sugarcane crop should be about 49 million metric tons (mt), the Foreign Agricultural Service (FAS) post in Mexico City expects a crop of 50 million mt, implying that production may end up higher.

The USDA projects 2008/09 Mexican sugar production at 5.850 million MTRV. Sugarcane area harvested is projected at 668,000 hectares, about the same level as this year. Sugarcane production for 2008/09 is projected at 51.0 million metric tons (mt), implying sugar recovery at 11.5 percent, raw basis (10.8 percent, tel quel basis). Although the sugarcane crop is forecast higher than this year's crop, it is assumed that sugar yield (i.e., sugar per harvested area) will be close to trend (fig. 4).

The USDA projects 2008/09 Mexican sugar deliveries for human consumption at 5.430 million MTRV, an increase of 80,000 MTRV over 2007/08. Consumption of high fructose corn syrup (HFCS) is projected at 800,000 mt, dry basis, the same level as estimated for 2007/08. Mexican 2008/09 sugar exports are projected at 500,000 MTRV, and 2007/08 exports are estimated at 530,000 MTRV. The destination for almost all this sugar is the United States.

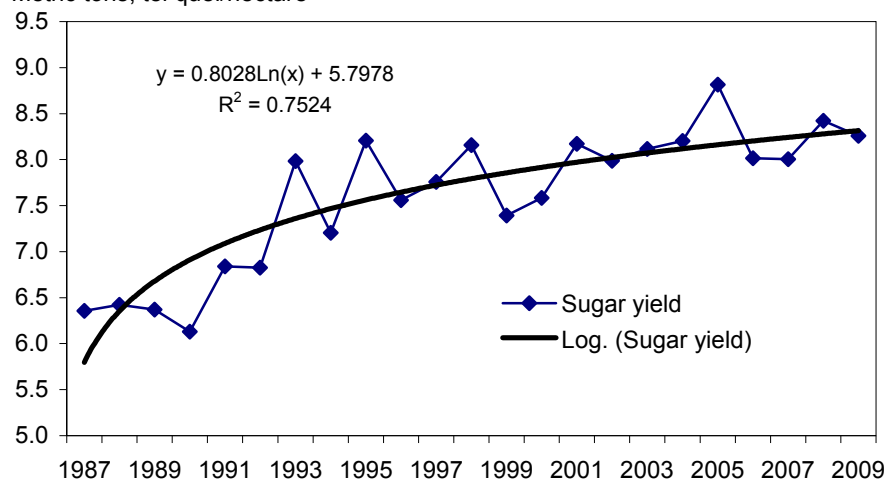
Deliveries to Mexico's IMMEX program are projected at 375,000 MTRV in 2008/09. This amount is 5,000 MTRV more than estimated deliveries in the previous year. Ending stocks for 2008/09 are projected at 1.413 million MTRV, implying a stocks-to-consumption ratio of 26.0 percent. This level is below the average 1997/98-2006/07 ending stocks-to-consumption ratio of 26.7 percent. Ending stocks for 2007/08 are estimated at 1.643 million MTRV, implying a stocks-to-consumption ratio of 30.7 percent (fig. 5).

Sugar prices in Mexico remain low. The price of estandar sugar in Mexico City has averaged 258 pesos per 50-kilogram bag through mid-May, or about 22.3 cents/pound (lb) (fig. 6). Although this price is higher than the raw sugar No.14 contract price of 20.7 cents/lb, estandar's high polarity gives it a premium to the 96-pol raw sugar, which implies that these prices are fairly close (although separated by distance). The price of refinado sugar in Mexico City has averaged 319 pesos per 50-kilogram bag through mid-May, or about 27.5 cents/lb. This price is below the equivalent U.S. refined price in the Midwest of 30-33 cents/lb (fig. 7). The low sugar prices in Mexico are part of the reason for HFCS not being used more in the Mexican beverage industry.

Figure 4

Sugar yield in Mexico, actual and projected, 1987-2009

Metric tons, tel quel/hectare

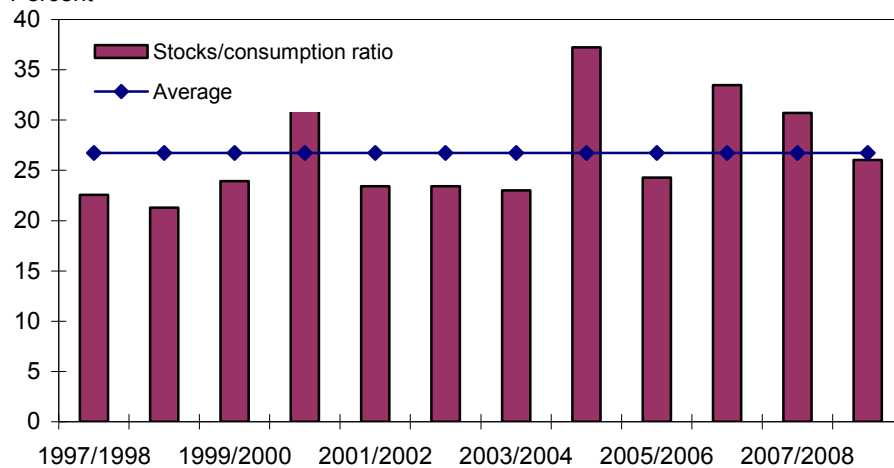


Sources: COAAZUCAR (data), ERS, Sugar and Sweetener Group (projection).

Figure 5

Sugar in Mexico, ratio of ending fiscal year stocks to consumption, 1997/98-2008/09

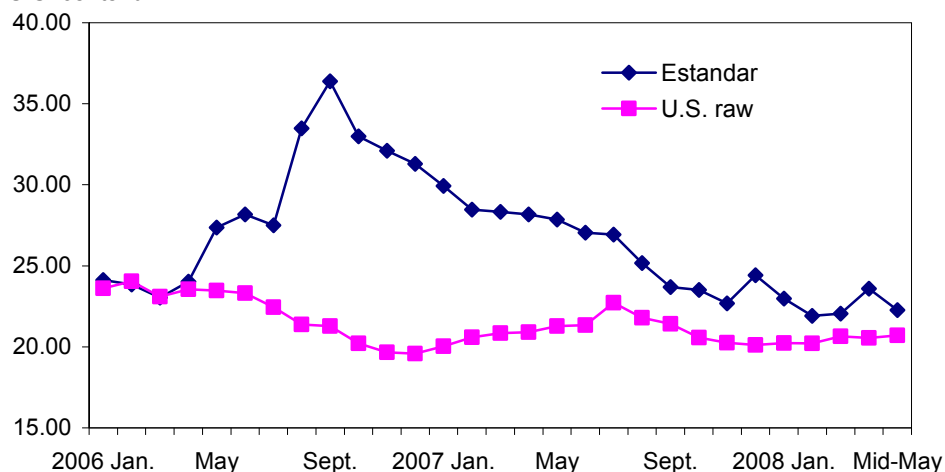
Percent



Source: USDA, FAS PSD database.

Figure 6
**Estandar sugar price, Mexico City, and U.S. No. 14 raw
sugar nearby futures price**

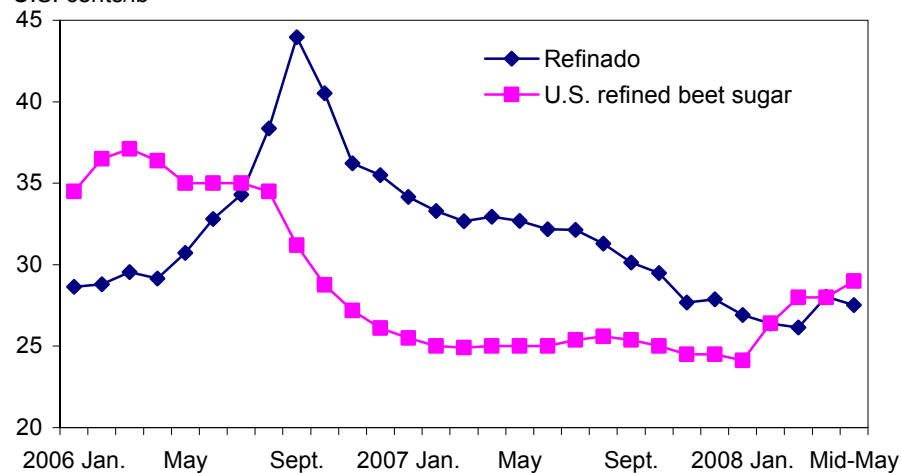
U.S. cents/lb



Source: Economia - SNIIM, ICE market data.

Figure 7
**Refinado sugar price, Mexico City, and refined beet
sugar, Midwest price**

U.S. cents/lb



Source: Economia - SNIIM, *Milling and Baking News*.

U.S. Sweetener Demand

The Economic Research Service (ERS) makes calendar year estimates of total sweetener deliveries that are available for food and beverage consumption by U.S. consumers. These sweeteners include refined sugar; the corn sweeteners of high fructose corn syrup (HFCS), glucose syrup, and dextrose; honey; and other edible syrups, including maple syrup and maple sugar.

U.S. deliveries of total sweeteners for human food and beverage use for 2007 is estimated at 20.561 million tons (table 8), representing a decrease of 1.0 percent compared with deliveries in 2006. Refined sugar deliveries were about the same as in 2006, but corn sweetener deliveries for food and beverage use fell by 2.0 percent. Within the corn sweetener category, HFCS deliveries fell for the fifth year in a row, down 6.3 percent since 2002. Deliveries of the other corn sweeteners for human use stayed on the same level as 2006. Honey deliveries decreased by 11.4 percent, and other edible syrups remained at about the same level as in 2006.

On a per capita basis, U.S. sweetener deliveries for 2007 were equal to 136.6 pounds, down 2.6 pounds from 2006 and down 14.8 pounds from the per capita high of 151.4 pounds set in 1999.

Sugar contained in imported products has been excluded in estimating U.S. per capita sweetener deliveries. Prior to 1995, sugar contained in imports was offset by sugar contained in U.S. food exports, therefore indicating only a minor positive adjustment to total deliveries. Beginning in the 1995-96 period, imports of sugar-containing products started increasing at a faster rate than U.S. exports of sugar-containing products. The next-to-last column of table 8 shows the addition of sweetener supplies due to net imports of these products. The added amount has grown from 116,000 tons in 1996 to 801,000 tons in 2007. (The 2007 total actually decreased relative to 2006 by 11,000 tons.) On a per capita basis, the sugar in net imported products added 5.3 pounds to total per capita sweetener availability in 2007 for a total of 141.9 pounds.

Data estimated by SRI Consulting and published in their Chemical Economics Handbook (CEH) shows in the next-to-last column the sucrose equivalence of available high-intensity sweeteners saccharin, aspartame, acesulfame K, sucralose, and cyclamate. The supply of these sweeteners has been growing over time, from 2.91 million tons in 1992 to 4.57 million tons in 2007. On a per capita basis, consumption availability in 2007 is estimated at 30.3 pounds, sucrose equivalent.

Table 8--U.S. caloric sweeteners estimated deliveries for domestic food and beverage use, by calendar year 1/

| Table 6-10.6. Caloric sweeteners estimated deliveries for domestic food and beverage use, by calendar year 1/ | | | | | | | | | | | | | |
|---|----------|---------------|-----------------|---------------|----------|--------|------------|---------------|--------------------------|------------------------|---|--|------------------|
| U.S. population 2/ | | Refined sugar | Corn sweeteners | | | | Pure honey | Edible syrups | Total caloric sweeteners | Sugar from net imports | Total caloric sweeteners with sugar-containing products | High Intensity Sweeteners 3/ (sucrose equivalence) | Total sweeteners |
| Calendar year | (July 1) | | HFCS | Glucose syrup | Dextrose | Total | | | | | | | |
| 1,000 tons, dry basis | | | | | | | | | | | | | |
| Pounds, dry basis | | | | | | | | | | | | | |
| 1992 | 256.9 | 8,249 | 6,652 | 1,943 | 461 | 9,056 | 126 | 53 | 17,483 | 174 | 17,657 | 2,908 | 20,565 |
| 1993 | 260.3 | 8,305 | 7,086 | 2,050 | 481 | 9,617 | 135 | 56 | 18,112 | 183 | 18,295 | 3,032 | 21,327 |
| 1994 | 263.4 | 8,478 | 7,398 | 2,093 | 502 | 9,993 | 126 | 54 | 18,651 | 153 | 18,804 | 3,157 | 21,960 |
| 1995 | 266.6 | 8,652 | 7,676 | 2,176 | 528 | 10,380 | 120 | 57 | 19,209 | 121 | 19,331 | 3,550 | 22,881 |
| 1996 | 269.7 | 8,785 | 7,788 | 2,216 | 537 | 10,541 | 131 | 57 | 19,514 | 116 | 19,630 | 3,695 | 23,326 |
| 1997 | 272.9 | 8,861 | 8,240 | 2,364 | 511 | 11,116 | 129 | 58 | 20,163 | 197 | 20,360 | 3,689 | 24,049 |
| 1998 | 276.1 | 8,966 | 8,552 | 2,358 | 502 | 11,411 | 130 | 59 | 20,566 | 274 | 20,840 | 3,782 | 24,622 |
| 1999 | 279.3 | 9,264 | 8,897 | 2,281 | 488 | 11,666 | 147 | 60 | 21,138 | 354 | 21,492 | 3,877 | 25,369 |
| 2000 | 282.3 | 9,253 | 8,845 | 2,230 | 476 | 11,551 | 157 | 61 | 21,022 | 304 | 21,327 | 3,917 | 25,243 |
| 2001 | 285.0 | 9,195 | 8,920 | 2,205 | 469 | 11,595 | 134 | 61 | 20,986 | 388 | 21,373 | 4,059 | 25,432 |
| 2002 | 287.7 | 9,109 | 9,045 | 2,224 | 473 | 11,741 | 153 | 62 | 21,065 | 529 | 21,594 | 4,193 | 25,787 |
| 2003 | 290.3 | 8,859 | 8,849 | 2,209 | 449 | 11,507 | 146 | 63 | 20,575 | 621 | 21,196 | 4,284 | 25,479 |
| 2004 | 293.0 | 9,045 | 8,779 | 2,292 | 487 | 11,558 | 130 | 64 | 20,797 | 656 | 21,453 | 4,381 | 25,833 |
| 2005 | 295.7 | 9,346 | 8,756 | 2,261 | 481 | 11,497 | 155 | 66 | 21,065 | 669 | 21,734 | 4,414 | 26,148 |
| 2006 | 298.4 | 9,323 | 8,702 | 2,053 | 463 | 11,219 | 167 | 66 | 20,774 | 812 | 21,586 | 4,467 | 26,053 |
| 2007 | 301.1 | 9,351 | 8,479 | 2,067 | 448 | 10,994 | 148 | 67 | 20,561 | 801 | 21,361 | 4,568 | 25,930 |
| 1992 | 256.9 | 64.2 | 51.8 | 15.1 | 3.6 | 70.5 | 1.0 | 0.4 | 136.1 | 1.4 | 137.5 | 22.6 | 160.1 |
| 1993 | 260.3 | 63.8 | 54.5 | 15.8 | 3.7 | 73.9 | 1.0 | 0.4 | 139.2 | 1.4 | 140.6 | 23.3 | 163.9 |
| 1994 | 263.4 | 64.4 | 56.2 | 15.9 | 3.8 | 75.9 | 1.0 | 0.4 | 141.6 | 1.2 | 142.8 | 24.0 | 166.7 |
| 1995 | 266.6 | 64.9 | 57.6 | 16.3 | 4.0 | 77.9 | 0.9 | 0.4 | 144.1 | 0.9 | 145.0 | 26.6 | 171.7 |
| 1996 | 269.7 | 65.2 | 57.8 | 16.4 | 4.0 | 78.2 | 1.0 | 0.4 | 144.7 | 0.9 | 145.6 | 27.4 | 173.0 |
| 1997 | 272.9 | 64.9 | 60.4 | 17.3 | 3.7 | 81.5 | 0.9 | 0.4 | 147.8 | 1.4 | 149.2 | 27.0 | 176.2 |
| 1998 | 276.1 | 64.9 | 61.9 | 17.1 | 3.6 | 82.7 | 0.9 | 0.4 | 149.0 | 2.0 | 150.9 | 27.4 | 178.3 |
| 1999 | 279.3 | 66.3 | 63.7 | 16.3 | 3.5 | 83.5 | 1.1 | 0.4 | 151.4 | 2.5 | 153.9 | 27.8 | 181.7 |
| 2000 | 282.3 | 65.5 | 62.7 | 15.8 | 3.4 | 81.8 | 1.1 | 0.4 | 148.9 | 2.2 | 151.1 | 27.7 | 178.8 |
| 2001 | 285.0 | 64.5 | 62.6 | 15.5 | 3.3 | 81.4 | 0.9 | 0.4 | 147.3 | 2.7 | 150.0 | 28.5 | 178.5 |
| 2002 | 287.7 | 63.3 | 62.9 | 15.5 | 3.3 | 81.6 | 1.1 | 0.4 | 146.5 | 3.7 | 150.1 | 29.2 | 179.3 |
| 2003 | 290.3 | 61.0 | 61.0 | 15.2 | 3.1 | 79.3 | 1.0 | 0.4 | 141.7 | 4.3 | 146.0 | 29.5 | 175.5 |
| 2004 | 293.0 | 61.7 | 59.9 | 15.6 | 3.3 | 78.9 | 0.9 | 0.4 | 141.9 | 4.5 | 146.4 | 29.9 | 176.3 |
| 2005 | 295.7 | 63.2 | 59.2 | 15.3 | 3.3 | 77.8 | 1.1 | 0.4 | 142.5 | 4.5 | 147.0 | 29.8 | 176.8 |
| 2006 | 298.4 | 62.5 | 58.3 | 13.8 | 3.1 | 75.2 | 1.1 | 0.4 | 139.2 | 5.4 | 144.7 | 29.9 | 174.6 |
| 2007 | 301.1 | 62.1 | 56.3 | 13.7 | 3.0 | 73.0 | 1.0 | 0.4 | 136.6 | 5.3 | 141.9 | 30.3 | 172.2 |

1/ Per capita deliveries of sweeteners by U.S. processors and refiners and direct-consumption imports to food manufacturers, retailers, and other end users represent the per capita supply of caloric sweeteners. The data exclude deliveries to manufacturers of alcoholic beverages. Actual human intake of caloric sweeteners is lower because of uneaten food, spoilage, and other losses.

2/ U.S. Census Bureau.

3/ Calculated from data developed by SRI Consulting and published in *Chemical Economics Handbook* (CEH).

Source: USDA, ERS, Sugar and Sweeteners Group.

Western Hemisphere Sugar



Western Hemisphere Sugar

Sugar is an important crop for many countries in Latin America. In fact, in several countries, it represents an important share of the agricultural gross domestic product. Sugarcane-based ethanol is becoming a real alternative in many countries, such as Colombia. Latin America houses several important sugar-producing countries that have the potential to produce large amounts of refined sugar and sugarcane-based ethanol.

Dominican Republic

Production

At 482,186 metric tons, raw value (MTRV), sugar production in the Dominican Republic during marketing year (MY) 2007 fell below the 520,000 MTRV initially estimated because of unfavorable weather conditions and a nonoperational state-owned mill. The Central Romana and Grupo Vicini mills produced 90 percent of the country's sugar, while Consorcio Azucarero Central produced the remaining 10 percent. Production for MY 2008 is forecast at 490,000 MTRV. Central Romana and Grupo Vicini will produce 89 percent and Consorcio Azucarero Central will produce the rest. Central Romana and Grupo Vicini usually start the sugar harvest in early to late December, while Consorcio Azucarero Central begins in early to late February.

In MY 2007, the only sugar refinery operating in the country, Central Romana, produced 150,000 metric tons (mt), requiring the country to import 84,000 mt of raw sugar. The Dominican Sugar Institute (INAZUCAR) believes that the production of refined sugar for MY 2008 will be similar to that of MY 2007, implying that, to meet its needs, the country must import about 40,000 mt of raw sugar. However, the opening of the European Union (EU) market may generate an increase in raw sugar imports. In October 2008, the Dominican Republic will be allowed to export up to 30,000 mt of raw sugar to the EU duty free.

Depending on the company, production costs vary from U.S. \$0.12 to U.S. \$0.20 per pound. The major factors that determine yield are rainfall patterns, fertilization, and labor. Due to increasing costs, fertilizer application, which in most cases is done by hand, has remained almost constant during the last 5 years. Moreover, less than half of the land used in sugarcane production is irrigated. During dry periods, these two limitations can reduce supply.

The Government is considering putting sugarcane to the alternative use of producing biofuels, specifically ethanol, and legislation is slowly moving in this direction.

Consumption

Domestic consumption for marketing year (MY) 2007 was 334,500 mt—185,000 mt, or about 55 percent, of raw sugar and 149,500 mt, or about 45 percent, of refined sugar. The general public usually consumes raw sugar, while soft drink, juice, and confectionary industries demand refined sugar. The USDA believes that

domestic sugar consumption for MY 2008 will be very similar to that of MY 2007. Central Romana, the only domestic refiner, produces about 150,000 mt. Semi-refined sugar has not been manufactured in the last 5 years.

Trade

A shortfall in domestic production in MY 2007 caused imports to be higher than initially forecast. The USDA believes that, unless MY 2008 domestic production increases, the country will need to import 40,000 mt of raw sugar.

The Dominican Republic is the largest beneficiary of the U.S. tariff rate quota (TRQ) for sugar. Besides its informal trade with Haiti, all of the Dominican Republic's exports go to the United States and Puerto Rico. During CY 2007, the Dominican Republic exported 276,039 mt of raw sugar. As of March 2008, 41,525 mt of raw sugar have been shipped to the United States and Puerto Rico. Currently, the TRQ allocation for the Dominican Republic is 185,335 mt. Under the Dominican Republic and Central American Free Trade Agreement (DR-CAFTA), which was implemented in 2006, the Dominican Republic can add 10,000 mt to its quota with 2 percent growth per year, provided the country meets the next exporter requirement stated in the agreement.

The Dominican Republic's import duties are relatively high—15 percent for raw sugar and 20 percent for refined sugar, plus a 16-percent value-added tax, known domestically as ITBIS. Imports for sugar and sugar-based products require permits from INAZUCAR. A couple of companies operate in a special free-trade zone using sugar as a raw material. They produce sweetened coconut milk, piña colada mix, juices, canned red pinto beans, and garbanzos. These companies are authorized to import and re-export as much as 6,000 mt of sugar per year. (Estimates in this report do not include the free-trade-zone sugar.)

In January 2008, the Dominican Republic, along with other countries in the Caribbean, reached an Economic Partnership Agreement (EPA) with the EU. Under this agreement, starting in October 2008, 30,000 mt of sugar will have export access to the EU and, as of October 2009, Dominican sugar will have free access. As of October 2008, Dominican sugar will enter the EU at 448.20 €(euro) per mt c.i.f. (cost, insurance, freight), and for 2009, at 335.20 €per mt c.i.f. Although these values are higher than the U.S. preferential rate, INAZUCAR has stated that exports to the EU will take place only after the U.S. quota is filled.

Policy

Numerous laws regulate the Dominican sugar industry. Two of the most important are law 491 and law 619. The former is used to supervise the relationship between private cane producers and processors and to set the price for cane based on sugar content, while the latter is used to assign regulatory functions to INAZUCAR and to regulate marketing, price schedules, and statistics.

To allocate the U.S. quota among producers, INAZUCAR uses a formula based on the individual production levels of the last 3 years. INAZUCAR no longer publishes allocations; current, a Presidential ruling dictates individual allocations. For 2008, Central Romana obtained 62.84 percent; Vicini, 27.16 percent; and Consorcio Azucarero Central, 10 percent.

Due to the new DR-CAFTA agreement implemented in March 2006, the Dominican Republic will phase out its sugar and high fructose corn syrup tariffs over a 15-year period.

Legislation to diversify the use of sugarcane is moving forward. Biofuel production, specifically in ethanol-gasoline blends, appears to be the first alternative. In fact, decree 556-05 from 2005 reactivated law 2071 to authorize ethanol-gasoline blends. Moreover, a new law requiring the use of 5 percent alcohol in gasoline is waiting approval. The bill has already passed in one of the two Congress' chambers, and government officials believe that it will soon become a law. If this legislation passes and international prices remain favorable, ethanol production will move forward, but domestic production is at least 2-3 years away.

Argentina

Production

The harshest winter in the last 20 years, combined with excess autumn rain, took its toll on sugar production in Argentina, causing MY 2008 production, at 2.16 million MTRV to be about 80 percent of initial estimates. Production for MY 2009, however, looks very promising. In fact, expectations of a return to normal weather patterns as well as higher yields may result in record-high production of 2.52 million MTRV.

Considerable investment at the farm level during the last few years significantly increased productivity; however, MY 2008's poor weather and increasing costs have slowed the pace of investment. For instance, for MY 2009, Argentinean farmers expect the cost of fertilizers, labor, energy, and agricultural chemicals to increase by 20-30 percent. Experts believe that this will translate into higher prices.

Conversely, investment at the mill level continues to be robust. Mills are expanding crushing capacity and boilers in order to co-generate energy. For example, three mills in the Tucuman Province will achieve energy self-sufficiency, which will be a big plus during the winter. Moreover, almost all of the mills are considering the possibility of expanding their distilleries to produce ethanol for fuel. According to people familiar with the industry, investment will take place when the current biofuel law is improved, as it is currently viewed to be lacking many definitions.

Consumption

Domestic consumption for MY 2008 was 1.8 million mt. The Argentinean economy is expected to continue growing, which will lead to an increase in domestic sugar consumption. USDA expects domestic consumption for MY 2009 to reach a record high of 1.9 million mt, with households demanding approximately 40 percent and soft drink, candy, and food industries consuming the remaining 60 percent.

Trade

Low domestic production for MY 2008 caused exports to be lower than initially expected, only 338,000 mt. Even though Argentinean companies had committed to export most of their anticipated production surplus, some deals had to be called off. For instance, some 300,000 mt of raw sugar were re-purchased at the port and then refined and sold in the domestic market. Moreover, in late 2007 and early 2008, one sugar mill had to import sugar from Bolivia in order to comply with pre-arranged export agreements, while a candy manufacturer and two large mills imported around 9,500 mt of refined sugar from Brazil during the same period.

Nonetheless, it appears that MY 2009 will be different. MY 2009 exports will be 580,000 mt, about 71 percent higher than MY 2008 exports. As of now, 20 percent of the MY 2009 crop is designated for export. Exports of raw sugar will represent more than 50 percent of total sugar exports, with the United States and the Russian Federation being the most important buyers. Refined sugar is expected to be shipped primarily to Chile followed by Uruguay and a few other counties in the region.

Policy

The current biofuel law mandates that gasoline be mixed with 5 percent ethanol by 2010, which represents an annual production of 250-300 million liters. However, many experts believe that the current law is not well structured and thus slows the pace of investment. Currently, Argentina's annual ethanol production, which comes from molasses, is about 250 million liters, none of which is used for fuel. Experts believe that, if ethanol production occurs, sugar exports will decrease drastically, leaving the United States as the only buyer of Argentinean sugar. Finally, the Government is pressuring the industry to include water treatment processes.

Guatemala

Production

Most of the sugarcane production in Guatemala takes place in the southern part of the country in the departments (equivalent to U.S. States) of Escuintla, Suchitepequez, Retalhuleu, and Santa Rosa. MY 2007 sugar production was 2.36 million mt. Even though area planted will increase during MY 2008, unfavorable weather conditions and the low irrigation rate—only about 40 percent of the land used in sugarcane production is irrigated—will reduce domestic production. Domestic production will decline 7 percent to 2.2 million mt, but area planted will increase by about 3 percent to 215,000 hectares. Contracts acquired by the mills generally result in an increase in area planted. Currently, producers are expanding the crop toward the southeast region of the country. Northward expansion is impossible as this area is devoted to banana and palm oil crops.

The country presently has 13 mills, which have a combined production capacity of 130,000 mt per day. Some of these mills produce alcohol. Specifically, the Palo Gordo and Darsa mills each produce 100,000 liters per day and the Madgalena & Madre Tierra mill produces 300,000 liters per day. Moreover, in MY 2007, the biggest sugar mill in Guatemala, Pantaleon, opened "Bio-Etanol Co," which has a

production capacity of 150,000 liters per day. Other mills are also in the process of adding alcohol refineries. Mexico, the EU, and Central American countries are the main buyers of Guatemalan alcohol.

The sugar industry generates about 60,000 full-time direct jobs and about 300,000 indirect ones. For example, the Guatemalan Sugarcane Research Center (CENGICAÑA) provides the industry with research and technical assistance. CENGICAÑA's main mission is to conduct research on how to increase yields and on how to develop new cane varieties. CENGICAÑA's support has proven to be effective. In fact, even though the weather has been uncooperative, yields have maintained acceptable levels.

Consumption

Domestic consumption for MY 2007 was 715,000 mt. Due to population growth, consumption for MY 2008 will increase about 4 percent to 745,000 mt. Concerns about malnutrition and growing awareness of the vitamin A content found in sugar caused per capita consumption to increase during 2007. Currently, per capita sugar consumption in Guatemala is close to 53 kilograms (kg). Domestic sugar consumption is divided between the general public at 72 percent and industrial users at 28 percent. Soft drink companies demand most of the industrial portion, followed by confectionaries, bakeries, juice makers, wineries, dairies, and pharmaceutical companies.

Comercializadora de Guatemala (COMETRO) controls domestic wholesale and retail markets. Specifically, COMETRO markets and distributes to retailers using its network of 38 strategically located warehouses. Nonetheless, COMETRO is starting to face some competition, which has forced it to design new marketing strategies aimed at improving efficiency.

Trade

Guatemala is the second largest sugar exporter in Latin America and the fifth largest in the world. Agricultural exports count for about 75 percent of total exports, with sugar, bananas, and coffee the most important products. Sugar exports represent about 75 percent of total sugar production. In fact, according to the USDA Post, during CY 2007, Guatemala exported 1,295,092 mt. The biggest buyers of Guatemalan sugar are South Korea, Canada, the United States, Venezuela, China, Chile, and Taiwan, which make up around 74 percent of demand. Guatemala's sugar exports for MY 2007 were 1.5 million mt, and the USDA Post believes that, for MY 2008, exports will reach 1.4 million mt. The U.S. quota allocation for Guatemala for FY 2008 is 50,546 MTRV. The Asociación de Azucareros de Guatemala (ASAZGUA) expects a small increase in the percentage of raw sugar exports. In fact, it believes that about 84 percent of the exports will be raw sugar.

Asia is becoming an important market for Guatemalan sugar. In 2006, Guatemala and Taiwan reached a bilateral free trade agreement that allows significant quantities of Guatemalan sugar to enter duty free. Since then, the quantity has been increasing. In 2007, Taiwan's quota allocation for Guatemala was 67,482 mt, and in 2008, it was 75,000 mt, of which 48,750 mt was raw sugar and the rest was refined sugar. Moreover, the new Economic Cooperation Agreement with the Russian

Federation will provide Guatemala most-favored-nation treatment without volume restrictions.

Policy

Guatemala's sugar board includes representatives from the Economics Ministry, sugarcane producers, and sugar mills. The board sets production goals and sugarcane prices and decides the distribution among the mills of the U.S. sugar quota. Distribution of this quota is based on past production performance, previous quotas, and milling capacity.

A law aimed at fighting malnutrition requires that all sugar sold in the domestic market be enriched with vitamin A, which, according to industry representatives, signifies an annual investment of \$3.5 million. Guatemala does not have import quotas; all imports have a tariff of 20 percent and are required to comply with the vitamin A enrichment law.

Brazil

Production

Sugar

Brazil is by far the biggest producer of sugarcane in the world. In fact, it produces around 35 percent of the world's total. Most of Brazil's sugarcane production, 80-85 percent, takes place in the Center-South part of the country, while the remaining 15-20 percent occurs in the Northeast. Sugarcane production for MY 2008 was 491.1 million mt, with the Center-South region providing 431.1 million mt and the Northeast 60 million mt. Due to the continued increase in land used by sugarcane plantations in the Center-South region, the Agricultural Trade Office (ATO) in Sao Paulo expects that sugarcane production for MY 2009 will grow by 12 percent to 550 million mt. This expansion in the amount of land used will allow the Center-South region to produce 490 million mt. In addition to an increase in acreage, approximately 30 new mills are scheduled to start operating this season.

In MY 2008, the area of land used in sugarcane production was 7.19 million hectares, and MY 2009 will see an increase of approximately 12 percent to 8.05 million hectares. Likewise, the harvested area is expected to increase sizably between MY 2008 and MY 2009, from 6.5 million hectares to 7.4 million hectares, or by about 14 percent. The Government of Brazil, through its satellite program, monitors sugarcane expansion in the country. According to this program, Sao Paulo State, which is the leading sugarcane producer in Brazil, increased its sugarcane acreage by about 15 percent during MY 2008. Parana, the second largest sugarcane-producing State, increased its land area for sugarcane by 23 percent between MY 2007 and MY 2008, and Minas Gerais, the third largest producing State, expanded its land area by about 31 percent during the same period. Although most of the expansion took place on what was previously cattle pasture, it is not clear if some soy and grain fields were displaced.

Weather conditions in the States of Sao Paulo, Parana, and Minas Gerais will contribute to a decrease in the agricultural yield for MY 2009. In fact, yields are

forecast at 74.32 mt per hectare, representing a 2 percent reduction from the previous marketing year. On the other hand, the industrial yield will remain nearly unchanged, remaining at around 143 kg TRS (total reducing sugar) per mt, which is only slightly lower than the MY 2007 industrial yield of 145.81 kg TRS per mt.

Sugar production for MY 2008 was 32.1 million mt, and production for MY 2009 is expected to increase by 5 percent to 33.7 million mt. The Center-South States will produce about 87 percent or 29.2 million mt, implying an increase of 7 percent compared with 1 year earlier. The Northeast region will produce about 4.5 million mt, or 13 percent.

Ethanol

As ethanol demand is strong, harvesting early avoids potential shortages of the product. Brazil's harvest season officially starts in May; however, harvesting in Parana State usually starts in mid-March and in Sao Paulo State in April; mills start crushing the cane in late March and early April.

Although sugar prices have bounced back, the MY 2009 crop is expected to follow the growing trend of ethanol production because of the strong domestic demand for ethanol.

Ethanol production will continue rising. Production for MY 2009 will increase by about 15 percent, from 22.39 billion liters (8.07 billion liters of anhydrous ethanol and 14.32 billion liters of hydrated ethanol) in MY 2008 to 25.71 billion liters (8.5 billion liters of anhydrous ethanol and 17.21 billion liters of hydrated ethanol) in MY 2009.

Consumption

Fuel consumption in Brazil has been steadily increasing since 2005. For instance, diesel consumption has gone from 39 million cubic meters in 2005 to 41.5 million in 2007. Hydrated ethanol consumption has increased from 4.6 million cubic meters in 2005 to 9.3 million in 2007. Consumption of gasoline C (including 20-25 percent anhydrous ethanol) has grown from 23.5 million cubic meters to 24.3 million cubic meters during the same period. However, increasing sales of flex-fuel cars do not guarantee that demand for ethanol will continue rising. Consumers' decisions at the pump are based on the ethanol-gasoline price ratio. Specifically, ratios below 70 percent imply that ethanol prices are more attractive than gasoline prices. Since 2005, ethanol has been more attractive in Sao Paulo State, but it was not until 2007 that ethanol became preferred in the States of Rio de Janeiro, Minas Gerais, Goiania, and Fortaleza. So far during 2008, ethanol has been preferred in all of the previously mentioned States. Gasoline prices, however, have been more attractive in the State of Porto Alegre since 2006 and, as of 2008, this trend has not changed.

Sugar consumption during MY 2008 was 11.4 million mt. ATO/Sao Paulo says that population growth and expansion of the food processing sector will increase domestic sugar consumption to 11.9 million mt in MY 2009.

Trade

Sugar exports during MY 2008 were 19.75 million mt. In MY 2009, exports will increase by about 9.3 percent to 21.6 million mt. Of this total, raw sugar should be around 16.2 million mt and the remaining will be refined sugar. In MY 2008, Brazilian exports went to several countries all over the world. Russia, importing 3,691,668 mt worth \$894.5 million, was the most important importer of Brazilian sugar (NCM 1701.11.00). Malaysia bought 859,767 mt worth \$197.3 million; Nigeria, 823,860 mt, \$204.9 million; Canada, 228,400 mt, \$186.7 million; Egypt, 681,593 mt, \$159.7 million; Algeria, 204,268 mt, \$157.8 million; Iran, 449,430 mt, \$108.2 million; and all other purchasing countries, 2,804,720 mt, \$693.5 million. The main buyers of Brazilian sugar (NCM 1701.99.00) were the United Arab Emirates, which bought 750,602 mt worth \$177.1 million; Saudi Arabia, 681,699 mt, \$159.3 million; and Nigeria, 309,390 mt, \$95 million.

Brazil exported 3.45 billion liters of ethanol in MY 2008, which was 450 million liters higher than the initial estimate because of the unexpectedly large volumes of ethanol that companies sold in late in 2007 and early 2008 in order to liquidate excess supply. Ethanol exports will reach 3.9 billion liters in MY 2009, which signifies an increase of 450 million liters from the previous marketing year. Brazil expects to increase its exports to the United States both directly and through Caribbean Basin Initiative (CBI) countries. Moreover, anticipated high U.S. prices for ethanol should make Brazilian ethanol more attractive. Like it does for sugar, Brazil sells ethanol to many countries around the globe. For instance, in MY 2008, the Netherlands, buying 875.4 million liters worth \$361.3 million, and the United States, buying 514.2 million liters worth \$265.9 million, were the most important importers of Brazilian ethanol (NCM 2207.10.00). Jamaica, Japan, El Salvador, Costa Rica, Trinidad and Tobago, Nigeria, the Virgin Islands, and South Korea purchased 1.24 billion liters worth \$485.1 million. The main buyers of Brazilian ethanol (NCM 2207.20.10) were the Netherlands, at 11.6 million liters worth \$4.7 million, and Jamaica, at 10.4 million liters worth \$4.1 million.

Peru

Production

Favorable weather conditions, robust investment in new plantations, and efficiency gains at processing plants will raise CY 2008 sugar production in Peru to 910,000 mt, an increase of 105,000 mt, or about 13 percent, over that of CY 2007. The USDA Post believes that sugar production will continue rising in the near future. In fact, CY 2009 production is projected at 995,000 mt. If Peru achieves this production level, it will become self-sufficient in sugar production. Peru's sugarcane production will reach 8.2 million mt, up about 960,000 mt from that of CY 2007, and 8.3 million mt in CY 2009.

Sugar mills in Peru are located along the coast and have a total milling capacity of 37,000 mt of cane per day. Mills in Peru are very heterogeneous. In fact, yields range from 53 to 190 mt of cane per hectare and cuts occur every 13-18 months. Moreover, costs vary widely between mills, largely due to their fuel requirements. Fuel use can be as low as 5 gallons per metric ton and as high as 90 gallons per metric ton of sugar produced.

The Northern coast of Peru, where most of the cane is produced, has seen significant private investment in the last 5 years, with domestic as well as international investors purchasing land. This investment has produced economies of scale, which, in turn, have allowed for higher rates of return and thus more investment.

Peru has 10 sugar producers, with the largest 5 producing more than 70 percent of the output. Sugar production and market share among the 10 producers in CY 2007 were as follows: Casa Grande, 165,967 mt, 8.2 percent; Cartavio, 138,180 mt, 15.2 percent; Laredo, 132,045 mt, 14.5 percent; Paramonga, 122,027 mt, 13.4 percent; Tuman, 93,522 mt, 10.3 percent; Andahuasi, 69,060 mt, 7.6 percent; San Jacinto, 62,885 mt, 6.9 percent; Pomalca, 58,206 mt, 6.4 percent; Pucala, 58,537 mt, 6.4 percent; and Chucarapi, 9,678 mt, 1.1 percent.

Production of ethanol from sugarcane is one of the main drivers of investment in Peru. So far, investments have totaled \$130 million. Experts believe that about 7.8 percent of gasoline and 5 percent of diesel could be replaced with biofuels.

Consumption

Peru's sugar consumption has been increasing over the last few years. In fact, it will increase from 995,000 mt to 1,050,000 mt between MY 2007 and MY 2008. The USDA Post believes that sugar consumption will reach 1,100,000 mt in CY 2009. The increase in domestic consumption is principally due to the robust state of the economy, with beverage and confectionary industries being the main drivers.

Trade

The USDA Post estimates Peru's sugar exports for CY 2008 at 48,000 mt. The United States, through its sugar tariff rate quota, is virtually the only buyer of Peruvian sugar. The ministry of Agriculture and the Peruvian Sugar and Biofuels Producers Association (APPAB) distribute the U.S. sugar quota among the mills.

Expectations of higher domestic production will cause exports to increase and imports to contract. In fact, CY 2009 imports will decrease by 30 percent. Colombia will be the main seller in CY 2008, with a market share of 63 percent, followed by Bolivia with 17 percent, and Guatemala with 9 percent.

Policy

Most mills have been privatized, which has resulted in an increase in productivity. A few mills, however, still refuse to privatize despite their high debt and inability to re-pay it. These mills are highly inefficient. Only one of the mills that has not privatized, Andahuasi, has developed an investment plan to upgrade technology and renovate plantations. Some evidence suggests that the plan is working. Despite inefficiencies, Peru is expected to be self-sufficient in sugar production in CY 2009.

Sugarcane is assessed a 9 percent import tariff and is subject to the price band system, which is a surcharge based on the international price: the lower the international price, the higher the tax. Andean Community Nations have duty-free access.

In 2003, Peru's government passed Law 28054 to promote the use of biofuels. However, some elements of the law, such as the tax scheme for ethanol, are unclear. Nonetheless, when the domestic law becomes more transparent, investors plan to use the United States as the main export market. Under the Peru-U.S. FTA, ethanol will have duty-free access to the United States as soon as the agreement is implemented. In anticipation, one U.S. and one Peruvian company bought 10,000 hectares each to sow sugarcane for ethanol production.

Colombia

Production

Most of the Colombian sugarcane is planted in three departments: Cauca Valley, Cauca, and Risaralda, which are located in the southern part of the country. Currently, 14 mills in the country are dedicated to the production of sugar. Unfavorable weather conditions, which reduced sugarcane yields, decreased production from 2.44 million mt in MY 2006 to 2.35 million mt in MY 2007. However, better weather conditions will increase MY 2008 production to 2.36 million mt.

Sugar production has been declining in the last few years due to ethanol production. In fact, 5 out of the 14 mills are producing sugarcane-based ethanol. According to the Ministry of Agriculture, land used on sugarcane plantations in 2007 was 214,569 hectares, with 177,137 hectares used for sugar production and 37,432 hectares used for ethanol production. Land used in sugarcane production in 2008 will increase by 2,947 hectares, with a reduction of 1,116 hectares used for sugar production and an increase of 4,063 hectares used for ethanol production.

The 5 ethanol plants in Colombia produce an average of 230,000 liters of ethanol per day, which supplies 70 percent of the government mandate to blend 10 percent ethanol with gasoline. To cover the remaining 30 percent, the Government plans to increase ethanol production from sugarcane and to start production from beetroot and cassava. However, the main obstacle is to ensure that the supply of raw materials is sufficient to produce ethanol.

Colombia is the second largest producer of noncentrifugal sugar in the world after India. Colombia's noncentrifugal sugar production in 2007 was 1.58 million tons and was distributed amongst 70,000 farms, which, combined, employ about 120,000 farmers. An initiative to use some of the sugarcane from the production of noncentrifugal sugar in ethanol production is not proving successful because prices for noncentrifugal sugar are much more attractive than prices for ethanol.

Consumption

Domestic sugar consumption in MY 2007 was 1.6 million tons and increase to 1.61 million tons in MY 2008 due to strong economic growth. The creation and preparation of confectionary food items for export and for domestic consumption will be the main drivers of the increase in domestic sugar consumption.

Trade

Sugar exports were 942,000 mt in MY 2007. Ethanol production will cause exports in MY 2008 to decrease to 940,000 mt. Of this amount, about 720,000 mt will be refined sugar and the rest will be raw sugar. Producers have been exporting higher priced sugar and have substituted exports of raw sugar with ethanol production. In fact, since late 2005, when ethanol production started, raw sugar exports have decreased by 300,000 mt and imports have increased.

Colombia exported sugar to several countries in the world in MY 2007. During the last 3 years, Peru has been the most important buyer of Colombian sugar. In fact, in MY 2007, Peru imported about 187,000 mt; Haiti, 145,000 mt; Chile, 113,000 mt; Mexico, 65,000 mt; Venezuela, 49,000 mt; Jamaica, 45,000 mt; Canada, 43,000 mt; Trinidad and Tobago, 25,000 mt; Syria, 22,000 mt; Ecuador, 11,000 mt; the United States, 58,000 mt; and other countries, 180,000 mt. Imports have seen a steady increase since launching ethanol production. In MY 2007, the main exporters of sugar to Colombia were Brazil, Argentina, Cuba, and Singapore.

The 2007 U.S. quota was 30,760 mt; however, Colombia's exports were almost twice that amount. The 2008 U.S. quota was set at 25,273 mt. Colombia always fulfils the U.S. quota because prices are very attractive. The Ministry of Foreign Trade distributes this quota. Generally, large mills obtain about 80 percent and noncentrifugal sugar producers obtain the remaining 20 percent.

Policy

In 2007, Colombia launched the "Agriculture Secure Income" plan, which secures government funding for agricultural production. The program receives \$270 million in funding to assist producers of specific commodities. Sugarcane, producers can receive subsidized loans from the government-owned bank (FINAGRO). Small farms are eligible for the maximum subsidy, which is 40 percent of the principal balance, while large farms get the lowest subsidy of 10 percent. Moreover, there is a government program to encourage agricultural exports.

Colombia also has a price-stabilization fund, which was launched in January 2001 by the Ministry of Agriculture. Exporters who receive prices above the international price contribute to the fund. Money from the fund is distributed among exporters who sell their sugar at prices lower than the international price.

Colombia belongs to the Andean Community and thus uses a price band system. Countries belonging to this group (Bolivia, Ecuador, and Peru) are allowed to export sugar to Colombia duty free. Imports from nonmember countries are subject to a variable duty. The benchmark duty rate on imports of raw and refined sugar is 20 percent. The Andean Community revises the price band system every April.

Jamaica

Production

On average, sugarcane plantations in Jamaica use around 34,000 hectares. However, illicit cane fires, poor weather, disruptions in labor supply, and increases in stand-over fields allow only 80 percent of the area to be harvested. There are five state-owned and two privately owned sugar mills in Jamaica. The heterogeneity among the Jamaican mills suggests that the state-owned mills should be upgraded. In fact, all five state-owned mills have recovery indexes below the industry minimum of 91 percent. This problem is more evident at the Bernard Lodge and Long Pond sugar mills, the recovery indexes of which are 81 percent and 79 percent, respectively. In contrast, the private mills have recovery indexes of 92 percent and 96 percent. Some evidence suggests that sometime later in the year a Brazilian firm will take control of the five state-owned mills.

An increase in the sugarcane area in 2006/07 raised production of sugarcane to 1,974,000 mt and of sugar to 164,000 mt, which were both higher than initial estimates. Because of a hurricane in August 2007 and unfavorable weather conditions during late November and early December 2007, the 2007/08 crop was strategically delayed about 3 weeks. This decision, combined with subsequent improvement in the weather, resulted in an enhancement in the quality of the crop, which, in turn, increased productivity. In fact, 2007/08 sugarcane and sugar production will be only slightly lower than that of 2006/07. Specifically, 2007/08 sugarcane production will be 1,750,000 mt, while sugar production will be 160,000 mt. The USDA Post believes that sugarcane and sugar production for 2008/09 will increase to 1,900,000 mt and 170,000 mt, respectively.

Consumption

Domestic consumption in 2006/07 was 140,000 mt, which was 10,000 mt higher than the initial estimate. This higher consumption level was due to Jamaica boosting its refined sugar imports by 9,000 mt in 2006/07. In Jamaica, refined sugar is used for manufacturing, principally by the soft drink and bakery industries. Given the increase in wheat prices, which depressed the bakery industry, the growth in refined sugar consumption must be attributed to the soft drink industry. The USDA Post estimates that domestic consumption for 2007/08 will fall by 1.5 percent to 138,000 mt and that consumption 2008/09 will reach 140,000 mt.

Trade

Attractive prices paid by the EU encourage Jamaica to fulfill its quota even though it means that the country must import raw and refined sugar to satisfy its domestic demand. The EU quota is 127,000 mt plus an additional 24,000 mt under the Special Preferential Sugar agreement.

Jamaica exported around 153,000 mt worth \$101 million in 2006/07. The EU bought about 147,000 mt, the United States about 5,900 mt, and other countries the rest. The price that the EU pays for Jamaican sugar will be adjusted downwards every July 1 until 2010. Although the price will not be adjusted in 2008, Jamaican Cane Product Sales, the agency which trades Jamaica's raw sugar, will fulfill the

2008 EU quota before July 1 in order to create a pattern for 2009 and 2010. The EU will pay 448 €/mt in 2009 and 335.2 €/mt in 2010 for Jamaican sugar.

Jamaica's imports of refined sugar jumped 12 percent to 74,000 mt in 2006/07, principally due to an increase in manufacturing demand. On the other hand, raw sugar imports remained almost constant. Guatemala, Colombia, Belize, and Guyana are the main suppliers for the Jamaican market. Guatemala supplies 30-50 percent of refined sugar, Colombia 20-40 percent, and Belize and Guyana share the difference.

For the current crop year, Jamaica expects to fulfill both the EU and U.S. quotas. Given the above-explained situation with the EU, the U.S. quota will not be fulfilled until the end of the crop cycle. Moreover, the USDA Post estimates that imports will reach 129,000 mt, of which 75,000 mt will be refined sugar and the rest will be raw sugar.

Policy

Due to future reductions in the price, the EU will pay for Jamaican sugar, the Jamaican Government plans to privatize its five mills, which combined represent 80 percent of the industry. Media reports suggest that the Government may have selected Brazil's Infinity Bio-Energy to operate the five state-owned mills and that a deal could be reached as early as June 2008. If Infinity Bio-Energy takes over, the production of sugar and traditional sugar derivatives will increase; however, the anticipated production of ethanol will not occur at least for 2 more years. When produced, Jamaican ethanol will have preferential access to the United States through the Caribbean Basin Initiative. Finally, Jamaican environmental policies encourage the diversification of sugarcane uses.

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Honey

Notwithstanding a 2-percent climb in the number of honey-producing bee colonies to more than 2.4 million in 2007, U.S. production of natural honey declined 4 percent. Lower yields of honey harvested per colony were again to blame for the second consecutive year. The average yield in 2007 was 60.8 pounds of honey per bee colony, down from 64.7 in 2006 and 72.4 in 2005. Despite the reduced production volume, honey prices remained largely unchanged on average in 2007, sliding by less than 1 percent. Thus, lower production and prices pushed the value of production down 4.5 percent from \$160.5 million in 2006 to \$153.2 million in 2007.

The smaller yield per colony and slightly lower prices also trimmed the average farm value of honey per bee colony to \$62.75 in 2007 from \$67.00 in 2006. States that produced larger volumes of honey, such as North and South Dakota, Texas, and Michigan, were able to raise their honey production values significantly. Bee keepers in Texas and Michigan gained value per colony at two-digit rates relative to other major honey-producing States where values per colony declined, except in North and South Dakota. By far, North Dakota remained the largest producing State with more than 31 million pounds of honey produced in 2007, more than twice that of California, the next largest producer.

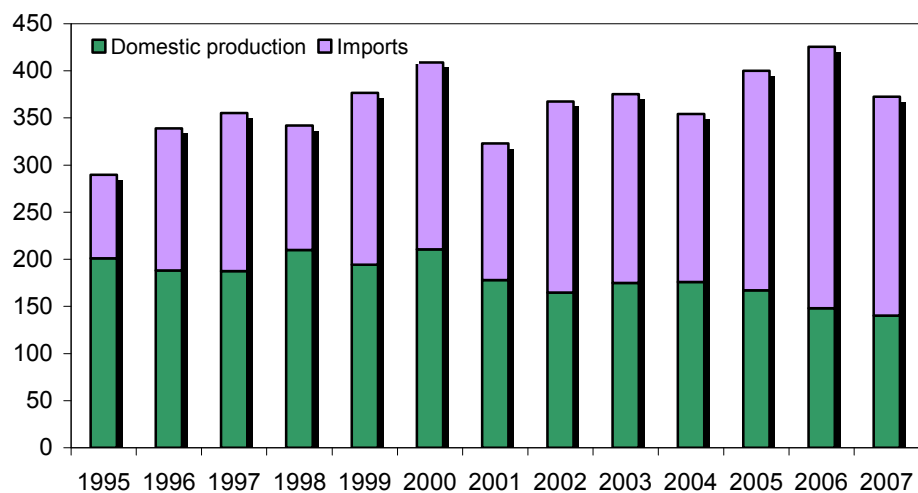
U.S. consumption of honey fell 11 percent in 2007 as domestic production, stocks, and import volume dropped. As a result, per capita consumption slipped from 1.4 pounds to 1.3 pounds. Supply from imports accounted for 61 percent of domestic honey consumption in 2007, down from 65 percent in 2006. Imports exceeded 200 million pounds in 5 of the 6 years between 2002 and 2007, during which the share of imports in consumption climbed from 52 percent to 61 percent. Import prices averaged 75 cents per pound between 2002 and 2006, which is 30 percent more than in the preceding 6 years. As a result, the import cost of honey during that period was 75 percent higher than in the preceding 6 years.

The volume of imported honey fell by 16 percent in 2007 as supplies from Argentina, China, India, and Russia dropped precipitously. A fast-rising foreign supplier is Vietnam, ranking third after Argentina and China in terms of volume shipped to the U.S. and after Argentina and Canada in terms of value of shipments. Brazil and India round up the top six foreign honey suppliers. Although 2007 import prices at 70 cents per pound were 13 percent higher than in 2006, they still lagged behind prices in 1996-97 and in 2002-04. Import prices were about two-thirds that of domestic prices in 2007. Compared with price ratios of the past 2 decades, however, when they largely ranged from 70 percent to 96 percent, import prices in recent years have been highly competitive with domestic honey prices. Although larger imports represent to some extent a market challenge for domestic honey farmers, another factor also plays a part in this challenge: The elasticity of domestic supply with respect to price is less than 1 percent on average. This factor means that, historically, a 1-percent rise in honey prices results in less than a 1-percent jump in production the next year.

Figure 8

Imports in U.S. honey consumption are up sharply

Million pounds



Sources: USDA, NASS, *Honey*; U.S. Census Bureau.

Should the WASDE Forecast Miscellaneous Use?

Miscellaneous use is the only item in the sugar supply and use table not forecast by the World Agriculture Outlook Board in its monthly *World Agriculture Supply and Demand Estimates* (WASDE) report. This data point is a residual calculated after the fiscal year (FY) ends to match the WASDE supply to use and ending stocks published in the Farm Service Agency (FSA) *Sweetener Market Data* (SMD) report.

WASDE Miscellaneous

The WASDE miscellaneous, although wide ranging (from -132,000 tons to 160,000 tons), on average, is less than 0.01 percent of total domestic sugar use. At its highest, in FY 2003, miscellaneous represented only 1.6 percent of total domestic sugar use. The WASDE miscellaneous is calculated by subtracting exports, domestic deliveries, and ending stocks from supply. FSA supplies data on stocks, sugar production, exports, and domestic deliveries for the WASDE report. These data are reported to FSA monthly by the sugar processing and refining industries. Import data for the WASDE, however, are provided by the Foreign Agriculture Service (FAS) from data collected by the U.S. Customs Service and published by the U.S. Census Bureau. The timing of data reporting, end-of-year polarity adjustments, and data revisions account for differences between WASDE and SMD imports. These import differences, along with three industry-reported miscellaneous uses as described below (published in the SMD), account for the WASDE miscellaneous.

SMD Miscellaneous

The SMD miscellaneous is comprised of refining loss, inventory adjustments, and intra-industry sales less receipts. Processors and refiners report these data monthly to FSA to ensure a complete materials balance in their reporting.

Refining Loss

Refining loss is the difference between the actual quantity of refined cane sugar produced and the estimated quantity of refined sugar that should be produced from the raw cane sugar entering into the refining process. Some large, highly efficient, cane sugar refiners produce more refined sugar than what FSA's raw value conversion formula estimates (table 1A). Through thorough testing, these cane sugar refiners found that they realize 100 pounds of refined sugar from (approximately) every 105 pounds of 96-degree raw sugar introduced into the refinery. Because these companies produce more sugar than the USDA formula predicts, they show a sugar gain, which is reported as a negative refining loss.

In FY 2005, USDA began requiring all cane sugar refiners to report data using a 1.07 conversion factor for converting “as made” sugar production to a raw value equivalent. This change was in preparation for a web-based data reporting system that standardized the conversion factor in order to test data accuracy before submission. Highly efficient cane sugar refiners were required to increase the raw value equivalent of actual sugar production by as much as 2 percent (1.05 to 1.07) and therefore to report consistently negative refining losses (inventory gains), as displayed in table 2A. Although there appears to be a trend toward higher efficiency (fewer refining losses followed by refining gains) from FY 2000 on, these gains started increasing substantially in FY 2005.

Inventory Adjustment

Inventory adjustment contains data from all three sugar sectors and is a “catch-all” for adjusting monthly reported ending stocks. Processors and refiners adjust inventories for quarterly or monthly physical inventories, torn refined sugar packaging, return of rail cars with sugar remaining inside, and floor sweepings/overspray in packaging facilities. Also, some cane sugar refiners and sugarcane processors use the inventory-adjustment category to account for production estimate corrections. For example, since raw sugar warehouses are emptied every year, sugarcane processors assume sugar production must equal sugar sales. When warehouses are emptied, total sales are used as the final production report.

Table 1A--Raw value conversion for sugar derived from sugarcane 1/

| Raw sugar | Polarity | Refined sugar |
|---------------|---------------|---------------|
| <i>Pounds</i> | <i>Degree</i> | <i>Pounds</i> |
| 107.000 | 96.0 | 100 |
| 105.250 | 97.0 | 100 |
| 103.500 | 98.0 | 100 |
| 101.750 | 99.0 | 100 |
| 100.875 | 99.5 | 100 |
| 100.000 | 100.0 | 100 |

1/ Raw value = $\{[(\text{actual degree of polarization} - 92) \times 0.0175] + 0.93\} \times \text{actual weight}$.

Source: USDA, FSA.

Table 2A--Miscellaneous breakdown

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 3-Year average | 5-Year average | 10-Year average |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|-------------------|-------------------|--------------------|
| <i>Short tons, raw value (1,000)</i> | | | | | | | | | | | | | |
| WASDE miscellaneous | -2 | -58 | -137 | 124 | -23 | 160 | 26 | 95 | -68 | -132 | -35 | 16 | -1.5 |
| Imports difference | 50 | -28 | 11 | 15 | -91 | 118 | -64 | 238 | 105 | -47 | 99 | 70 | 31 |
| SMD miscellaneous | -53 | -28 | -150 | 67 | 67 | 43 | 91 | -144 | -172 | -85 | -133 | -53 | -36 |
| Refining loss | 43 | 53 | 120 | 40 | 1 | -20 | -53 | -124 | -17 | -91 | -77 | -61 | -5 |
| Inventory adjustment | -52 | -36 | -107 | -64 | -12 | -1 | 45 | 10 | 17 | 37 | 21 | 22 | -16 |
| Sales less receipts | -44 | -45 | -163 | 91 | 78 | 64 | 99 | -30 | -172 | -31 | -78 | -14 | -15 |
| Unexplained | -1 | 2 | -2 | -41 | -1 | 1 | 1 | -1 | 1 | 0 | 0 | 0 | -4 |

Source: Farm Service Agency, USDA.

Inventory adjustments appear to be level in recent years, although a pattern change was noted. Inventory adjustments since FY 2004 have been positive and averaged only 22,000 tons. Before FY 2004, inventory adjustments fluctuated significantly, ranging from -1,000 tons to -107,000 tons. There does not appear to be a clear reason behind the pattern change of consistent inventory gains, then inventory losses. However inventory adjustments have stabilized, 3- and 5-year averages were nearly equal, and the long-term (10-year average) data are small, 16,000 tons.

Intra-Industry Sales less Receipts

Intra-industry sales less receipts are used to track sugar in transit between sugar reporting companies. For example, when sugarcane processors sell raw sugar to cane sugar refiners, the sale and receipt will offset one another (in theory). Due to contractual details that identify when ownership changes hands, the sale could occur in one month and the receipt in the next, but over time, these transactions should balance.

FY 2005-07 data show an imbalance of receipts higher than sales. USDA conducted an exhaustive telephone survey to consider the possibility that cane refiners may have been purchasing imported raw sugar from traders. We concluded that no foreign-origin sugar was being reported as a “receipt” by cane sugar refiners, and therefore, FSA was not double counting domestic sugar supplies.

Imports

WASDE and SMD import data differ, as discussed. Technical differences, such as title transfer (denoting ownership) and/or reporting deadlines, cause differences between Customs data as reported in the WASDE and SMD imports. Refiners, for example, may not take title to imported sugar until it is offloaded into the refinery. Customs, however, will consider sugar entered into the US when the ship is anchored within 3 miles of the US coast.

Conclusion

WASDE miscellaneous appears to be too small to require being forecast due to offsetting biases. We compared SMD data available at the time the WASDE published each fiscal year’s data for the final time. SMD miscellaneous is biased negatively primarily because of refining losses and recent trends in sales less receipts. WASDE miscellaneous is biased positively because of the differences in imports. Thus, the WASDE and SMD miscellaneous biases offset one another. In the long run (10-year average), the WASDE miscellaneous appears to be small (table 2A).

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Global Biofuels Market Boosts Sugar Ethanol Industry in Latin America

Worldwide concerns about climate change from greenhouse gas (GHG) emissions paired with the current price environment of record-high and rising crude oil prices have led to a growing demand for renewable sources of energy for the transportation sector around the world. In most countries in Latin America, as is the case for various countries around the world, government policy incentives and programs have set the goal of significantly expanding liquid biofuels made from biomass as an alternative for transportation fuel in the coming decades.

The best known biofuels in the transportation sector are ethanol (produced from a variety of feedstocks) and biodiesel (derived from vegetable oil and animal fats). Brazil and India use sugarcane to produce ethanol, while U.S. producers rely most heavily on corn. China relies mostly on corn, although it also extracts fuel from rice and wheat. The European Union (EU) mainly produces biodiesel from rapeseed and other vegetable oils. The Americas, mostly the United States and Brazil, account for 70 percent of the world's biofuel production. Brazil alone produces 40 percent of the world's biofuels, whereas the United States, the EU, China, and India produce much of the balance. Brazil, a pioneer in the production and use of fuel ethanol in its transportation sector, plays a large role in global biofuels markets thanks to decades of public and private investment in agrifuels development and the Government's past and current incentives toward sugarcane, sugar, and ethanol production.

The Brazilian success at integrating sugar ethanol into the fuel supply to reduce dependence on petroleum is more significant given that the transportation sector accounts for 61 percent of liquid fuel consumption in the country (Empresa de Pesquisa Energética, EPE). Several countries in Latin America, as well as many other developed and developing countries around the world, are looking at Brazil as the model for developing biofuel programs in their own countries.

A Growing World Biofuel Market Influencing Energy Supply and Biomass Use in Latin America

Promotion of liquid biofuels made from biomass as the best alternative for transportation fuel is not a new effort. Over the past two decades the renewable share of world-marketed energy use has been expanding and it now accounts for 8 percent of total energy supplied. Global biofuel production has tripled since 2000, reaching 15.7 billion gallons in 2007. The United States and Brazil were the world's two largest producers of ethanol, contributing 6.5 billion and 5.3 billion gallons (F.O. Licht).

Total energy supply and use in Latin America remains modest compared with energy supply and use in the United States and other industrialized countries: In 2005 Latin America's total energy supply per capita was 14 percent of energy supply in the United States (IEA).

Latin America's current energy matrix includes production and use of oil, coal, gas, hydroelectric power, and biomass. Although the largest share of Latin America's total energy supply is crude oil (54 percent), the production of renewable fuels from

hydroelectric and biomass sources now represent 29 percent of its energy market compared with more than 40 percent in Brazil and 12 percent globally. Fully 18 percent of Latin America's energy came from biomass in 2006 compared with a high 27 percent for Brazil and 10 percent for the world (IEA). Biomass includes cane bagasse, alcohol, wood and coal.

With continuing expansion in economic activity, rising personal incomes and urbanization, demand for oil and other liquid fuels is expected to continue to increase in the transportation sector. Biofuels currently meet just over 1.59 percent of road-fuel demand worldwide, but the long-term prospects are for biofuels to play a much larger role in meeting world road-transport fuel demand. The International Energy Agency forecasts this share to quadruple by 2030. In the United States, biofuels such as ethanol and biodiesel represent 2.45 percent of the transportation fuels market, and 1.29 for the EU, and just 0.16 for Latin America, excluding Brazil. But, in the case of Brazil, biofuels represent over 26 percent of the transportation fuels market (fig. 1-B).

Brazil's Comparative Advantage in Sugar Ethanol Production

Brazil's ready availability of land, water and labor has made it the world's largest sugarcane producer and exporter of sugar and ethanol. Sugarcane production in Brazil reached 428 million tons, growing at a rate of 11 percent per year since 2000. Sugarcane production in 2007/08 is expected to reach an all-time high of 491 million tons, a 14.7-percent increase over the previous year (USDA/FAS).

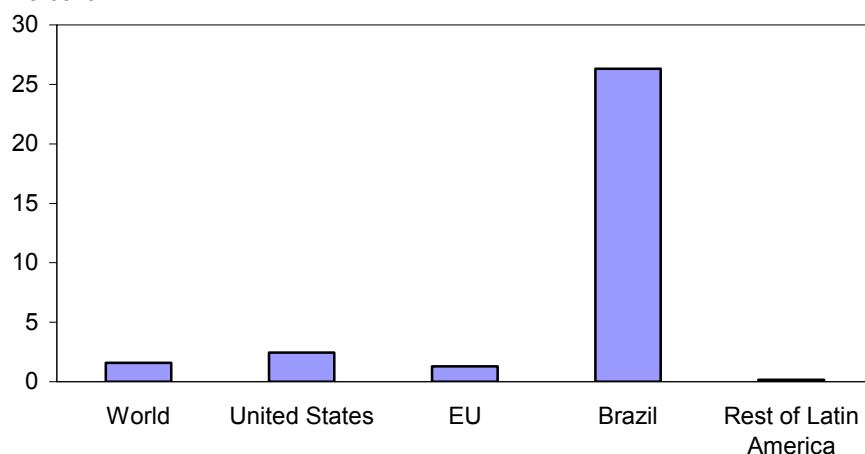
About 53 percent of Brazil's sugarcane harvest is being distilled into fuel ethanol ¹ (CEPEA), compared with a world average of 10 percent (Earth Policy Institute). The remaining 47 percent of Brazil's annual sugarcane harvest goes into producing sugar for domestic consumption and for export, a significant change from the 1970s when more than 80 percent of total sugarcane output went into sugar production.

¹ This represents 5.9 billion gallons (22.4 billion liters) of fuel ethanol -2.1 billion gallons of anhydrous and 3.8 billion gallons of hydrous ethanol.

Figure 1B

Brazil leads the world in the share of biofuels used as fuel for road transportation

Percent



Source: OECD, IEA, 2007.

Brazil is the largest exporter of ethanol in the world. Brazil's ethanol exports represent 56 percent of the world's ethanol export market (GTIS, 2007). Despite the large role that Brazil plays in global export markets, the country exports just 20 percent of its ethanol production. Brazil exports both anhydrous ethanol (which is added to gasoline) and hydrous ethanol (used as a gasoline substitute). Hydrous ethanol exports represent between 90 and 97 percent of the total value of ethanol exports, in any given year, with anhydrous ethanol exports accounting for the remainder.

Brazil's ethanol exports in 2007 were \$1.4 billion. Major Brazilian markets for fuel ethanol in 2007 included the United States (\$361 million), the EU (\$421 million) and Japan (US\$153 million). Exports of ethanol dehydrated in Central America were re-exported duty free to the United States because under the Caribbean Basin Initiative the United States exempts Central American countries from paying the 54-cent duty on U.S. ethanol imports. In 2007 the U.S. imported 245 million gallons of fuel ethanol under the CBI quota fill (ITC).

Brazil's production and use of fuel ethanol since 1975 represent the most successful program of renewable fuel for transportation implemented to date. In 2007 over 82 percent of the new car fleet in the country used fuel ethanol. The recent interest in converting biomass to biofuels throughout the world is leading to increased domestic and foreign demand. Brazil's ethanol and sugar industries are experiencing more rapid growth, expansion in arable land and increased yields from technological advancements in new sugarcane varieties. As demand for Brazilian ethanol continues to rise, the production of ethanol will continue to exceed that of sugar in the sugarcane production mix.

Brazilian Government officials and researchers expect area planted to sugarcane to expand by 3-4 million hectares over the next 5 years by expanding sugarcane cultivation in degraded pastureland. The expansion of Brazil's sugar/ethanol complex is leading to new investments in infrastructure and technology. However, despite recent rapid growth and new investments in the sector, ethanol supply still lags demand. At times when ethanol shortages have led to rapid price increases to levels above those agreed upon by refinery owners and the Federal Government, Brazilian authorities have intervened to reduce the percentage of ethanol mixed with gasoline sold at gas stations from 25 percent to 23 or 20 percent, which in turn has led to a reduction in the use of ethanol.

Latin America's Potential for Biofuels Production

In addition to Brazil, several other Latin American countries have potential for ethanol production. For Latin American countries, biofuel developments provide an opportunity to reduce their dependence on imported liquid fuel and an export opportunity for regionally produced ethanol for use as fuel abroad. Biofuel development is also seen as a means to reduce poverty in the region, by engaging more farmers in crop production and crop diversification. As ethanol can be produced from a variety of biomass crops grown in Latin American--sugarcane, corn, cassava and cellulosic feedstocks (i.e. wood, grasses, and agricultural residues)-- development of an ethanol industry holds great potential for the region (table 1-B).

For most Latin American countries and given their experience with sugarcane cultivation, ethanol produced from sugar cane as a feedstock is their primary interest. Out of 33 Latin American countries, excluding Brazil, 21 countries are growing sugarcane: Argentina, Bolivia, Colombia, Costa Rica, Chile, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Venezuela.

Biodiesel production from soyoil presents development potential in Argentina (third largest soybean producer), Paraguay and Uruguay. Other important palm oil producers include Colombia (fifth largest palm oil producer), and Ecuador (table 2-B).

Latin America's Foreign Demand Opportunities for Sugar Ethanol

Brazilian flex-fuel technology for automobiles is beginning to spread around the world. Although several countries are developing flex-fuel models in cooperation with Brazil, other countries, mostly in Europe and Asia, have already introduced "E85 models." E85 models are powered by an engine based on the Brazilian technology that can be fueled with 85 percent ethanol and 15 percent gasoline.

The vast markets of the United States, the EU and Asia represent important opportunities for sugar-ethanol producing Latin American countries, in a manner similar to that of Brazil. The United States is the world's largest consumer of ethanol and is seeking to use 36 billion gallons of renewable and other alternative fuels by 2022. The Clean Air Act requirement to add oxygenates (such as ethanol) to gasoline and the ban on methyl tertiary butyl ether (MTBE) as a gasoline additive is also, in addition to the blend subsidy, driving consumption in the United States. In addition, rising costs of crude oil, paired with drive to reduce dependence on foreign oil, have played an important role in the recent growth of the U.S. ethanol industry. The United States produced about 6.5 billion gallons of ethanol in 2007 and is forecast to more than double output by 2010.

The United States applies a 2.5-percent ad valorem tariff and an additional duty applicable under HTS subheading 9901.0050 of \$0.54 per gallon of ethanol (for fuel use) to imports into the United States. However, under the Caribbean Basin Initiative (CBI), countries in Central America and the Caribbean have had duty-free access to the United States since 1989 for ethanol from regional feedstocks. Access for ethanol derived from nonregional feedstocks has been limited by a CBI quota equal to 7 percent of total U.S. ethanol consumption.

Brazil and Central America are already exporting ethanol to the United States, and large U.S. corporations such as Cargill have plants in Latin America that produce ethanol for export to the United States. For example, exports from Brazil to the Central American countries of El Salvador, Jamaica, Costa Rica and Trinidad and Tobago totaling \$202 million in 2006, were imported by the United States under the CBI (GTIS data) (table 3-B). To further benefit from this tariff exemption, Brazil is jointly investing with Central American countries to build new distilleries in Mexico El Salvador, Jamaica, Guatemala, Panama, and the Dominican Republic.

Table 1B--Selected Western Hemisphere countries with potential for biofuels production

| Countries | Feedstock supplies | | Potential for exports | |
|-------------|--|---|-----------------------|-----------|
| | Ethanol | Biodiesel | Ethanol | Biodiesel |
| USA | Primarily corn | Soyoil, other oilseeds oil, animal fats, recycled fats/oils | x | x |
| Canada | Corn, wheat, straw | Vegetable oils, animal fats | x | x |
| Mexico | Sugarcane, corn, sorghum | Palm oil | x | |
| Brazil | Sugarcane | Castor seed oil, soyoil, palm oil | x | x |
| Argentina | Sugarcane, corn, sorghum, potatoes, rice, barley | Soyoil, sunflower oil | x | x |
| Uruguay | Rice | Soyoil | x | x |
| Chile | Beet | Soyoil | | |
| Colombia | Sugarcane, rice, potatoes, cassava, corn | Palm oil | x | x |
| Ecuador | Sugarcane | Palm oil, soyoil | | x |
| El Salvador | Sugarcane | Palm oil, soyoil | x | |
| Guatemala | Sugarcane, corn | Palm oil, soyoil | x | x |

Note: Other potential markets for biofuels include: Bahamas, Peru, Haiti, Suriname, Trinidad and Tobago, Venezuela.

Source: USDA/FAS, Countries Attaché Reports.

Table 2B--World rank in production and global export market share

| Table 22. World rank in production and global export market share | | | | | |
|---|-----------------------|--------------------|-----------------------------|------------------|----------------------|
| Item | World rank production | World rank exports | Global exports market share | Exports in 2006 | Growth rates 2000-06 |
| | | | Percent | U.S. \$ Millions | |
| Brazil | | | | | |
| Sugar | 1 | 1 | 42 | 3.919 | 20 |
| Ethanol | 2 | 1 | 51 | 766 | 79 |
| Soybeans | 2 | 1 | 35 | 5.345 | 22 |
| Corn | 3 | 4 | 35 | 121 | 48 |
| Argentina | | | | | |
| Soyoil | 3 | 1 | 55 | 2.789 | 21 |
| Paraguay | | | | | |
| Soybeans | 6 | 3 | 3 | 441 | 8 |
| Guatemala | | | | | |
| Sugar | 4 | 3 | 5 | 299 | 7 |
| Colombia | | | | | |
| Palm oil | 5 | 7 | 1 | 109 | 26 |

Source: USDA's Foreign Agricultural Service and Global Trade Information Services data.

Table 3B--U.S. imports of fuel ethanol, by source, 1996-2007

| Country | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|
| <i>Million gallons</i> | | | | | | | | | | | | |
| Jamaica | 21 | 9 | 13 | 24 | 28 | 29 | 29 | 39 | 39 | 36 | 67 | 80 |
| Costa Rica | 17 | 7 | 12 | 16 | 24 | 11 | 12 | 15 | 26 | 33 | 36 | 42 |
| El Salvador | 13 | 6 | 4 | 7 | 8 | 3 | 5 | 7 | 6 | 24 | 38 | 75 |
| Canada | | | 1 | 2 | 3 | 6 | 6 | 0 | 0 | 0 | 9 | 6 |
| Brazil | | | | | | | | | 94 | 31 | 434 | 189 |
| Trinidad & Tobago | | | | | | | | | | 10 | 25 | 43 |
| Netherlands | | | | | | | | | | | 2 | 0 |
| Pakistan | | | | | | | | | | | 6 | 0 |
| China | | | | | | | | | | | 37 | 1 |
| TOTAL | 52 | 22 | 31 | 49 | 63 | 50 | 52 | 61 | 164 | 135 | 653 | 436 |

Source: International Trade Commission.

Table 4B--Biofuel policies, programs and blend levels

| | Current | Blending targets |
|------------|----------------------|--|
| USA | E10 and E85 | The Energy Independence and Security Act of 2007 raises the renewable fuel standard from 4.7 billion gallons in 2007 to 36 billion gallons (about 15 billion gallons from corn and the rest from cellulose and other sources) by 2022. |
| Canada | E10 and E85 | Government plans to mandate a 5% ethanol content in gasoline by 2010, and a blend of 2% biodiesel in diesel by 2012. |
| Mexico | E10 | E10 mandatory since 2006. |
| Brazil | E20 to E25, and E100 | Current blending ratio of ethanol with gasoline is 25% (E25). A 2% blend of biodiesel with diesel (B2) is mandated for 2008, rising to 5% in 2013. Exports exempted from taxes. |
| Argentina | E2 | Mandatory E5 and B5 by 2010. Export tax for biodiesel 5% and 2.5% tax rebate is lower than for soyoil (24%). |
| Uruguay | E18 | |
| Colombia | E10 | E10 mandatory since 2005. To be raised to 25% by 2010. B5 mandatory by 2008. Tax exemption: VAT and income for biodiesel producers. |
| Peru | E7 | E7 mandatory since 2007. B5 mandatory in 2010. |
| Costa Rica | E10 | |
| Guatemala | E25 | E25 mandatory since 1985. VAT, income, import tax exemptions. |

Source: USDA/FAS, Countries Attaché Reports.

While Central America (particularly Guatemala and El Salvador) may offer some of the best prospects for biofuel production and increased exports, several other countries in Latin America with well established sugar industries including Colombia, Peru and Ecuador also have potential for sugar ethanol development. Brazil is partnering with other countries to develop technical standards that would allow fuel ethanol to become an international commodity that could soon be traded daily in international markets.

National Biofuel Programs in Latin America

Several countries in Central and South America have either initiated or are planning national biofuel programs of some kind, including Argentina, Costa Rica, Colombia, El Salvador, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Uruguay and Venezuela (table 4-B). Colombia is viewed as the country with the second most advanced biofuels program in South America, after Brazil (Jank et al.). In 2005, Colombia established a mandatory 10-percent ethanol blend (E10) in gasoline, which is to be raised to 25 percent by 2010. A 5-percent mandatory biodiesel blend is also required in some selected regions beginning in 2008. Mexico is planning to double current sugarcane area for sugar ethanol production in order to meet a 10-percent mandatory blend of fuel ethanol in gasoline by 2012.

In 2003, Guatemala, an important world sugar producer and the largest sugarcane producer in Central America, passed the Law of Incentives for the Development of Projects in Renewable Energy. Under this law, all biofuel projects are exempt from import duties, value-added taxes (VAT) on machinery imports for the stages of pre-investment and execution, and income taxes for 10 years during commercial operation. The Government expects ethanol producers to sell in the international market soon. In Honduras, the Government has encouraged sugar production to supply two ethanol distilleries. Costa Rica has set a target of substituting 7 percent of its gasoline with ethanol by the end of 2008.

El Salvador produces sugarcane and benefits from CBI preferential treatment to enter the U.S. market, under which a maximum quantity of 75 million gallons of ethanol was re-exported to the United States in 2007. This quantity is set to increase by 1.3 million gallons per year through 2020 (Jank et al.).

The Americas' agroenergy potential over the next two decades will be influenced by changes in macroeconomic policy and management, including exchange rate and trade policies, external factors (i.e, international prices of feedstock supplies and foreign demand for renewable fuel), and domestic production and use policies. These policies include blending targets, credit availability for biofuel production at subsidized interest rates, tax exemptions that favor production of feedstocks and/or processing of biofuels, and social policies that may impact the cost structure and profitability of biofuels.

Various other factors, such as increased public and private investment to improve the capacity and efficiency of transportation and marketing infrastructure, may impact the competitiveness of the region's biofuel sector. New technologies to advance the biofuels sector that focus on developing new varieties that increase sugarcane yields and the development of new technologies for a more efficient processing of products to increase ethanol production will also be crucial.

The new H-Bio technology patented by Petrobrás (Brazil's state-oil company) for mixing vegetable oils into diesel fuel, and Brazil's progress to date in "*second generation*" biofuels (refers to biofuels extracted from non-food crops) to obtain ethanol from sugarcane bagasse (cellulosic ethanol) will also be important factors. The Americas' efforts to create biofuels markets will also be affected by the various bilateral, regional and multilateral trade agreements in which these countries may participate.

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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

WASDE <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documented=1194>

Sugar Briefing Room, <http://www.ers.usda.gov/briefing/Sugar/>

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Table 9--World refined sugar price, monthly, quarterly, and by calendar and fiscal year 1/

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 13.39 | 13.40 | 13.86 | 12.90 | 12.99 | 13.94 | 14.73 | 14.40 | 13.09 | 13.03 | 12.71 | 12.46 | : | 13.55 | 13.28 | 14.07 | 12.73 | : | 13.41 | 13.71 |
| 1992 | 12.18 | 11.92 | 12.19 | 12.54 | 12.89 | 13.41 | 13.41 | 12.96 | 12.29 | 11.94 | 11.68 | 11.26 | : | 12.10 | 12.95 | 12.89 | 11.63 | : | 12.39 | 12.67 |
| 1993 | 11.60 | 11.97 | 13.05 | 13.38 | 13.39 | 12.64 | 12.20 | 13.05 | 12.90 | 13.23 | 13.15 | 12.97 | : | 12.21 | 13.14 | 12.72 | 13.12 | : | 12.79 | 12.42 |
| 1994 | 13.14 | 14.11 | 15.46 | 14.92 | 15.77 | 16.05 | 15.54 | 15.62 | 15.42 | 15.46 | 17.77 | 18.65 | : | 14.24 | 15.58 | 15.53 | 17.29 | : | 15.66 | 14.62 |
| 1995 | 18.75 | 18.17 | 17.45 | 16.31 | 17.05 | 19.16 | 20.27 | 20.01 | 16.58 | 17.29 | 17.64 | 17.21 | : | 18.12 | 17.51 | 18.95 | 17.38 | : | 17.99 | 17.97 |
| 1996 | 17.36 | 17.90 | 18.14 | 18.02 | 17.79 | 18.00 | 16.99 | 16.81 | 15.74 | 14.87 | 14.09 | 13.95 | : | 17.80 | 17.94 | 16.51 | 14.30 | : | 16.64 | 17.41 |
| 1997 | 13.87 | 13.98 | 14.05 | 14.19 | 14.61 | 14.93 | 15.07 | 15.66 | 14.51 | 13.58 | 13.81 | 13.64 | : | 13.97 | 14.58 | 15.08 | 13.68 | : | 14.33 | 14.48 |
| 1998 | 13.52 | 12.78 | 12.23 | 11.63 | 12.00 | 11.80 | 11.65 | 11.62 | 10.05 | 10.00 | 10.78 | 10.97 | : | 12.84 | 11.81 | 11.11 | 10.58 | : | 11.59 | 12.36 |
| 1999 | 10.99 | 10.50 | 9.85 | 8.79 | 9.13 | 9.93 | 9.47 | 9.04 | 8.28 | 7.85 | 7.73 | 7.61 | : | 10.45 | 9.28 | 8.93 | 7.73 | : | 9.10 | 9.81 |
| 2000 | 7.70 | 7.67 | 7.83 | 8.66 | 9.06 | 10.63 | 11.38 | 11.29 | 11.74 | 11.76 | 11.02 | 10.95 | : | 7.73 | 9.45 | 11.47 | 11.24 | : | 9.97 | 9.10 |
| 2001 | 11.27 | 10.65 | 10.26 | 10.61 | 11.71 | 12.68 | 12.60 | 12.08 | 10.66 | 10.19 | 11.27 | 11.52 | : | 10.73 | 11.67 | 11.78 | 10.99 | : | 11.29 | 11.35 |
| 2002 | 11.88 | 10.80 | 10.81 | 10.09 | 10.28 | 10.02 | 10.23 | 10.33 | 9.68 | 9.72 | 10.16 | 10.25 | : | 11.16 | 10.13 | 10.08 | 10.04 | : | 10.35 | 10.59 |
| 2003 | 10.64 | 11.10 | 10.51 | 10.14 | 9.95 | 9.66 | 9.84 | 9.74 | 8.95 | 8.39 | 8.67 | 9.23 | : | 10.75 | 9.92 | 9.51 | 8.76 | : | 9.74 | 10.06 |
| 2004 | 9.16 | 9.54 | 10.59 | 11.19 | 10.78 | 10.73 | 11.81 | 11.80 | 11.12 | 11.21 | 11.27 | 11.23 | : | 9.76 | 10.90 | 11.58 | 11.24 | : | 10.87 | 10.25 |
| 2005 | 11.63 | 12.09 | 12.02 | 11.76 | 11.75 | 12.61 | 14.70 | 14.81 | 14.60 | 14.18 | 13.10 | 15.00 | : | 11.91 | 12.04 | 14.70 | 14.09 | : | 13.19 | 12.47 |
| 2006 | 16.92 | 19.99 | 20.45 | 21.35 | 21.81 | 20.93 | 20.95 | 18.16 | 17.32 | 17.92 | 16.41 | 15.86 | : | 19.12 | 21.36 | 18.81 | 16.73 | : | 19.01 | 18.35 |
| 2007 | 15.13 | 14.92 | 15.59 | 14.21 | 14.94 | 14.36 | 14.13 | 12.87 | 12.54 | 12.56 | 13.00 | 13.78 | : | 15.21 | 14.50 | 13.18 | 13.11 | : | 14.00 | 14.91 |
| 2008 | 15.17 | 16.61 | 15.79 | 15.87 | | | | | | | | | | | | | | | | 15.86 |

1/ Contract No. 5, London Daily Price, for refined sugar, f.o.b. Europe, spot, through June 2006. Starting in July 2006, spot price replaced by average of nearest futures month for which an entire month of prices is available.

Source: London International Financial Futures and Options Exchange (LIFFE).

Table 10--World raw sugar price, monthly, quarterly, and by calendar and fiscal year 1/

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 8.88 | 8.57 | 9.22 | 8.55 | 7.88 | 9.37 | 10.26 | 9.45 | 9.39 | 9.10 | 8.79 | 9.03 | : | 8.89 | 8.60 | 9.70 | 8.97 | : | 9.04 | 9.26 |
| 1992 | 8.43 | 8.06 | 8.22 | 9.53 | 9.62 | 10.52 | 10.30 | 9.78 | 9.28 | 8.66 | 8.54 | 8.15 | : | 8.24 | 9.89 | 9.79 | 8.45 | : | 9.09 | 9.22 |
| 1993 | 8.27 | 8.61 | 10.75 | 11.30 | 11.87 | 10.35 | 9.60 | 9.30 | 9.52 | 10.27 | 10.10 | 10.47 | : | 9.21 | 11.17 | 9.47 | 10.28 | : | 10.03 | 9.58 |
| 1994 | 10.29 | 10.80 | 11.71 | 11.10 | 11.79 | 12.04 | 11.73 | 12.05 | 12.62 | 12.75 | 13.88 | 14.76 | : | 10.93 | 11.64 | 12.13 | 13.80 | : | 12.13 | 11.25 |
| 1995 | 14.87 | 14.43 | 14.58 | 13.63 | 13.49 | 13.99 | 13.46 | 13.75 | 12.72 | 11.94 | 11.96 | 12.40 | : | 14.63 | 13.70 | 13.31 | 12.10 | : | 13.44 | 13.86 |
| 1996 | 12.57 | 12.97 | 13.07 | 12.43 | 11.94 | 12.54 | 12.83 | 12.33 | 11.87 | 11.65 | 11.29 | 11.38 | : | 12.87 | 12.30 | 12.34 | 11.44 | : | 12.24 | 12.40 |
| 1997 | 11.13 | 11.06 | 11.17 | 11.50 | 11.54 | 12.02 | 12.13 | 12.54 | 12.65 | 12.86 | 13.19 | 12.90 | : | 11.12 | 11.69 | 12.44 | 12.98 | : | 12.06 | 11.67 |
| 1998 | 11.71 | 11.06 | 10.66 | 10.27 | 10.17 | 9.33 | 9.70 | 9.50 | 8.21 | 8.24 | 8.73 | 8.59 | : | 11.14 | 9.92 | 9.14 | 8.52 | : | 9.68 | 10.80 |
| 1999 | 8.40 | 7.05 | 6.11 | 5.44 | 5.83 | 6.67 | 6.11 | 6.39 | 6.98 | 6.90 | 6.54 | 6.00 | : | 7.19 | 5.98 | 6.49 | 6.48 | : | 6.54 | 7.05 |
| 2000 | 5.64 | 5.51 | 5.54 | 6.48 | 7.33 | 8.72 | 10.18 | 11.14 | 10.35 | 10.96 | 10.02 | 10.23 | : | 5.56 | 7.51 | 10.56 | 10.40 | : | 8.51 | 7.53 |
| 2001 | 10.63 | 10.26 | 9.64 | 9.27 | 9.96 | 9.80 | 9.48 | 8.77 | 8.60 | 7.15 | 7.80 | 8.02 | : | 10.18 | 9.68 | 8.95 | 7.66 | : | 9.12 | 9.80 |
| 2002 | 7.96 | 6.81 | 7.27 | 7.12 | 7.33 | 7.07 | 8.02 | 7.86 | 8.54 | 8.84 | 8.87 | 8.81 | : | 7.35 | 7.17 | 8.14 | 8.84 | : | 7.88 | 7.58 |
| 2003 | 8.56 | 9.14 | 8.50 | 7.92 | 7.41 | 6.85 | 7.18 | 7.30 | 6.70 | 6.74 | 6.83 | 6.95 | : | 8.73 | 7.39 | 7.06 | 6.84 | : | 7.51 | 8.01 |
| 2004 | 6.42 | 7.01 | 8.23 | 8.21 | 8.08 | 8.41 | 9.19 | 8.99 | 9.10 | 9.84 | 9.65 | 10.19 | : | 7.22 | 8.23 | 9.09 | 9.89 | : | 8.61 | 7.85 |
| 2005 | 10.33 | 10.51 | 10.57 | 10.19 | 10.23 | 10.45 | 10.89 | 11.09 | 11.59 | 12.40 | 12.86 | 15.09 | : | 10.47 | 10.29 | 11.19 | 13.45 | : | 11.35 | 10.46 |
| 2006 | 17.27 | 18.93 | 18.01 | 18.21 | 17.83 | 16.19 | 16.61 | 13.58 | 12.42 | 12.09 | 12.38 | 12.47 | : | 18.07 | 17.41 | 14.20 | 12.31 | : | 15.50 | 15.78 |
| 2007 | 11.85 | 11.63 | 11.44 | 10.85 | 10.78 | 11.05 | 12.18 | 11.66 | 11.61 | 11.86 | 11.83 | 12.47 | : | 11.64 | 10.89 | 11.82 | 12.05 | : | 11.60 | 11.67 |
| 2008 | 13.75 | 15.16 | 14.60 | 13.68 | | | | | | | | | | | | | | | | 14.50 |

1/ Contract No. 11 f.o.b. stowed Caribbean port, including Brazil, bulk spot price, plus freight to Far East.

Source: New York Board of Trade (www.nybot.com).

Table 11--U.S. raw sugar price, duty fee paid, New York, monthly, quarterly, and by calendar and fiscal year 1/

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 21.86 | 21.42 | 21.46 | 21.23 | 21.29 | 21.42 | 21.25 | 21.83 | 22.06 | 21.76 | 21.75 | 21.50 | : | 21.58 | 21.31 | 21.71 | 21.67 | : | 21.57 | 21.89 |
| 1992 | 21.38 | 21.56 | 21.36 | 21.38 | 21.04 | 20.92 | 21.10 | 21.34 | 21.55 | 21.61 | 21.39 | 21.11 | : | 21.43 | 21.11 | 21.33 | 21.37 | : | 21.31 | 21.39 |
| 1993 | 20.76 | 21.16 | 21.56 | 21.76 | 21.36 | 21.42 | 21.89 | 21.85 | 21.97 | 21.80 | 21.87 | 22.00 | : | 21.16 | 21.51 | 21.90 | 21.89 | : | 21.62 | 21.49 |
| 1994 | 22.00 | 21.95 | 21.95 | 22.08 | 22.18 | 22.44 | 22.72 | 21.84 | 21.78 | 21.58 | 21.57 | 22.35 | : | 21.97 | 22.23 | 22.11 | 21.83 | : | 22.04 | 22.05 |
| 1995 | 22.65 | 22.69 | 22.46 | 22.76 | 23.10 | 23.09 | 24.47 | 23.18 | 23.21 | 22.67 | 22.60 | 22.63 | : | 22.60 | 22.98 | 23.62 | 22.63 | : | 22.96 | 22.76 |
| 1996 | 22.39 | 22.68 | 22.57 | 22.71 | 22.62 | 22.48 | 21.80 | 22.51 | 22.38 | 22.37 | 22.12 | 22.14 | : | 22.55 | 22.60 | 22.23 | 22.21 | : | 22.40 | 22.50 |
| 1997 | 21.88 | 22.07 | 21.81 | 21.79 | 21.70 | 21.62 | 22.04 | 22.21 | 22.30 | 22.27 | 21.90 | 21.93 | : | 21.92 | 21.70 | 22.18 | 22.03 | : | 21.96 | 22.00 |
| 1998 | 21.85 | 21.79 | 21.74 | 22.14 | 22.31 | 22.42 | 22.66 | 22.19 | 21.92 | 21.67 | 21.83 | 22.19 | : | 21.79 | 22.29 | 22.26 | 21.90 | : | 22.06 | 22.09 |
| 1999 | 22.41 | 22.38 | 22.55 | 22.57 | 22.65 | 22.61 | 22.61 | 21.24 | 20.10 | 19.50 | 17.45 | 17.87 | : | 22.45 | 22.61 | 21.32 | 18.27 | : | 21.16 | 22.07 |
| 2000 | 17.70 | 17.24 | 18.46 | 19.43 | 19.12 | 19.31 | 17.64 | 18.12 | 18.97 | 21.15 | 21.39 | 20.56 | : | 17.80 | 19.29 | 18.24 | 21.03 | : | 19.09 | 18.40 |
| 2001 | 20.81 | 21.18 | 21.40 | 21.51 | 21.19 | 21.04 | 20.64 | 21.10 | 20.87 | 20.90 | 21.19 | 21.43 | : | 21.13 | 21.25 | 20.87 | 21.17 | : | 21.11 | 21.07 |
| 2002 | 21.03 | 20.69 | 19.92 | 19.73 | 19.52 | 19.93 | 20.86 | 20.91 | 21.65 | 21.94 | 22.22 | 22.03 | : | 20.55 | 19.73 | 21.14 | 22.06 | : | 20.87 | 20.65 |
| 2003 | 21.62 | 21.91 | 22.14 | 21.87 | 21.80 | 21.62 | 21.32 | 21.26 | 21.34 | 20.92 | 20.91 | 20.37 | : | 21.89 | 21.76 | 21.31 | 20.73 | : | 21.42 | 21.76 |
| 2004 | 20.54 | 20.57 | 20.86 | 20.88 | 20.69 | 20.03 | 20.14 | 20.10 | 20.47 | 20.31 | 20.40 | 20.55 | : | 20.66 | 20.53 | 20.24 | 20.42 | : | 20.46 | 20.54 |
| 2005 | 20.57 | 20.36 | 20.54 | 21.21 | 21.96 | 21.89 | 21.94 | 20.49 | 21.10 | 21.71 | 21.83 | 21.74 | : | 20.49 | 21.69 | 21.18 | 21.76 | : | 21.28 | 20.94 |
| 2006 | 23.61 | 24.05 | 23.10 | 23.56 | 23.48 | 23.32 | 22.44 | 21.38 | 21.27 | 20.22 | 19.66 | 19.59 | : | 23.59 | 23.45 | 21.70 | 19.82 | : | 22.14 | 22.62 |
| 2007 | 20.03 | 20.59 | 20.85 | 20.91 | 21.27 | 21.33 | 22.72 | 21.80 | 21.42 | 20.56 | 20.25 | 20.12 | : | 20.49 | 21.17 | 21.98 | 20.31 | : | 20.99 | 20.87 |
| 2008 | 20.24 | 20.21 | 20.65 | 20.54 | | | | | | | | | | 20.37 | | | | | | |

1/ Contract No. 14, duty fee paid New York. Average of nearest futures month for which an entire month of prices will be available. For example, April 2001's price average of 21.51 cents is the average of closes for the July 2001 futures during the month of April since there was not a full month of May 2001 futures in April (the May 2001 futures expired April 10, July 2001 became the nearest futures, so July 2001 was used for the entire month of April).

Source: New York Board of Trade (www.nybot.com).

Table 12--U.S. wholesale refined beet sugar price, Midwest markets, monthly, quarterly, and by calendar and fiscal year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Calendar | Fiscal |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--------|--------|--------|--------|---|----------|--------|
| <i>Cents per pound</i> | | | | | | | | | | | | | | | | | | | | |
| 1991 | 26.88 | 26.50 | 26.50 | 26.13 | 26.00 | 25.75 | 25.50 | 25.50 | 25.00 | 24.94 | 24.60 | 24.50 | : | 26.63 | 25.96 | 25.33 | 24.68 | : | 25.65 | 26.57 |
| 1992 | 25.40 | 26.50 | 26.50 | 26.50 | 26.40 | 26.00 | 25.00 | 25.00 | 25.00 | 24.90 | 24.13 | 23.90 | : | 26.13 | 26.30 | 25.00 | 24.31 | : | 25.44 | 25.53 |
| 1993 | 23.25 | 23.00 | 23.00 | 23.50 | 23.50 | 23.50 | 25.50 | 27.75 | 27.50 | 27.50 | 27.25 | 26.50 | : | 23.08 | 23.50 | 26.92 | 27.08 | : | 25.15 | 24.45 |
| 1994 | 25.75 | 25.50 | 25.50 | 24.50 | 24.75 | 25.25 | 25.00 | 25.00 | 24.70 | 25.00 | 25.38 | 25.50 | : | 25.58 | 24.83 | 24.90 | 25.29 | : | 25.15 | 25.60 |
| 1995 | 25.50 | 25.50 | 25.50 | 25.50 | 25.13 | 25.10 | 24.75 | 24.75 | 25.50 | 25.75 | 28.13 | 28.85 | : | 25.50 | 25.24 | 25.00 | 27.58 | : | 25.83 | 25.26 |
| 1996 | 28.69 | 29.00 | 29.50 | 29.50 | 29.70 | 29.50 | 29.50 | 29.00 | 29.00 | 29.00 | 29.00 | 29.00 | : | 29.06 | 29.57 | 29.17 | 29.00 | : | 29.20 | 28.84 |
| 1997 | 29.00 | 29.00 | 28.13 | 28.00 | 28.00 | 27.50 | 27.00 | 26.65 | 26.38 | 24.90 | 25.00 | 25.50 | : | 28.71 | 27.83 | 26.68 | 25.13 | : | 27.09 | 28.06 |
| 1998 | 25.50 | 25.50 | 25.50 | 25.50 | 26.00 | 26.00 | 26.00 | 26.00 | 26.50 | 26.90 | 27.00 | 27.00 | : | 25.50 | 25.83 | 26.17 | 26.97 | : | 26.12 | 25.66 |
| 1999 | 27.20 | 27.13 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 27.00 | 26.00 | 26.00 | 25.20 | : | 27.11 | 27.00 | 27.00 | 25.73 | : | 26.71 | 27.02 |
| 2000 | 23.38 | 22.25 | 21.50 | 21.00 | 19.75 | 19.00 | 19.00 | 19.00 | 20.70 | 21.25 | 21.00 | 21.80 | : | 22.38 | 19.92 | 19.57 | 21.35 | : | 20.80 | 21.90 |
| 2001 | 23.13 | 22.75 | 22.00 | 20.50 | 21.38 | 21.90 | 22.50 | 22.50 | 24.63 | 25.75 | 26.20 | 26.50 | : | 22.63 | 21.26 | 23.21 | 26.15 | : | 23.31 | 22.11 |
| 2002 | 26.75 | 26.00 | 25.95 | 24.63 | 24.50 | 24.00 | 24.00 | 25.40 | 26.25 | 26.75 | 27.40 | 27.88 | : | 26.23 | 24.38 | 25.22 | 27.34 | : | 25.79 | 25.49 |
| 2003 | 27.80 | 26.50 | 27.13 | 27.63 | 28.00 | 28.00 | 27.63 | 25.50 | 24.00 | 24.70 | 23.94 | 23.63 | : | 27.14 | 27.88 | 25.71 | 24.09 | : | 26.21 | 27.02 |
| 2004 | 23.70 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.50 | 23.38 | 23.20 | : | 23.57 | 23.50 | 23.50 | 23.36 | : | 23.48 | 23.66 |
| 2005 | 23.50 | 23.50 | 23.25 | 23.80 | 24.75 | 25.88 | 26.00 | 26.75 | 40.10 | 40.00 | 40.00 | 36.90 | : | 23.42 | 24.81 | 30.95 | 38.97 | : | 29.54 | 25.63 |
| 2006 | 34.50 | 36.50 | 37.10 | 36.38 | 35.00 | 35.00 | 35.00 | 34.50 | 31.20 | 28.75 | 27.19 | 26.10 | : | 36.03 | 35.46 | 33.57 | 27.35 | : | 33.10 | 36.01 |
| 2007 | 25.50 | 25.00 | 24.90 | 25.00 | 25.00 | 25.00 | 25.38 | 25.60 | 25.38 | 25.00 | 24.50 | 24.50 | : | 25.13 | 25.00 | 25.45 | 24.67 | : | 25.06 | 25.73 |
| 2008 | 24.13 | 26.40 | 28.00 | 28.00 | | | | | | | | | | 26.18 | | | | | | |

Source: *Milling & Baking News*. Simple average of the lower end of the range of quotations for days in that month. Quotations are weekly.

Table 13--U.S. retail refined sugar price, monthly, quarterly, and by calendar and fiscal year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | Calendar | Fiscal | | |
|-----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|----------|--------|-------|-------|
| Cents per pound | | | | | | | | | | | | | | | | | | | | |
| 1991 | 43.40 | 43.00 | 43.40 | 43.30 | 43.10 | 43.20 | 43.50 | 42.80 | 42.20 | 42.00 | 41.90 | 41.80 | : | 43.27 | 43.20 | 42.83 | 41.90 | : | 42.80 | 43.08 |
| 1992 | 42.50 | 42.40 | 41.90 | 41.70 | 41.70 | 41.50 | 41.50 | 41.10 | 41.00 | 41.20 | 41.20 | 40.60 | : | 42.27 | 41.63 | 41.20 | 41.00 | : | 41.53 | 41.75 |
| 1993 | 41.20 | 41.00 | 40.60 | 40.80 | 40.80 | 40.30 | 40.20 | 40.60 | 40.40 | 40.50 | 40.30 | 39.80 | : | 40.93 | 40.63 | 40.40 | 40.20 | : | 40.54 | 40.74 |
| 1994 | 40.70 | 40.50 | 40.10 | 39.90 | 40.10 | 39.70 | 40.00 | 39.70 | 40.30 | 40.20 | 39.50 | 39.20 | : | 40.43 | 39.90 | 40.00 | 39.63 | : | 39.99 | 40.13 |
| 1995 | 39.70 | 39.90 | 39.80 | 39.40 | 39.70 | 39.50 | 39.70 | 39.60 | 39.80 | 40.40 | 40.70 | 39.80 | : | 39.80 | 39.53 | 39.70 | 40.30 | : | 39.83 | 39.67 |
| 1996 | 40.50 | 40.30 | 40.60 | 40.40 | 41.50 | 41.80 | 42.40 | 42.80 | 42.60 | 43.20 | 42.60 | 42.80 | : | 40.47 | 41.23 | 42.60 | 42.87 | : | 41.79 | 41.15 |
| 1997 | 43.40 | 42.90 | 43.10 | 43.50 | 43.40 | 43.60 | 43.30 | 43.60 | 43.60 | 43.00 | 42.90 | 42.80 | : | 43.13 | 43.50 | 43.50 | 42.90 | : | 43.26 | 43.25 |
| 1998 | 43.00 | 42.90 | 43.30 | 43.10 | 42.80 | 43.10 | 43.20 | 43.60 | 43.20 | 42.30 | 42.50 | 42.70 | : | 43.07 | 43.00 | 43.33 | 42.50 | : | 42.98 | 43.08 |
| 1999 | 43.60 | 43.00 | 43.70 | 43.20 | 43.60 | 43.10 | 43.20 | 43.10 | 43.70 | 43.80 | 42.60 | 42.60 | : | 43.43 | 43.30 | 43.33 | 43.00 | : | 43.27 | 43.14 |
| 2000 | 43.70 | 43.20 | 42.90 | 41.40 | 42.40 | 42.80 | 42.50 | 42.40 | 42.40 | 42.50 | 41.30 | 41.40 | : | 43.27 | 42.20 | 42.43 | 41.73 | : | 42.41 | 42.73 |
| 2001 | 42.80 | 43.50 | 43.70 | 42.90 | 43.80 | 43.50 | 44.30 | 43.30 | 44.20 | 44.00 | 42.50 | 42.50 | : | 43.33 | 43.40 | 43.93 | 43.00 | : | 43.42 | 43.10 |
| 2002 | 44.10 | 43.70 | 42.60 | 44.40 | 42.70 | 43.00 | 43.30 | 43.30 | 43.70 | 42.40 | 41.90 | 42.10 | : | 43.47 | 43.37 | 43.43 | 42.13 | : | 43.10 | 43.32 |
| 2003 | 43.00 | 42.70 | 42.70 | 42.70 | 43.10 | 42.90 | 43.10 | 43.50 | 42.60 | 42.50 | 41.10 | 42.20 | : | 42.80 | 42.90 | 43.07 | 41.93 | : | 42.68 | 42.73 |
| 2004 | 42.90 | 42.60 | 42.60 | 42.70 | 42.50 | 42.50 | 42.90 | 42.60 | 42.60 | 42.60 | 42.20 | 43.00 | : | 42.70 | 42.57 | 42.70 | 42.60 | : | 42.64 | 42.48 |
| 2005 | 43.70 | 43.50 | 43.30 | 43.60 | 42.70 | 42.80 | 42.40 | 43.20 | 43.70 | 44.20 | 44.50 | 44.90 | : | 43.50 | 43.03 | 43.10 | 44.53 | : | 43.54 | 43.06 |
| 2006 | 46.10 | 46.80 | 47.10 | 48.00 | 49.90 | 50.40 | 50.50 | 51.60 | 51.50 | 51.20 | 51.30 | 50.60 | : | 46.67 | 49.43 | 51.20 | 51.03 | : | 49.58 | 47.96 |
| 2007 | 51.90 | 51.40 | 51.80 | 50.80 | 51.30 | 52.10 | 52.20 | 51.80 | 51.80 | 51.30 | 51.00 | 50.30 | : | 51.70 | 51.40 | 51.93 | 50.87 | : | 51.48 | 51.52 |
| 2008 | 51.90 | 51.30 | 50.40 | 51.70 | | | | | | | | | | 51.20 | | | | | | |

Source: Bureau of Labor Statistics.

Table 14--U.S. producer price index for corn sweeteners and sugar, monthly

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | Annual |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| <i>Corn sweeteners (liquids and solids), incl. glucose, dextrose, and HFCS, June 1985=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 98.9 | 98.0 | 97.8 | 98.0 | 97.9 | 97.9 | 97.8 | 98.0 | 98.0 | 97.6 | 99.2 | 100.3 | 98.3 |
| 2001 | 111.3 | 111.6 | 111.6 | 111.5 | 111.9 | 111.3 | 111.3 | 111.3 | 112.2 | 112.3 | 113.9 | 114.0 | 112.0 |
| 2002 | 116.5 | 120.1 | 119.7 | 119.8 | 117.4 | 119.6 | 121.2 | 121.0 | 127.4 | 127.9 | 125.9 | 126.5 | 121.9 |
| 2003 | 130.0 | 131.4 | 131.3 | 131.3 | 131.5 | 131.9 | -- | 132.2 | 131.9 | 130.6 | 130.9 | 130.7 | 131.3 |
| 2004 | 131.9 | 132.0 | 131.9 | 131.7 | 131.6 | 131.7 | 131.8 | 131.5 | 131.6 | 131.5 | 131.6 | 131.6 | 131.7 |
| 2005 | 133.1 | 133.3 | 133.5 | 133.1 | 133.1 | 133.1 | 133.2 | 132.9 | 133.2 | 137.2 | 133.1 | 133.2 | 133.5 |
| 2006 | 144.5 | 144.8 | 145.1 | 153.4 | 151.1 | 151.2 | 151.2 | 150.9 | 150.9 | 150.9 | 151.1 | 151.0 | 149.7 |
| 2007 | 175.5 | 176.8 | 176.8 | 176.8 | 176.9 | 177.1 | 176.8 | 176.8 | 176.5 | 176.9 | 177.0 | 176.6 | 176.7 |
| 2008 2/ | 205.5 | 206.8 | 206.7 | 198.3 | | | | | | | | | |
| <i>Raw cane sugar and other can mill products and byproducts, June 1982=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 92.7 | 89.4 | 95.1 | 97.4 | 97.0 | 99.5 | 92.7 | 90.7 | 95.9 | 106.1 | 106.9 | 103.4 | 97.2 |
| 2001 | 106.3 | 107.6 | 107.6 | 108.6 | 107.8 | 106.1 | 107.7 | 107.4 | 107.1 | 107.4 | 108.2 | 109.8 | 107.6 |
| 2002 | 109.2 | 107.0 | 103.8 | 103.4 | 101.4 | 102.7 | 106.7 | 106.9 | 111.2 | 111.6 | 113.9 | 112.7 | 107.5 |
| 2003 | 108.8 | 111.3 | 113.5 | 111.6 | 112.1 | 111.1 | 109.8 | 109.8 | 108.0 | 106.8 | 107.4 | 105.2 | 109.6 |
| 2004 | 104.7 | 104.5 | 106.4 | 105.6 | 105.8 | 102.7 | 104.6 | 103.3 | 107.1 | 104.2 | 104.2 | 106.5 | 105.0 |
| 2005 | 106.5 | 105.6 | 120.0 | 121.4 | 122.9 | 124.5 | 125.0 | 127.2 | 123.3 | 125.0 | 126.4 | 126.3 | 121.2 |
| 2006 | 129.5 | 133.2 | 129.9 | 132.9 | 134.6 | 135.4 | 134.2 | 132.0 | 132.1 | 127.5 | 124.4 | 123.0 | 130.7 |
| 2007 | 123.9 | 125.4 | 125.9 | 125.9 | 127.0 | 127.2 | 129.0 | 127.4 | 127.6 | 126.2 | 124.7 | 123.0 | 126.1 |
| 2008 2/ | 123.8 | 121.1 | 124.2 | 123.8 | | | | | | | | | |
| <i>Refined beet sugar and byproducts, June 1982=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 105.4 | 101.5 | 100.3 | 99.1 | 98.3 | 98.3 | 97.7 | 96.2 | 95.5 | 94.7 | 95.0 | 94.0 | 98.0 |
| 2001 | 97.5 | 97.6 | 97.8 | 98.0 | 99.4 | 99.5 | 99.5 | 100.9 | 102.0 | 103.3 | 105.0 | 106.8 | 100.6 |
| 2002 | 108.5 | 109.8 | 110.5 | 111.2 | 111.1 | 110.9 | 111.3 | 111.3 | 114.2 | 114.3 | 116.1 | 117.9 | 112.3 |
| 2003 | 118.7 | 118.8 | 119.1 | 119.5 | 119.2 | 119.4 | 119.3 | 119.4 | 113.7 | 116.6 | 116.4 | 116.2 | 118.0 |
| 2004 | 116.1 | 116.3 | 116.4 | 116.8 | 116.3 | 116.6 | 116.6 | 116.7 | 116.9 | 115.5 | 115.8 | 116.1 | 116.4 |
| 2005 | 116.3 | 117.8 | 115.9 | 116.5 | 117.3 | 118.6 | 118.5 | 118.4 | 118.2 | 122.6 | 136.0 | 141.5 | 121.5 |
| 2006 | 141.9 | 147.4 | 148.8 | 149.0 | 148.6 | 149.2 | 152.0 | 151.2 | 146.2 | 145.0 | 143.5 | 138.1 | 146.7 |
| 2007 | 136.2 | 136.5 | 133.8 | 132.9 | 129.4 | 126.6 | 126.2 | 126.1 | 125.9 | 126.3 | 124.3 | 123.9 | 129.0 |
| 2008 2/ | 119.7 | 119.8 | 121.6 | 121.3 | | | | | | | | | |
| <i>Refined cane sugar and byproducts, June 1982=100 1/</i> | | | | | | | | | | | | | |
| 2000 | 124.7 | 121.8 | 121.7 | 119.8 | 120.4 | 119.8 | 120.5 | 119.2 | 117.5 | 113.9 | 113.2 | 114.4 | 118.9 |
| 2001 | 112.8 | 117.5 | 116.2 | 114.6 | 115.1 | 115.3 | 115.6 | 116.6 | 115.5 | 115.2 | 115.2 | 116.3 | 115.5 |
| 2002 | 117.4 | 117.9 | 121.0 | 122.3 | 119.7 | 121.2 | 121.3 | 120.8 | 120.8 | 121.0 | 119.5 | 120.1 | 120.2 |
| 2003 | 119.1 | 122.3 | 122.8 | 122.9 | 122.9 | 123.5 | 123.8 | 124.5 | 125.5 | 124.3 | 122.3 | 123.4 | 123.1 |
| 2004 | 120.5 | 120.4 | 121.6 | 121.6 | 123.0 | 124.3 | 123.3 | 123.5 | 123.1 | 123.6 | 122.5 | 121.6 | 122.4 |
| 2005 | 122.8 | 121.9 | 121.5 | 121.4 | 122.6 | 123.7 | 122.4 | 124.4 | 125.3 | 130.4 | 133.6 | 140.8 | 125.9 |
| 2006 | 142.8 | 146.2 | 155.5 | 156.9 | 155.5 | 150.7 | 156.4 | 153.1 | 152.3 | 148.2 | 143.9 | 142.3 | 150.3 |
| 2007 | 144.9 | 140.4 | 137.9 | 136.1 | 134.9 | 132.0 | 132.4 | 128.5 | 130.0 | 124.7 | 130.1 | 129.9 | 133.5 |
| 2008 2/ | 126.4 | 129.0 | 127.5 | 128.0 | | | | | | | | | |

1/ Based on a sample of domestic producers. 2/ Preliminary, all indexes are subject to revision four months after original publishing.

Source: Bureau of Labor Statistics.

Table 15--U.S. Consumer Price Index for sugar and selected sweetener-containing products 1/

| Year and month | Sugar and sweets | Sugar and artificial sweeteners | Flour and prepared flour mixes | Cereals and bakery products | Breakfast cereal | White bread | Cakes, cupcakes, and cookies | Other bakery products |
|----------------|------------------|---------------------------------|--------------------------------|-----------------------------|------------------|-------------|------------------------------|-----------------------|
| | 2/ | 3/ | 4/ | 5/ | 6/ | 7/ | 8/ | 9/ |
| 1982-84=100 | | | | | | | | |
| 2000 | 154.0 | 137.1 | 160.2 | 188.3 | 198.0 | 199.1 | 187.9 | 191.5 |
| 2001 | 155.7 | 140.3 | 164.3 | 193.8 | 199.7 | 208.3 | 192.0 | 199.1 |
| 2002 | 159.0 | 143.2 | 171.0 | 198.0 | 203.0 | 213.4 | 196.7 | 203.0 |
| 2003 | 162.0 | 145.7 | 178.4 | 202.8 | 204.3 | 218.6 | 202.8 | 207.3 |
| 2004 | 163.2 | 146.9 | 177.8 | 206.0 | 203.5 | 223.8 | 206.4 | 211.8 |
| 2005 | 165.2 | 149.1 | 179.6 | 209.0 | 203.6 | 232.1 | 209.8 | 211.4 |
| 2006 | 171.5 | 163.9 | 182.2 | 212.8 | 199.9 | 238.0 | 214.2 | 215.5 |
| 2007 | 176.8 | 167.1 | 191.6 | 222.1 | 205.0 | 258.0 | 221.7 | 220.5 |
| 2007 | | | | | | | | |
| Jan. | 175.2 | 167.4 | 189.9 | 216.3 | 197.5 | 249.2 | 215.8 | 219.3 |
| Feb. | 174.3 | 168.0 | 189.0 | 219.0 | 204.1 | 250.4 | 219.0 | 218.9 |
| Mar. | 174.6 | 168.3 | 189.2 | 218.5 | 201.7 | 247.5 | 219.8 | 217.5 |
| Apr. | 175.9 | 166.7 | 189.6 | 220.5 | 204.2 | 255.4 | 220.6 | 218.1 |
| May | 175.5 | 167.7 | 191.1 | 220.9 | 204.6 | 254.8 | 219.1 | 219.3 |
| June | 176.7 | 168.0 | 192.8 | 222.6 | 206.3 | 257.1 | 219.6 | 224.3 |
| July | 178.2 | 169.1 | 194.2 | 223.3 | 205.6 | 259.0 | 221.6 | 223.1 |
| Aug. | 178.3 | 168.3 | 195.7 | 224.0 | 205.7 | 259.9 | 221.4 | 226.3 |
| Sep. | 178.2 | 168.4 | 194.9 | 223.4 | 206.2 | 258.2 | 222.7 | 223.9 |
| Oct. | 177.2 | 167.0 | 191.8 | 224.7 | 207.3 | 267.5 | 224.3 | 220.4 |
| Nov. | 178.6 | 163.4 | 190.8 | 225.7 | 209.3 | 264.6 | 228.3 | 217.2 |
| Dec. | 178.6 | 162.5 | 190.0 | 226.5 | 207.8 | 272.2 | 228.7 | 217.5 |
| 2008 | | | | | | | | |
| Jan. | 180.2 | 167.0 | 202.3 | 228.7 | 203.1 | 273.1 | 227.9 | 221.7 |
| Feb. | 180.6 | 167.7 | 208.8 | 233.4 | 205.9 | 278.9 | 229.2 | 227.2 |
| Mar. | 182.2 | 165.4 | 215.5 | 236.3 | 211.4 | 287.9 | 232.7 | 225.0 |
| Apr. | 184.9 | 168.5 | 224.3 | 240.0 | 208.6 | 291.4 | 234.5 | 233.8 |

Continued--

Table 15--U.S. Consumer Price Index for sugar and selected sweetener-containing products 1/

| Year and month | Non-alcoholic beverages | Carbonated drinks | Non-carbonated juices and drinks | Canned fruits | Candy and chewing gum | Ice cream and related products | Food |
|--------------------|-------------------------|-------------------|----------------------------------|---------------|-----------------------|--------------------------------|-------|
| | 10/ | 11/ | 12/ | 13/ | 14/ | 15/ | 16/ |
| <i>1982-84=100</i> | | | | | | | |
| 2000 | 137.8 | 123.4 | 104.2 | 106.9 | 103.8 | 164.4 | 167.8 |
| 2001 | 139.2 | 125.4 | 106.0 | 109.0 | 104.3 | 173.4 | 173.1 |
| 2002 | 139.2 | 125.6 | 106.4 | 111.6 | 106.2 | 179.1 | 176.2 |
| 2003 | 139.8 | 125.6 | 106.5 | 113.7 | 107.8 | 175.5 | 180.0 |
| 2004 | 140.4 | 127.9 | 105.7 | 114.0 | 108.4 | 178.3 | 186.2 |
| 2005 | 144.4 | 131.9 | 106.5 | 118.4 | 109.5 | 177.6 | 190.7 |
| 2006 | 147.4 | 134.2 | 109.5 | 121.5 | 112.2 | 179.3 | 195.2 |
| 2007 | 153.4 | 140.1 | 112.9 | 125.2 | 116.1 | 183.4 | 202.9 |
| 2007 | | | | | | | |
| Jan. | 151.1 | 137.8 | 112.1 | 122.9 | 114.5 | 185.5 | 198.8 |
| Feb. | 151.7 | 138.0 | 112.1 | 124.4 | 113.5 | 181.6 | 200.0 |
| Mar. | 153.9 | 141.4 | 113.4 | 123.3 | 113.9 | 183.6 | 200.4 |
| Apr. | 151.8 | 138.9 | 111.0 | 123.8 | 115.5 | 180.0 | 200.8 |
| May | 152.9 | 139.3 | 113.1 | 125.6 | 114.8 | 179.5 | 201.8 |
| June | 153.1 | 139.5 | 113.0 | 126.7 | 115.6 | 181.3 | 202.4 |
| July | 153.4 | 140.8 | 112.3 | 127.8 | 117.1 | 180.2 | 203.1 |
| Aug. | 154.8 | 141.5 | 113.4 | 126.8 | 117.4 | 181.8 | 203.9 |
| Sep. | 155.0 | 142.7 | 113.4 | 125.9 | 117.1 | 184.4 | 204.9 |
| Oct. | 155.5 | 142.7 | 113.7 | 126.6 | 116.3 | 186.1 | 205.8 |
| Nov. | 154.3 | 140.7 | 113.7 | 123.4 | 118.6 | 188.0 | 206.3 |
| Dec. | 153.6 | 138.2 | 114.0 | 125.7 | 118.6 | 188.5 | 206.7 |
| 2008 | | | | | | | |
| Jan. | 157.9 | 143.7 | 116.8 | 128.3 | 118.8 | 189.5 | 208.6 |
| Feb. | 157.8 | 146.5 | 116.1 | 132.3 | 119.1 | 190.2 | 209.2 |
| Mar. | 158.1 | 144.5 | 116.1 | 130.2 | 120.6 | 188.8 | 209.4 |
| Apr. | 159.7 | 147.0 | 117.2 | 130.7 | 122.5 | 190.7 | 211.1 |

1/ All-urban, unadjusted, U.S. city average. 2/ Series:SEFR, Base: 1982-84=100. 3/ Series: SEFR01, Base: 1982-84=100.

4/ Series: SEFA01, Base: 1982-84=100; 5/ Series: SAF111, Base: 1982-84=100. 6/ Series: SEFA02, Base: 1982-84=100.

7/ Series: SS02011, Base: 1982-84=100. 8/ Series: SEFB03, Base: 1982-84=100. 9/ Series: SEFB04, Base: 1982-84=100.

10/ Series: SAF114, Base: 1982-84=100. 11/ Series: SEFN01, Base: 1982-84=100. 12/ Series: SEFN03, Base: Dec. 1997=100.

13/ Series: SS13031, Base: Dec. 1997=100. 14/ Series: SEFR02, Base: Dec. 1997=100. 15/ Series: SEFJ03, Base: 1982-84=100.

16/ Series: SAF1, Base: 1982-84=100.

Source: Bureau of Labor Statistics.

Table 16--U.S. cane and beet sugar deliveries, monthly, quarterly, and by fiscal and calendar year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | Fiscal | Calendar |
|---|------|------|------|------|-----|------|------|------|------|------|------|------|--------|--------|--------|--------|--------|----------|
| <i>1,000 short tons, raw value</i> | | | | | | | | | | | | | | | | | | |
| U.S. beet sugar for domestic consumption: | | | | | | | | | | | | | | | | | | |
| 1993 | 303 | 287 | 397 | 299 | 328 | 367 | 358 | 372 | 367 | 346 | 325 | 338 | 988 | 994 | 1,097 | 1,008 | 4,134 | 4,087 |
| 1994 | 312 | 313 | 370 | 303 | 338 | 406 | 360 | 406 | 437 | 338 | 304 | 282 | 995 | 1,047 | 1,204 | 924 | 4,254 | 4,170 |
| 1995 | 301 | 311 | 378 | 311 | 356 | 399 | 384 | 450 | 465 | 404 | 395 | 331 | 989 | 1,066 | 1,300 | 1,131 | 4,279 | 4,486 |
| 1996 | 316 | 342 | 361 | 343 | 338 | 325 | 350 | 335 | 300 | 333 | 315 | 267 | 1,018 | 1,006 | 984 | 915 | 4,139 | 3,923 |
| 1997 | 280 | 272 | 315 | 312 | 326 | 332 | 351 | 373 | 428 | 375 | 316 | 317 | 867 | 970 | 1,152 | 1,009 | 3,903 | 3,997 |
| 1998 | 324 | 316 | 362 | 344 | 342 | 401 | 393 | 388 | 409 | 392 | 334 | 308 | 1,002 | 1,087 | 1,190 | 1,034 | 4,288 | 4,313 |
| 1999 | 319 | 325 | 374 | 346 | 361 | 417 | 400 | 427 | 416 | 438 | 392 | 321 | 1,018 | 1,124 | 1,244 | 1,151 | 4,419 | 4,536 |
| 2000 | 320 | 340 | 385 | 341 | 393 | 384 | 348 | 411 | 392 | 412 | 378 | 329 | 1,045 | 1,118 | 1,152 | 1,119 | 4,465 | 4,433 |
| 2001 | 366 | 346 | 401 | 375 | 405 | 403 | 414 | 450 | 408 | 429 | 373 | 311 | 1,113 | 1,183 | 1,272 | 1,112 | 4,686 | 4,680 |
| 2002 | 349 | 315 | 347 | 340 | 375 | 332 | 369 | 365 | 380 | 423 | 396 | 300 | 1,012 | 1,047 | 1,114 | 1,119 | 4,285 | 4,291 |
| 2003 | 315 | 307 | 341 | 338 | 338 | 365 | 380 | 366 | 388 | 395 | 335 | 353 | 962 | 1,041 | 1,134 | 1,082 | 4,255 | 4,219 |
| 2004 | 359 | 367 | 407 | 387 | 333 | 438 | 408 | 433 | 392 | 423 | 378 | 342 | 1,133 | 1,159 | 1,233 | 1,143 | 4,607 | 4,668 |
| 2005 | 358 | 368 | 395 | 387 | 370 | 416 | 384 | 415 | 449 | 457 | 375 | 337 | 1,120 | 1,173 | 1,248 | 1,169 | 4,684 | 4,710 |
| 2006 | 342 | 306 | 357 | 323 | 362 | 381 | 348 | 406 | 366 | 369 | 329 | 306 | 1,005 | 1,067 | 1,120 | 1,004 | 4,360 | 4,195 |
| 2007 | 339 | 330 | 378 | 396 | 414 | 404 | 422 | 456 | 420 | 423 | 402 | 311 | 1,047 | 1,214 | 1,297 | 1,149 | 4,562 | 4,707 |
| 2008 | 365 | 401 | 401 | | | | | | | | | | 1,167 | | | | | |
| Cane sugar for domestic consumption: | | | | | | | | | | | | | | | | | | |
| 1993 | 311 | 339 | 391 | 387 | 351 | 423 | 422 | 441 | 469 | 427 | 424 | 395 | 1,042 | 1,161 | 1,332 | 1,246 | 4,734 | 4,781 |
| 1994 | 332 | 358 | 422 | 361 | 400 | 448 | 411 | 427 | 473 | 443 | 434 | 420 | 1,112 | 1,209 | 1,310 | 1,298 | 4,877 | 4,929 |
| 1995 | 340 | 332 | 432 | 380 | 424 | 438 | 369 | 444 | 423 | 431 | 413 | 381 | 1,104 | 1,243 | 1,236 | 1,226 | 4,880 | 4,808 |
| 1996 | 353 | 376 | 443 | 425 | 452 | 471 | 463 | 488 | 565 | 547 | 500 | 456 | 1,172 | 1,349 | 1,515 | 1,504 | 5,262 | 5,539 |
| 1997 | 397 | 396 | 481 | 444 | 474 | 509 | 462 | 476 | 500 | 525 | 459 | 431 | 1,274 | 1,427 | 1,437 | 1,416 | 5,641 | 5,553 |
| 1998 | 369 | 391 | 470 | 430 | 429 | 481 | 432 | 438 | 506 | 486 | 467 | 451 | 1,230 | 1,339 | 1,377 | 1,404 | 5,361 | 5,349 |
| 1999 | 355 | 379 | 453 | 452 | 500 | 476 | 433 | 490 | 485 | 483 | 481 | 433 | 1,186 | 1,429 | 1,407 | 1,396 | 5,427 | 5,419 |
| 2000 | 383 | 404 | 484 | 425 | 452 | 488 | 455 | 530 | 471 | 534 | 481 | 398 | 1,272 | 1,365 | 1,456 | 1,414 | 5,490 | 5,508 |
| 2001 | 410 | 371 | 470 | 413 | 431 | 458 | 419 | 446 | 417 | 487 | 467 | 384 | 1,251 | 1,302 | 1,282 | 1,338 | 5,248 | 5,172 |
| 2002 | 392 | 378 | 437 | 424 | 458 | 490 | 472 | 486 | 549 | 468 | 444 | 407 | 1,208 | 1,373 | 1,507 | 1,320 | 5,424 | 5,407 |
| 2003 | 372 | 377 | 467 | 434 | 408 | 475 | 421 | 488 | 415 | 476 | 486 | 413 | 1,216 | 1,317 | 1,324 | 1,375 | 5,177 | 5,232 |
| 2004 | 346 | 393 | 406 | 377 | 415 | 408 | 404 | 448 | 415 | 528 | 466 | 383 | 1,144 | 1,200 | 1,268 | 1,377 | 4,987 | 4,989 |
| 2005 | 377 | 363 | 459 | 400 | 437 | 441 | 418 | 477 | 458 | 476 | 429 | 401 | 1,199 | 1,277 | 1,353 | 1,306 | 5,207 | 5,136 |
| 2006 | 405 | 383 | 440 | 405 | 434 | 466 | 435 | 494 | 441 | 487 | 456 | 384 | 1,228 | 1,305 | 1,369 | 1,327 | 5,209 | 5,230 |
| 2007 | 399 | 363 | 455 | 426 | 426 | 429 | 400 | 497 | 435 | 448 | 470 | 376 | 1,217 | 1,281 | 1,332 | 1,295 | 5,157 | 5,124 |
| 2008 | 408 | 411 | 443 | | | | | | | | | | 1,262 | | | | | |
| Imports to nonreporters | | | | | | | | | | | | | | | | | | |
| 1993 | 4 | 2 | 3 | 2 | 5 | 9 | 1 | 2 | 1 | 9 | 6 | 8 | 10 | 17 | 3 | 23 | 48 | 52 |
| 1994 | 5 | 3 | 6 | 1 | 4 | 4 | 5 | 5 | 7 | 10 | 15 | 12 | 14 | 9 | 18 | 38 | 63 | 78 |
| 1995 | 9 | 1 | 1 | 2 | 0 | 0 | 1 | 1 | 4 | 17 | 5 | 0 | 12 | 3 | 6 | 22 | 59 | 44 |
| 1996 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 19 | 10 | 1 | 1 | 1 | 1 | 20 | 12 | 44 | 33 |
| 1997 | 1 | 0 | 1 | 2 | 1 | 1 | 1 | 0 | 1 | 15 | 2 | 2 | 2 | 4 | 2 | 19 | 20 | 27 |
| 1998 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 13 | 5 | 1 | 1 | 2 | 1 | 19 | 23 | 24 |
| 1999 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 27 | 3 | 4 | 4 | 0 | 4 | 33 | 28 | 41 |
| 2000 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 26 | 4 | 1 | 1 | 0 | 3 | 31 | 38 | 36 |
| 2001 | 5 | 1 | 0 | 0 | 0 | 0 | 3 | 21 | 3 | 6 | 10 | 8 | 6 | 1 | 27 | 24 | 65 | 58 |
| 2002 | 3 | 1 | 4 | 7 | 1 | 12 | 3 | 6 | 14 | 36 | 19 | 2 | 8 | 20 | 24 | 58 | 76 | 109 |
| 2003 | 3 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 4 | 25 | 16 | 5 | 5 | 2 | 6 | 47 | 71 | 60 |
| 2004 | 1 | 2 | 6 | 4 | 3 | 3 | 4 | 11 | 4 | 16 | 11 | 1 | 9 | 9 | 19 | 27 | 84 | 64 |
| 2005 | 1 | 1 | 13 | 6 | 4 | 11 | 2 | 6 | 57 | 17 | 24 | 55 | 16 | 21 | 65 | 96 | 128 | 197 |
| 2006 | 92 | 6 | 104 | 26 | 29 | 60 | 71 | 70 | 61 | 32 | 22 | 5 | 202 | 115 | 202 | 58 | 615 | 577 |
| 2007 | 16 | 22 | 4 | 15 | 22 | 4 | 21 | 13 | 19 | 21 | 35 | 15 | 43 | 40 | 53 | 70 | 194 | 206 |
| 2008 | 16 | 27 | 29 | | | | | | | | | | 72 | | | | | |
| Total sugar for domestic consumption: | | | | | | | | | | | | | | | | | | |
| 1993 | 619 | 629 | 791 | 688 | 685 | 799 | 782 | 815 | 836 | 783 | 755 | 740 | 2,039 | 2,172 | 2,432 | 2,277 | 8,916 | 8,920 |
| 1994 | 649 | 674 | 798 | 665 | 742 | 857 | 776 | 838 | 918 | 792 | 754 | 714 | 2,121 | 2,265 | 2,532 | 2,260 | 9,195 | 9,177 |
| 1995 | 651 | 644 | 811 | 694 | 780 | 837 | 755 | 894 | 892 | 853 | 813 | 713 | 2,105 | 2,311 | 2,542 | 2,379 | 9,218 | 9,337 |
| 1996 | 670 | 718 | 804 | 769 | 790 | 796 | 813 | 823 | 883 | 891 | 816 | 724 | 2,191 | 2,355 | 2,519 | 2,430 | 9,445 | 9,496 |
| 1997 | 678 | 668 | 797 | 758 | 801 | 841 | 813 | 849 | 928 | 915 | 778 | 750 | 2,143 | 2,401 | 2,591 | 2,443 | 9,565 | 9,578 |
| 1998 | 694 | 707 | 832 | 774 | 772 | 883 | 826 | 826 | 915 | 892 | 806 | 760 | 2,233 | 2,428 | 2,568 | 2,458 | 9,672 | 9,686 |
| 1999 | 676 | 704 | 827 | 798 | 861 | 894 | 833 | 916 | 905 | 947 | 876 | 757 | 2,208 | 2,553 | 2,655 | 2,580 | 9,873 | 9,996 |
| 2000 | 703 | 745 | 870 | 766 | 845 | 872 | 804 | 941 | 867 | 973 | 863 | 728 | 2,318 | 2,484 | 2,611 | 2,564 | 9,993 | 9,977 |
| 2001 | 781 | 718 | 871 | 788 | 837 | 861 | 835 | 917 | 828 | 922 | 849 | 703 | 2,370 | 2,486 | 2,580 | 2,474 | 10,000 | 9,911 |
| 2002 | 744 | 695 | 788 | 771 | 834 | 834 | 844 | 858 | 943 | 927 | 860 | 709 | 2,227 | 2,439 | 2,645 | 2,497 | 9,785 | 9,808 |
| 2003 | 689 | 685 | 809 | 772 | 746 | 841 | 802 | 856 | 807 | 896 | 837 | 771 | 2,183 | 2,360 | 2,464 | 2,504 | 9,504 | 9,511 |
| 2004 | 706 | 762 | 819 | 767 | 751 | 850 | 817 | 893 | 810 | 967 | 855 | 726 | 2,286 | 2,368 | 2,520 | 2,547 | 9,678 | 9,722 |
| 2005 | 737 | 732 | 866 | 793 | 811 | 867 | 804 | 897 | 964 | 951 | 828 | 793 | 2,335 | 2,471 | 2,666 | 2,571 | 10,019 | 10,043 |
| 2006 | 839 | 695 | 901 | 755 | 825 | 907 | 853 | 969 | 868 | 888 | 806 | 694 | 2,436 | 2,487 | 2,690 | 2,389 | 10,184 | 10,002 |
| 2007 | 754 | 715 | 838 | 837 | 862 | 837 | 843 | 966 | 873 | 892 | 907 | 702 | 2,307 | 2,535 | 2,682 | 2,514 | 9,913 | 10,038 |
| 2008 | 789 | 840 | 873 | | | | | | | | | | 2501 | | | | | |

Continued--

Table 16--U.S. cane and beet sugar deliveries, monthly, quarterly, and by fiscal and calendar year

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sep. | Oct. | Nov. | Dec. | : 1st Q. | 2nd Q. | 3rd Q. | 4th Q. | : | Fiscal | Calendar |
|--|------|------|------|------|-----|------|------|------|------|------|------|------|----------|--------|--------|--------|---------|--------|----------|
| 1,000 short tons, raw value | | | | | | | | | | | | | | | | | | | |
| Reexported in products: | | | | | | | | | | | | | | | | | | | |
| 1993 | 10 | 4 | 9 | 7 | 7 | 12 | 14 | 22 | 20 | 8 | 8 | 7 | : | 23 | 26 | 57 | 24 : | 132 | 129 |
| 1994 | 7 | 7 | 7 | 9 | 15 | 15 | 10 | 17 | 17 | 12 | 11 | 5 | : | 20 | 39 | 44 | 28 : | 127 | 131 |
| 1995 | 3 | 7 | 7 | 8 | 4 | 7 | 15 | 18 | 5 | 6 | 8 | 7 | : | 18 | 18 | 39 | 21 : | 103 | 96 |
| 1996 | 5 | 5 | 10 | 14 | 8 | 8 | 8 | 13 | 11 | 9 | 7 | 6 | : | 20 | 30 | 32 | 22 : | 104 | 104 |
| 1997 | 32 | 30 | 6 | 6 | 7 | 10 | 12 | 16 | 17 | 7 | 6 | 8 | : | 68 | 22 | 45 | 21 : | 157 | 156 |
| 1998 | 6 | 9 | 9 | 12 | 10 | 10 | 14 | 15 | 16 | 18 | 15 | 11 | : | 24 | 32 | 46 | 44 : | 123 | 146 |
| 1999 | 26 | 19 | 12 | 14 | 11 | 10 | 15 | 10 | 7 | 9 | 5 | 7 | : | 58 | 35 | 32 | 21 : | 169 | 145 |
| 2000 | 7 | 7 | 7 | 7 | 8 | 7 | 6 | 11 | 5 | 6 | 6 | 7 | : | 21 | 22 | 22 | 18 : | 86 | 84 |
| 2001 | 8 | 5 | 8 | 9 | 10 | 10 | 11 | 11 | 8 | 10 | 16 | 13 | : | 21 | 29 | 30 | 40 : | 98 | 120 |
| 2002 | 15 | 13 | 11 | 12 | 12 | 11 | 12 | 14 | 15 | 17 | 12 | 14 | : | 39 | 35 | 42 | 43 : | 156 | 158 |
| 2003 | 16 | 13 | 14 | 14 | 15 | 20 | 19 | 15 | 13 | 16 | 10 | 9 | : | 44 | 49 | 47 | 35 : | 183 | 175 |
| 2004 | 9 | 10 | 9 | 10 | 18 | 11 | 12 | 15 | 13 | 10 | 9 | 9 | : | 28 | 40 | 39 | 28 : | 142 | 135 |
| 2005 | 7 | 8 | 9 | 11 | 9 | 17 | 11 | 11 | 11 | 6 | 14 | 6 | : | 24 | 37 | 33 | 25 : | 121 | 118 |
| 2006 | 6 | 10 | 9 | 10 | 6 | 7 | 7 | 10 | 15 | 11 | 8 | 12 | : | 25 | 23 | 32 | 31 : | 106 | 111 |
| 2007 | 18 | 11 | 14 | 17 | 22 | 16 | 16 | 13 | 11 | 8 | 12 | 16 | : | 43 | 55 | 40 | 35 : | 169 | 173 |
| 2008 | 11 | 7 | 9 | | | | | | | | | | | 27 | | | | | |
| Polyhydric alcohol and livestock feed use: | | | | | | | | | | | | | | | | | | | |
| 1993 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | : | 5 | 4 | 3 | 2 : | 15 | 14 |
| 1994 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | : | 4 | 3 | 4 | 4 : | 13 | 14 |
| 1995 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 1 | : | 4 | 5 | 4 | 4 : | 17 | 17 |
| 1996 | 1 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | : | 4 | 5 | 5 | 5 : | 18 | 18 |
| 1997 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 2 | : | 4 | 6 | 6 | 5 : | 21 | 21 |
| 1998 | 1 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | : | 4 | 5 | 5 | 6 : | 20 | 21 |
| 1999 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | : | 5 | 6 | 6 | 8 : | 24 | 26 |
| 2000 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | : | 9 | 8 | 7 | 7 : | 32 | 30 |
| 2001 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 4 | 10 | 4 | 3 | 2 | : | 8 | 10 | 17 | 9 : | 42 | 44 |
| 2002 | 3 | 2 | 2 | 2 | 3 | 4 | 4 | 2 | 2 | 2 | 2 | 1 | : | 7 | 8 | 8 | 5 : | 33 | 28 |
| 2003 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 3 | 3 | : | 6 | 7 | 7 | 7 : | 24 | 27 |
| 2004 | 3 | 3 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 3 | 4 | : | 9 | 11 | 13 | 10 : | 41 | 44 |
| 2005 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 5 | 4 | 4 | 5 | : | 12 | 13 | 13 | 13 : | 48 | 51 |
| 2006 | 5 | 4 | 5 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | : | 13 | 12 | 12 | 12 : | 50 | 49 |
| 2007 | 4 | 5 | 5 | 4 | 5 | 4 | 4 | 5 | 5 | 5 | 5 | 4 | : | 14 | 14 | 13 | 14 : | 53 | 54 |
| 2008 | 6 | 4 | 6 | | | | | | | | | | | 16 | | | | | |
| Total U.S. sugar deliveries 1/: | | | | | | | | | | | | | | | | | | | |
| 1993 | 630 | 635 | 801 | 697 | 693 | 812 | 797 | 838 | 857 | 792 | 763 | 748 | : | 2,067 | 2,201 | 2,492 | 2,303 : | 9,063 | 9,063 |
| 1994 | 657 | 682 | 806 | 675 | 758 | 873 | 787 | 856 | 936 | 804 | 767 | 720 | : | 2,145 | 2,307 | 2,579 | 2,291 : | 9,334 | 9,322 |
| 1995 | 655 | 653 | 820 | 703 | 786 | 846 | 772 | 914 | 899 | 861 | 823 | 721 | : | 2,127 | 2,334 | 2,585 | 2,405 : | 9,337 | 9,451 |
| 1996 | 676 | 724 | 815 | 785 | 800 | 806 | 822 | 838 | 896 | 901 | 824 | 731 | : | 2,215 | 2,390 | 2,557 | 2,457 : | 9,567 | 9,619 |
| 1997 | 712 | 699 | 804 | 766 | 810 | 854 | 827 | 867 | 948 | 924 | 785 | 760 | : | 2,215 | 2,429 | 2,641 | 2,469 : | 9,742 | 9,755 |
| 1998 | 701 | 718 | 843 | 787 | 784 | 894 | 843 | 843 | 933 | 912 | 823 | 773 | : | 2,261 | 2,465 | 2,619 | 2,508 : | 9,815 | 9,854 |
| 1999 | 704 | 725 | 842 | 814 | 875 | 906 | 850 | 928 | 915 | 958 | 883 | 767 | : | 2,271 | 2,594 | 2,693 | 2,609 : | 10,066 | 10,167 |
| 2000 | 713 | 755 | 880 | 776 | 855 | 881 | 813 | 954 | 875 | 981 | 871 | 737 | : | 2,348 | 2,513 | 2,641 | 2,589 : | 10,111 | 10,091 |
| 2001 | 792 | 726 | 882 | 800 | 851 | 874 | 849 | 932 | 847 | 936 | 869 | 718 | : | 2,399 | 2,524 | 2,628 | 2,524 : | 10,140 | 10,075 |
| 2002 | 761 | 710 | 801 | 786 | 848 | 849 | 860 | 874 | 960 | 946 | 874 | 724 | : | 2,272 | 2,483 | 2,694 | 2,544 : | 9,973 | 9,994 |
| 2003 | 707 | 701 | 825 | 788 | 764 | 863 | 823 | 873 | 823 | 914 | 849 | 783 | : | 2,233 | 2,415 | 2,519 | 2,546 : | 9,711 | 9,713 |
| 2004 | 718 | 775 | 832 | 782 | 773 | 864 | 833 | 912 | 827 | 980 | 866 | 739 | : | 2,324 | 2,419 | 2,572 | 2,586 : | 9,861 | 9,901 |
| 2005 | 748 | 744 | 879 | 808 | 824 | 889 | 820 | 912 | 979 | 960 | 846 | 803 | : | 2,370 | 2,521 | 2,711 | 2,609 : | 10,188 | 10,212 |
| 2006 | 850 | 709 | 914 | 768 | 835 | 919 | 865 | 984 | 886 | 903 | 818 | 710 | : | 2,474 | 2,522 | 2,734 | 2,432 : | 10,339 | 10,162 |
| 2007 | 776 | 731 | 857 | 858 | 889 | 857 | 862 | 984 | 888 | 918 | 923 | 721 | : | 2,364 | 2,604 | 2,735 | 2,563 : | 10,134 | 10,265 |
| 2008 | 806 | 851 | 887 | | | | | | | | | | | 2,544 | | | | | |

Totals may not add due to rounding.

Note: This table commenced in October 1991 when USDA began reporting monthly production data. Puerto Rico data were added beginning October 1993.

1/ Fiscal year totals prior to 1994 differ from supply and use (table) since WASDE includes Puerto Rico.

Source: USDA, FSA, *Sweetener Market Data*.

Table 17--U.S. sugar: supply and use, by fiscal year 1/

| Items | 1996/97 | 1997/98 | 1998/99 | 1999/00 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 Projection May-08 |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------------------------|
| 1,000 short tons, raw value | | | | | | | | | | | | | |
| Beginning stocks 2 | 1,492 | 1,488 | 1,679 | 1,639 | 2,216 | 2,180 | 1,528 | 1,670 | 1,897 | 1,332 | 1,698 | 1,799 | 1,756 |
| Total production 3,4 | 7,204 | 8,021 | 8,366 | 9,050 | 8,769 | 7,900 | 8,426 | 8,649 | 7,876 | 7,399 | 8,445 | 8,391 | 8,115 |
| Beet sugar | 4,013 | 4,389 | 4,421 | 4,974 | 4,680 | 3,915 | 4,462 | 4,692 | 4,611 | 4,444 | 5,008 | 4,810 | 4,400 |
| Cane sugar | 3,191 | 3,632 | 3,945 | 4,076 | 4,089 | 3,985 | 3,964 | 3,957 | 3,265 | 2,955 | 3,438 | 3,581 | 3,715 |
| Florida | 1,679 | 1,924 | 2,127 | 1,966 | 2,057 | 1,980 | 2,129 | 2,154 | 1,693 | 1,367 | 1,719 | 1,691 | 1,865 |
| Louisiana | 1,054 | 1,262 | 1,325 | 1,683 | 1,585 | 1,580 | 1,367 | 1,377 | 1,157 | 1,190 | 1,320 | 1,490 | 1,410 |
| Texas | 91 | 80 | 107 | 105 | 206 | 174 | 191 | 175 | 158 | 175 | 177 | 163 | 200 |
| Hawaii | 340 | 350 | 384 | 318 | 241 | 251 | 276 | 251 | 258 | 223 | 222 | 238 | 240 |
| Puerto Rico | 27 | 16 | 3 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total imports | 2,774 | 2,163 | 1,823 | 1,636 | 1,590 | 1,535 | 1,730 | 1,750 | 2,100 | 3,443 | 2,080 | 2,251 | 2,249 |
| Tariff-rate quota imports 5 | 2,277 | 1,729 | 1,256 | 1,124 | 1,277 | 1,158 | 1,210 | 1,226 | 1,408 | 2,588 | 1,624 | 1,251 | 1,274 |
| Other Program Imports | 493 | 349 | 386 | 388 | 238 | 296 | 488 | 464 | 500 | 349 | 390 | 425 | 425 |
| Nonprogram imports | 4 | 85 | 181 | 124 | 76 | 81 | 32 | 60 | 192 | 506 | 66 | 575 | 550 |
| Mexico 6 | | | | | | | | | | | 60 | 575 | 550 |
| Total supply | 11,471 | 11,672 | 11,868 | 12,325 | 12,575 | 11,615 | 11,684 | 12,070 | 11,873 | 12,174 | 12,223 | 12,441 | 12,120 |
| Total exports 3 | 211 | 179 | 230 | 124 | 141 | 137 | 142 | 288 | 259 | 203 | 422 | 250 | 250 |
| Quota-exempt for reexport | 211 | 179 | 230 | 124 | 141 | 137 | 142 | 288 | 259 | 203 | 422 | 250 | 250 |
| Other exports | 0 | 0 | 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 | 0 | 0 |
| Statistical difference 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Miscellaneous | 30 | -1 | -67 | -126 | 123 | -24 | 161 | 23 | 94 | -67 | -132 | 0 | 0 |
| CCC disposal, for domestic non-food use | 0 | 0 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Refining loss adjustment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Statistical adjustment 8 | 30 | -1 | -67 | -126 | 113 | -24 | 161 | 23 | 94 | -67 | -132 | 0 | 0 |
| Deliveries for domestic use | 9,742 | 9,815 | 10,066 | 10,111 | 10,132 | 9,974 | 9,711 | 9,862 | 10,188 | 10,340 | 10,135 | 10,435 | 10,535 |
| Transfer to sugar containing products for exports under reexport program | 157 | 123 | 169 | 86 | 98 | 156 | 183 | 142 | 121 | 106 | 169 | 150 | 150 |
| Transfer to polyhydric alcohol, feed | 21 | 20 | 24 | 32 | 33 | 33 | 24 | 41 | 48 | 51 | 53 | 60 | 60 |
| Deliveries for domestic food and beverage use | 9,564 | 9,672 | 9,873 | 9,993 | 10,000 | 9,785 | 9,504 | 9,678 | 10,019 | 10,184 | 9,913 | 10,225 | 10,325 |
| Total use | 9,983 | 9,992 | 10,238 | 10,090 | 10,396 | 10,087 | 10,014 | 10,172 | 10,542 | 10,476 | 10,424 | 10,685 | 10,785 |
| Ending stocks /3 | 1,488 | 1,679 | 1,639 | 2,216 | 2,180 | 1,528 | 1,670 | 1,897 | 1,332 | 1,698 | 1,799 | 1,756 | 1,335 |
| Privately owned | 1,488 | 1,679 | 1,639 | 1,919 | 1,395 | 1,316 | | | | | | | |
| CCC | 0 | 0 | 0 | 297 | 784 | 212 | | | | | | | |
| Percent | | | | | | | | | | | | | |
| Stocks-to-use ratio | 14.91 | 16.81 | 16.01 | 21.96 | 20.97 | 15.15 | 16.68 | 18.65 | 12.63 | 16.21 | 17.25 | 16.43 | 12.38 |

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 FSA (formerly ASCS), Sweetener Market Data, and USDA, NASS, Sugar Market Statistics prior to 1992. 4/ Production reflects processors' projections compiled by the Farm Service Agency. 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 2007/08 available TRQ assumes shortfall of 170,000 tons. 6/ Does not include Mexico TRQ imports after FY 2007.

7/ Receipts compiled by NASS and FSA Customs data. 8/ Calculated as a residual. Largely consists of invisible stocks change.

Table 18--Net cost of corn starch to U.S. wet-millers, Midwest markets

| Period | Corn byproducts | | | | Byproduct credits | | | | Net cost | | |
|--------|---------------------|--------------|-----------------------|------------------|-------------------|----------------------|------------------|-----------------|----------------|------------------|----------------|
| | Yellow dent corn 1/ | Corn oil | Corn gluten feed | Corn gluten meal | Corn oil | Corn gluten feed | Corn gluten meal | Total byproduct | Corn | Corn starch | Corn sweetener |
| | Dollars per bu | Cents per lb | Dollars per short ton | | ---- | Cents per bushel---- | | Dollars per bu | Dollars per bu | --Cents per lb-- | |
| 1991 | 2.40 | 28.36 | 101.57 | 256.07 | 43.96 | 68.56 | 33.93 | 1.46 | 0.94 | 2.97 | 2.81 |
| 1992 | 2.33 | 23.89 | 102.80 | 259.72 | 37.03 | 69.39 | 34.41 | 1.41 | 0.92 | 2.93 | 2.77 |
| 1993 | 2.27 | 21.52 | 87.99 | 296.53 | 33.35 | 59.39 | 39.29 | 1.32 | 0.95 | 3.02 | 2.85 |
| 1994 | 2.40 | 27.22 | 89.59 | 262.50 | 42.19 | 60.47 | 34.78 | 1.37 | 1.03 | 3.26 | 3.08 |
| 1995 | 2.70 | 26.67 | 88.34 | 244.02 | 41.33 | 59.63 | 32.33 | 1.33 | 1.37 | 4.34 | 4.10 |
| 1996 | 3.82 | 24.52 | 116.25 | 332.40 | 38.00 | 78.47 | 44.04 | 1.61 | 2.22 | 7.04 | 6.65 |
| 1997 | 2.67 | 24.87 | 83.99 | 345.22 | 38.55 | 56.69 | 45.74 | 1.41 | 1.26 | 4.00 | 3.78 |
| 1998 | 2.23 | 29.90 | 64.86 | 260.54 | 46.34 | 43.78 | 34.52 | 1.25 | 0.98 | 3.12 | 2.95 |
| 1999 | 1.92 | 23.59 | 58.77 | 231.88 | 36.56 | 39.67 | 30.72 | 1.07 | 0.85 | 2.68 | 2.54 |
| 2000 | 1.88 | 14.66 | 51.71 | 237.63 | 22.72 | 34.90 | 31.49 | 0.89 | 0.98 | 3.13 | 2.95 |
| 2001 | 1.90 | 15.75 | 62.46 | 253.98 | 24.41 | 42.16 | 33.65 | 1.00 | 0.90 | 2.86 | 2.70 |
| 2002 | 2.17 | 20.78 | 60.33 | 243.72 | 32.21 | 40.72 | 32.29 | 1.05 | 1.12 | 3.55 | 3.36 |
| 2003 | 2.29 | 28.65 | 72.15 | 251.36 | 44.40 | 48.70 | 33.31 | 1.26 | 1.02 | 3.25 | 3.07 |
| 2004 | 2.39 | 27.59 | 72.01 | 308.44 | 42.76 | 48.61 | 40.87 | 1.32 | 1.07 | 3.39 | 3.20 |
| 2005 | 1.90 | 28.42 | 51.33 | 288.09 | 44.04 | 34.65 | 38.17 | 1.17 | 0.73 | 2.33 | 2.20 |
| 2006 | 2.41 | 25.06 | 59.87 | 264.89 | 38.84 | 40.41 | 35.10 | 1.14 | 1.27 | 4.02 | 3.80 |
| 2006 | | | | | | | | | | | |
| Jan. | 1.98 | 25.22 | 55.75 | 303.75 | 39.09 | 37.63 | 40.25 | 1.17 | 0.81 | 2.57 | 2.43 |
| Feb. | 2.07 | 23.65 | 57.75 | 259.38 | 36.66 | 38.98 | 34.37 | 1.10 | 0.97 | 3.08 | 2.91 |
| Mar. | 2.04 | 22.61 | 61.63 | 263.75 | 35.05 | 41.60 | 34.95 | 1.12 | 0.92 | 2.93 | 2.77 |
| I | 2.03 | 23.83 | 58.38 | 275.63 | 36.93 | 39.40 | 36.52 | 1.13 | 0.90 | 2.86 | 2.70 |
| Apr. | 2.18 | 23.19 | 57.88 | 250.63 | 35.94 | 39.07 | 33.21 | 1.08 | 1.10 | 3.49 | 3.29 |
| May | 2.22 | 25.25 | 60.38 | 251.70 | 39.14 | 40.76 | 33.35 | 1.13 | 1.09 | 3.45 | 3.26 |
| June | 2.15 | 25.70 | 58.25 | 250.00 | 39.84 | 39.32 | 33.13 | 1.12 | 1.03 | 3.26 | 3.08 |
| II | 2.18 | 24.71 | 58.84 | 250.78 | 38.31 | 39.71 | 33.23 | 1.11 | 1.07 | 3.40 | 3.21 |
| July | 2.22 | 25.75 | 56.13 | 240.00 | 39.91 | 37.89 | 31.80 | 1.10 | 1.12 | 3.57 | 3.37 |
| Aug. | 2.07 | 25.42 | 56.00 | 229.25 | 39.40 | 37.80 | 30.38 | 1.08 | 0.99 | 3.16 | 2.98 |
| Sept. | 2.21 | 24.71 | 55.90 | 237.50 | 38.30 | 37.73 | 31.47 | 1.08 | 1.13 | 3.60 | 3.40 |
| III | 2.17 | 25.29 | 56.01 | 235.58 | 39.20 | 37.81 | 31.21 | 1.08 | 1.08 | 3.44 | 3.25 |
| Oct. | 2.82 | 24.70 | 60.20 | 272.20 | 38.29 | 40.64 | 36.07 | 1.15 | 1.67 | 5.30 | 5.01 |
| Nov. | 3.43 | 26.47 | 68.63 | 306.25 | 41.03 | 46.33 | 40.58 | 1.28 | 2.15 | 6.83 | 6.45 |
| Dec. | 3.53 | 28.05 | 69.88 | 314.31 | 43.48 | 47.17 | 41.65 | 1.32 | 2.21 | 7.01 | 6.62 |
| IV | 3.26 | 26.41 | 66.24 | 297.59 | 40.93 | 44.71 | 39.43 | 1.25 | 2.01 | 6.38 | 6.03 |
| 2007 | | | | | | | | | | | |
| Jan. | 3.66 | 28.05 | 92.00 | 333.00 | 43.48 | 62.10 | 44.12 | 1.50 | 2.16 | 6.87 | 6.49 |
| Feb. | 3.90 | 28.66 | 85.38 | 346.88 | 44.42 | 57.63 | 45.96 | 1.48 | 2.42 | 7.68 | 7.26 |
| Mar. | 3.76 | 29.08 | 84.94 | 361.50 | 45.07 | 57.33 | 47.90 | 1.50 | 2.26 | 7.16 | 6.77 |
| I | 3.77 | 28.60 | 87.44 | 347.13 | 44.32 | 59.02 | 45.99 | 1.49 | 2.28 | 7.24 | 6.84 |
| Apr. | 3.36 | 29.93 | 72.82 | 363.33 | 46.39 | 49.15 | 48.14 | 1.44 | 1.92 | 6.11 | 5.77 |
| May | 3.52 | 31.56 | 59.50 | 344.00 | 48.92 | 40.16 | 45.58 | 1.35 | 2.17 | 6.90 | 6.52 |
| June | 3.68 | 34.71 | 62.25 | 352.75 | 53.80 | 42.02 | 46.74 | 1.43 | 2.25 | 7.16 | 6.76 |
| II | 3.52 | 32.07 | 64.86 | 353.36 | 49.70 | 43.78 | 46.82 | 1.40 | 2.12 | 6.72 | 6.35 |
| July | 3.03 | 37.25 | 66.40 | 398.50 | 57.74 | 44.82 | 52.80 | 1.55 | 1.48 | 4.69 | 4.43 |
| Aug. | 3.08 | 39.61 | 75.00 | 404.38 | 61.40 | 50.63 | 53.58 | 1.66 | 1.42 | 4.52 | 4.27 |
| Sept. | 3.15 | 43.61 | 85.50 | 414.38 | 67.60 | 57.71 | 54.91 | 1.80 | 1.35 | 4.28 | 4.04 |
| III | 3.09 | 40.16 | 75.63 | 405.75 | 62.24 | 51.05 | 53.76 | 1.67 | 1.42 | 4.50 | 4.25 |
| Oct. | 3.28 | 52.50 | 105.00 | 472.50 | 81.38 | 70.88 | 62.61 | 2.15 | 1.13 | 3.59 | 3.39 |
| Nov. | 3.66 | 56.32 | 129.38 | 495.63 | 87.30 | 87.33 | 65.67 | 2.40 | 1.26 | 3.99 | 3.77 |
| Dec. | 4.03 | 59.47 | 134.17 | 540.79 | 92.18 | 90.56 | 71.65 | 2.54 | 1.49 | 4.72 | 4.46 |
| IV | 3.66 | 56.10 | 122.85 | 502.97 | 86.95 | 82.92 | 66.64 | 2.37 | 1.29 | 4.10 | 3.87 |
| 2008 | | | | | | | | | | | |
| Jan. | 4.55 | 63.35 | 135.60 | 545.00 | 98.19 | 91.53 | 72.21 | 2.62 | 1.93 | 6.13 | 5.79 |
| Feb. | 4.91 | 74.89 | 128.75 | 543.13 | 116.08 | 86.91 | 71.96 | 2.75 | 2.16 | 6.86 | 6.48 |
| Mar. | 5.16 | 83.55 | 117.19 | 561.88 | 129.50 | 79.10 | 74.45 | 2.83 | 2.33 | 7.40 | 6.99 |
| I | 4.87 | 73.93 | 127.18 | 550.00 | 114.59 | 85.85 | 72.88 | 2.73 | 2.14 | 6.79 | 6.42 |
| Apr. | 5.59 | 87.05 | | | | | | | | | |

NQ = no quote.

Sources: USDA, AMS, <http://marketnews.usda.gov/portal/lg> ;

USDA, byproduct credits and net cost calculations.

Note: To calculate the net cost of corn, it is assumed that the average bushel of corn wet-milled in the United States contains 31.5 pounds of recoverable starch, dry weight, as well as 1.55 pounds of corn oil (crude weight), 13.5 pounds of corn gluten feed (commercial weight), and 2.65 pounds of corn gluten meal, (commercial weight). Also, 31.5 pounds of starch, dry weight, produces about 33.33 pounds of corn sweetener (dry weight) because of the chemical gain converting starch to sweetener.

Table 19--U.S. use of field corn, by crop year 1/

| Description | 1995/96 | 1996/97 | 1997/98 | 1998/99 | 1999/2000 | 2000/01 | 2001/02 | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 2/ | 2008/09 2/ |
|-------------------------------------|---------|---------|---------|---------|-----------|---------|---------|---------|---------|---------|---------|---------|---------------|---------------|
| HFCS | 473 | 492 | 513 | 530 | 540 | 530 | 541 | 532 | 530 | 521 | 529 | 510 | 500 | 500 |
| Glucose syrup and dextrose | 227 | 233 | 229 | 219 | 222 | 218 | 217 | 219 | 228 | 222 | 229 | 239 | 240 | 240 |
| Total corn sweetener | 700 | 725 | 742 | 749 | 761 | 748 | 758 | 751 | 758 | 743 | 758 | 749 | 740 | 740 |
| Corn starch | 226 | 238 | 246 | 240 | 251 | 247 | 246 | 256 | 272 | 278 | 275 | 272 | 270 | 270 |
| Wet milling excluding alcohol | 926 | 963 | 988 | 989 | 1,013 | 995 | 1,003 | 1,007 | 1,030 | 1,021 | 1,033 | 1,021 | 1,010 | 1,010 |
| Alcohol | | | | | | | | | | | | | | |
| Fuel | 396 | 429 | 481 | 526 | 566 | 628 | 714 | 996 | 1,168 | 1,323 | 1,603 | 2,117 | 3,000 | 4,000 |
| Beverage | 125 | 130 | 133 | 127 | 130 | 130 | 131 | 131 | 132 | 133 | 135 | 136 | 135 | 134 |
| Total | 521 | 559 | 614 | 653 | 696 | 758 | 845 | 1,127 | 1,300 | 1,456 | 1,738 | 2,253 | 3,135 | 4,134 |
| Total | 1,447 | 1,522 | 1,602 | 1,642 | 1,709 | 1,753 | 1,848 | 2,133 | 2,329 | 2,477 | 2,771 | 3,274 | 4,145 | 5,144 |
| U.S. corn crop | 7,374 | 9,233 | 9,207 | 9,759 | 9,431 | 9,915 | 9,503 | 8,967 | 10,089 | 11,807 | 11,114 | 10,535 | 13,074 | 12,125 |
| Corn sweetener share | 9.49 | 7.85 | 8.06 | 7.67 | 8.07 | 7.54 | 7.97 | 8.38 | 7.51 | 6.29 | 6.82 | 7.11 | 5.66 | 6.10 |
| Wet milling excluding alcohol share | 12.56 | 10.43 | 10.73 | 10.13 | 10.74 | 10.04 | 10.56 | 11.23 | 10.21 | 8.64 | 9.30 | 9.69 | 7.73 | 8.33 |
| Alcohol share | 7.07 | 6.05 | 6.67 | 6.69 | 7.38 | 7.64 | 8.89 | 12.56 | 12.88 | 12.33 | 15.64 | 21.39 | 23.98 | 34.09 |
| Total | 19.62 | 16.48 | 17.40 | 16.83 | 18.12 | 17.68 | 19.45 | 23.79 | 23.09 | 20.97 | 24.93 | 31.08 | 31.71 | 42.42 |

1/ September/August crop year. 2/ Forecast.

Source: USDA, ERS, Sugar and Sweeteners Group.

Table 20--U.S. high fructose corn syrup (HFCS) deliveries, quarterly, by fiscal and calendar year 1/

| Quarter and Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <hr/> | | | | | | | | | |
| Quarter | | | | | | | | | |
| I | 2,129 | 2,165 | 2,114 | 2,122 | 2,185 | 2,128 | 2,195 | 2,087 | 2,003 |
| II | 2,482 | 2,370 | 2,527 | 2,469 | 2,438 | 2,408 | 2,431 | 2,363 | |
| III | 2,400 | 2,433 | 2,491 | 2,408 | 2,361 | 2,392 | 2,356 | 2,266 | |
| IV | 2,103 | 2,181 | 2,161 | 2,136 | 2,076 | 2,130 | 2,073 | 2,073 | |
| <hr/> | | | | | | | | | |
| Year | | | | | | | | | |
| Fiscal | 9,200 | 9,072 | 9,313 | 9,160 | 9,119 | 9,004 | 9,113 | 8,789 | |
| Calendar | 9,114 | 9,149 | 9,294 | 9,135 | 9,060 | 9,058 | 9,056 | 8,788 | |

1/ Includes Puerto Rico.

Source: Estimates by USDA, ERS, Sugar and Sweetener Group.

Table 21--U.S. raw sugar tariff-rate quota (TRQ) World Trade Organization allocations and entries by month, fiscal year 2008

| | Entries by month | | | | | | | | | | Entries to date | FY 2008 TRQ allocation |
|---------------------|-------------------------------|--------------------|--------------------|-------------------|---------------------|---------------------|---------------------|--------|--------|--------|-----------------|------------------------|
| | Oct-07 10/31/07 | Nov-07 11/26/07 | Dec-07 12/31/07 | Jan-08 1/29/08 | Feb-08 2/25/2008 | Mar-08 3/31/2008 | Apr-08 4/28/2008 | May-08 | Jun-08 | Jul-08 | | |
| | <i>Metric tons, raw value</i> | | | | | | | | | | | |
| Argentina | 704 | 0 | 0 | 12 | 0 | 0 | 0 | | | | 715 | 45,281 |
| Australia | 31,350 | 31,350 | 0 | 235 | 0 | 544 | 0 | | | | 63,479 | 87,402 |
| Barbados | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,371 |
| Belize | 0 | 0 | 0 | 0 | 0 | 100 | 0 | | | | 100 | 11,583 |
| Bolivia | 0 | 0 | 8,424 | 0 | 0 | 0 | 0 | | | | 8,424 | 8,424 |
| Brazil | 27,546 | 27,945 | 42,383 | 6,492 | 29,106 | 6,365 | 10,217 | | | | 150,055 | 152,691 |
| Colombia | 161 | 225 | 533 | 380 | 291 | 257 | 285 | | | | 2,131 | 25,273 |
| Congo | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Costa Rica | 0 | 0 | 0 | 0 | 0 | 483 | 13,145 | | | | 13,628 | 15,796 |
| Cote d'Ivoire | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Dominican Republic | 6,472 | 305 | 14,042 | 6,113 | 29,629 | 18,190 | 28,359 | | | | 103,110 | 185,335 |
| Ecuador | 0 | 0 | 12 | -1 | 51 | 112 | 0 | | | | 175 | 11,583 |
| El Salvador | 0 | 0 | 0 | 14,615 | 1,689 | 9,017 | 0 | | | | 25,322 | 27,379 |
| Fiji | 0 | 9,477 | 0 | 0 | 0 | 0 | 0 | | | | 9,477 | 9,477 |
| Gabon | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Guatemala | 0 | 0 | 0 | 5,436 | 7,113 | 5,543 | 31,551 | | | | 49,643 | 50,546 |
| Guyana | 0 | 23 | 0 | 12 | 0 | 42 | 19 | | | | 96 | 12,636 |
| Haiti | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Honduras | 0 | 0 | 0 | 0 | 0 | 4,885 | 5,645 | | | | 10,530 | 10,530 |
| India | 0 | 0 | 0 | 0 | 0 | 309 | 0 | | | | 309 | 8,424 |
| Jamaica | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 11,583 |
| Madagascar | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Malawi | 207 | 228 | 269 | 148 | 766 | 115 | 385 | | | | 2,118 | 10,530 |
| Mauritius | 124 | 0 | 0 | 81 | 0 | -205 | 204 | | | | 204 | 12,636 |
| Mexico 1/ | 0 | 0 | 7,258 | 0 | 0 | 0 | 0 | | | | 7,258 | 7,258 |
| Mozambique | 0 | 0 | 0 | 0 | 0 | 244 | 0 | | | | 244 | 13,690 |
| Nicaragua | 0 | 0 | 6,417 | 0 | 7,820 | 320 | 0 | | | | 14,557 | 22,114 |
| Panama | 16,618 | 47 | 0 | 76 | 0 | 212 | 0 | | | | 16,953 | 30,538 |
| Papua New Guinea | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Paraguay | 21 | 0 | 0 | 0 | 0 | 178 | 223 | | | | 422 | 7,258 |
| Peru | 15,466 | 27,710 | 0 | -11,570 | 0 | 0 | 11,569 | | | | 43,175 | 43,175 |
| Philippines | 8,119 | 0 | 0 | 13 | 0 | 11,903 | 27,945 | | | | 47,980 | 142,160 |
| South Africa | 0 | 23,902 | 0 | 0 | 0 | 318 | 0 | | | | 24,220 | 24,220 |
| St. Kitts and Nevis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Swaziland | 0 | 0 | 16,493 | 0 | 0 | 356 | 0 | | | | 16,849 | 16,849 |
| Taiwan | 0 | 0 | 0 | 0 | 0 | 489 | 0 | | | | 489 | 12,636 |
| Thailand | 0 | 0 | 0 | 0 | 0 | 298 | 0 | | | | 298 | 14,743 |
| Trinidad-Tobago | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,371 |
| Uruguay | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 7,258 |
| Zimbabwe | 12,636 | 0 | 0 | -203 | 0 | 203 | | | | | 12,636 | 12,636 |
| Total | 119,424 | 121,211 | 95,831 | 21,840 | 76,464 | 60,278 | 129,547 | | | | 624,595 | 1,117,195 |

1/ This amount is also included in Table 24, U.S. imports of sugar and certain sugar-containing products from Mexico, FY 2008.

Source: United States Customs and Border Protection, *Weekly Commodity Status Report*.http://www.fas.usda.gov/smi_arc.asp

Table 22--U.S. refined sugar tariff-rate quota (TRQ) WTO allocations and entries by month, fiscal year 2008

| | Entries by month | | | | | | | | | | | | Entries to date | FY 2008 TRQ allocation | Entries as share of allocation |
|--------------|-----------------------|------------|------------|-----------|-----------|-----------|-----------|--------|--------|--------|--------|--------|-----------------|------------------------|--------------------------------|
| | Oct-07 | Nov-07 | Dec-07 | Jan-08 | Feb-08 | Mar-08 | Apr-08 | May-08 | Jun-08 | Jul-08 | Aug-08 | Sep-08 | | | |
| | 10/29/2007 | 11/26/2007 | 12/31/2007 | 1/28/2008 | 2/25/2008 | 3/31/2008 | 4/28/2008 | | | | | | | | |
| | Metric tons raw value | | | | | | | | | | | | | | Percent |
| Global | 7,090 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 7,090 | 7,090 | 100.0 |
| Canada | 4,167 | 822 | 1,882 | 1,526 | 1,236 | 338 | 57 | | | | | | 10,028 | 10,300 | 97.4 |
| Mexico 1/ | 2,954 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 2,954 | 2,954 | 100.0 |
| Specialty 2/ | 1,656 | 22,544 | 0 | 0 | 13,653 | 0 | 0 | | | | | | 37,853 | 65,159 | 58.1 |
| Total | 15,867 | 23,366 | 1,882 | 1,526 | 14,889 | 338 | 57 | | | | | | 57,925 | 82,549 | 70.2 |

1/ This amount is also included in Table 24, U.S. imports of sugar and certain sugar-containing products from Mexico, FY 2008.

2/ The tranches of the FY 2008 specialty sugar TRQ have opened or will open as follows:

Tranche 1 – Opens 10/24/2007 – 1,656 metric tons

Tranche 2 – Opens 11/15/2007 – 22,544 metric tons

Tranche 3 – Opens 01/30/2008 – 13,653 metric tons

Tranche 4 – Opens 05/14/2008 – 13,653 metric tons

Tranche 5 – Opens 08/27/2008 – 13,653 metric tons

The second, third, fourth, and fifth tranches will be reserved for organic sugar and other specialty sugars not currently produced commercially in the United States or reasonably available from domestic sources.

Source: United States Customs and Border Protection, *Weekly Commodity Status Report*,
http://www.fas.usda.gov/smi_arc.asp

Table 23--U.S. sugar and sugar-containing product tariff-rate quota (TRQ) allocations and entries by month under the Dominican Republic, Central America-United Central America-United States Free Trade Agreement (CAFTA-DR), calendar year 2008 ^{1/}

| Central America - United States Free Trade Agreement (CAFTA-DR), calendar year 2008 - n | | | | | | | | | | | | | | |
|---|------------------|---------|-----------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|-----------------|------------------------|
| Country | Entries by month | | | | | | | | | | | | Entries to date | FY 2008 TRQ allocation |
| | Jan-08 | Feb-08 | Mar-08 | Apr-08 | May-08 | Jun-08 | Jul-08 | Aug-08 | Sep-08 | Oct-08 | Nov-08 | Dec-08 | | |
| | 1/28/08 | 2/25/08 | 3/31/2008 | 4/28/2008 | | | | | | | | | | |
| Metric tons raw value | | | | | | | | | | | | | | |
| Costa Rica 2/ | n/a | n/a | n/a | n/a | | | | | | | | | n/a | n/a |
| Dominican Republic 3/ | n/a | n/a | n/a | n/a | | | | | | | | | n/a | 0 |
| El Salvador | 15 | 24,945 | 0 | 0 | | | | | | | | | 24,960 | 24,960 |
| Guatemala | 10,196 | 960 | 3,982 | 5,866 | | | | | | | | | 21,004 | 33,280 |
| Honduras | 0 | 0 | 2,470 | 0 | | | | | | | | | 2,470 | 8,320 |
| Nicaragua | 0 | 8,147 | 0 | 0 | | | | | | | | | 8,147 | 22,880 |
| Total | 10,211 | 34,053 | 6,452 | 5,866 | | | | | | | | | 56,582 | 89,440 |

NA = Not available.

1/ For details on items eligible for these TRQs, see CAFTA-DR Annex 3.3, U.S. Notes, pages 6-9: http://www.ustr.gov/assets/Trade_Agreements/Bilateral/CAFTA/CAFTA-DR_Final_Texts/asset_upload_file971_3958.pdf.
See *Federal Register* Vol. 72, No. 244, December 20, 2007.

2/ TRQ allocation is pending final implementation of the agreement by Costa Rica.

3/ The TRQ under CAFTA-DR is zero due to the determination for CY 2008 that Dominican Republic's trade surplus is negative.

Source: United States Customs and Border Protection, *Weekly Commodity Status Report*.

http://www.fas.usda.gov/smi_arc.asp

Table 24--U.S. imports of sugar and certain sugar-containing products from Mexico, FY 2008 1/

| Imports | Entries by month | | | | | | | | | | | | Entries to date |
|--|---------------------------------------|----------------------|----------------------|---------------------|---------------------|--------|--------|--------|--------|--------|--------|--------|-----------------|
| | Oct-07 10/31/2007 | Nov-07 11/31/2007 | Dec-07 12/31/2007 | Jan-08 1/31/2008 | Feb-08 2/29/2008 | Mar-08 | Apr-08 | May-08 | Jun-08 | Jul-08 | Aug-08 | Sep-08 | |
| | <i>Metric tons, raw value</i> | | | | | | | | | | | | |
| Raw sugar 2/ | 2,045 | 2,312 | 25,376 | 18,360 | 41,375 | 39,382 | 1,973 | | | | | | 130,823 |
| Refined sugar 3/ | 5,050 | 13,227 | 11,019 | 5,101 | 15,860 | 23,588 | 48,425 | | | | | | 122,270 |
| Total sugar | 7,095 | 15,539 | 36,395 | 23,461 | 57,235 | 62,970 | 50,398 | | | | | | 253,093 |
| | <i>Metric tons, commercial weight</i> | | | | | | | | | | | | |
| Powdered drink crystals, flavored sugar 4/ | 4,094 | 2,673 | 2,521 | 2,060 | 3,091 | | | | | | | | 14,439 |
| Cocoa powder 5/ | 7,767 | 5,710 | 4,383 | 6,412 | 5,846 | | | | | | | | 30,118 |
| Tea mixes 6/ | 1,976 | 2,700 | 1,211 | 753 | 1,862 | | | | | | | | 8,502 |

1/ Beginning 1/1/08, no duty or quota applies to sugar from Mexico. From 10/1/07 - 12/31/07, Mexico had duty-free access of 2,954 metric tons allocated under the refined TRQ and 175,000 metric tons (which included WTO raw sugar allocation to Mexico) established by Presidential Proclamation 8180 issued on September 28, 2007.

2/ Includes imports under Mexico's WTO TRQ allocation for raw sugar. U.S. Harmonized Tariff Schedule (HTS) lines 1701.11.10.00 and 1701.11.50.00. Entries under these HTS lines may include some sugar for direct consumption.

3/ Includes items in HTS lines 1701.91.10.00, 1701.91.30.00, 1701.99.10.10, 1701.99.10.90, 1701.99.50.10, and 1701.99.50.90. Entries under these HTS lines may include some sugar for further processing.

4/ HTS lines 1701.91.48.00 and 1701.91.58.00.

5/ HTS line 1806.10.55.

6/ HTS line 2101.20.58.