

Electronic Outlook Report from the Economic Research Service

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Sugar and Sweeteners Outlook

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U.S. Sugar April 2012

On March 30, 2012, the National Agricultural Statistics Service (NASS) published *Prospective Plantings*, with forecasts included for planted-area intentions for the 2012/13 U.S. sugarbeet crop. Planted area is forecast at 1.241 million acres. While this amount is less than a percentage point above last year's realized planted area of 1.233 million acres, it is 4.6 percent above last year's intended area projected in March 2011. With the assumption of normal growing conditions, the U.S. Department of Agriculture (USDA) expects an additional 130,000 short tons, raw value (STRV) of beet sugar production to occur before the end of the fiscal year (FY) 2012 for a total of 4.655 million STRV. There were no changes from last month for FY 2012 cane sugar production.

The USDA reduced its forecast of sugar imports from Mexico by 385,000 STRV to 730,000 STRV. Mexican exportable supply is lower due to lower than expected production (100,000 metric tons), increased domestic demand (188,000 metric tons), and increased ending stocks (41,000 metric tons).

U.S. ending sugar stocks, forecast as the difference between projected total supply and total use, are projected at 797,000 STRV. This level implies an ending stocks-to-use ratio of 6.8 percent, down from the 9.0 percent projected last month.

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The next release is
May 15, 2012.

U.S. Sugar

On April 10, 2012, the U.S. Department of Agriculture (USDA) released its latest supply and use projections for fiscal year (FY) 2012 in the *World Agricultural Supply and Demand Estimates* (WASDE) report.

Prospective Plantings and Beet Sugar Production

On March 30, 2012, the National Agricultural Statistics Service (NASS) published *Prospective Plantings*, with forecasts included for planted-area intentions for the 2012/13 U.S. sugarbeet crop. Planted area is forecast at 1.241 million acres. While this amount is less than a percentage point above last year's realized planted area of 1.233 million acres, it is 4.6 percent above last year's intended area projected in March 2011. Regional expansion plans include the following increases: 6.2 percent in Michigan, 5.7 percent in the Red River Valley (Minnesota and North Dakota), and 3.3 percent in the Far West (Idaho, Oregon, and California), but only 0.1 percent in the Great Plains (Colorado, Montana, Nebraska, and Wyoming).

While the USDA does not forecast 2012/13 beet sugar production until the May WASDE, the NASS projection has implications for 2011/12 beet sugar produced prior to October. Figure 1 shows national beet sugar per harvested acre on a September/August crop year for the last 6 years. (These past 6 years correspond to a period of higher sugarbeet yields resulting from expanded widespread use of disease-resistant seed varieties.) Beet sugar per acre in 2011/2012 was below average because of difficult growing conditions, while the 2010/11 beet sugar per acre was much above average due to early planting and excellent growing conditions. Excluding these 2 years, beet sugar yield has averaged 3.93 tons per acre. Applying this average to expected area harvested (98.65 percent of area planted) results in a preliminary estimate of 4.811 million short tons, raw value (STRV).

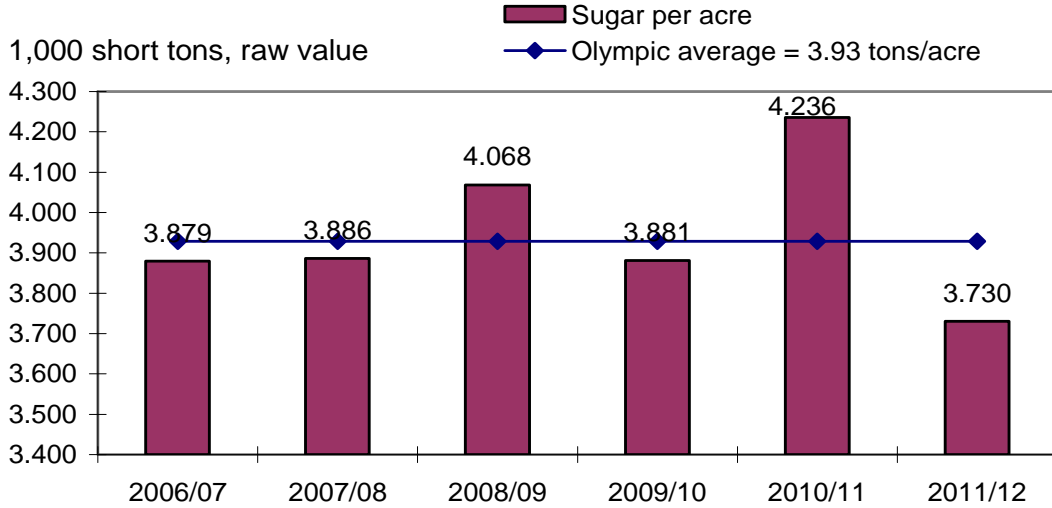
The September beet sugar crop is a positive function of overall crop year production (fig. 2). The relationship suggests a range of production figures, averaging around a midpoint average of 352,400 STRV, or 7.325 percent of the total. Because this amount is about 130,000 STRV more than the 223,200 STRV produced in September 2011, it is added to the crop year projection of 4.525 million STRV to produce a new fiscal year total of 4.655 million STRV.

Diminishing Effect of Sugarbeet Prices on Sugarbeet Planted Area

In February, NASS published State-level sugar prices for the 2010/11 crop year. On a national level, the sugarbeet price increased 29.5 percent to a record \$66.07 per ton. All regional prices were at record levels as well: \$71.30 per ton in Michigan – a rise of 17.3 percent from the previous year; \$68.35 per ton in the Red River Valley region - a rise of 35.5 percent; \$57.30 per ton in Idaho and Oregon - a rise of 27.1 percent; \$68.58 per ton in the Great Plains - a rise of 27.3 percent; and \$65.00 per ton in California – a rise of 2.5 percent. In spite of these increases, area intended for planting in 2011/12 did not expand much – only 1.1 percent. Larger expansions in actual plantings (especially in Michigan and the Red River Valley region) were a reaction to very wet and sometimes cold weather occurring at normal planting times. Because of likely deterioration in plant yields, growers increased planted area to compensate for the expected reduction in production.

Figure 1

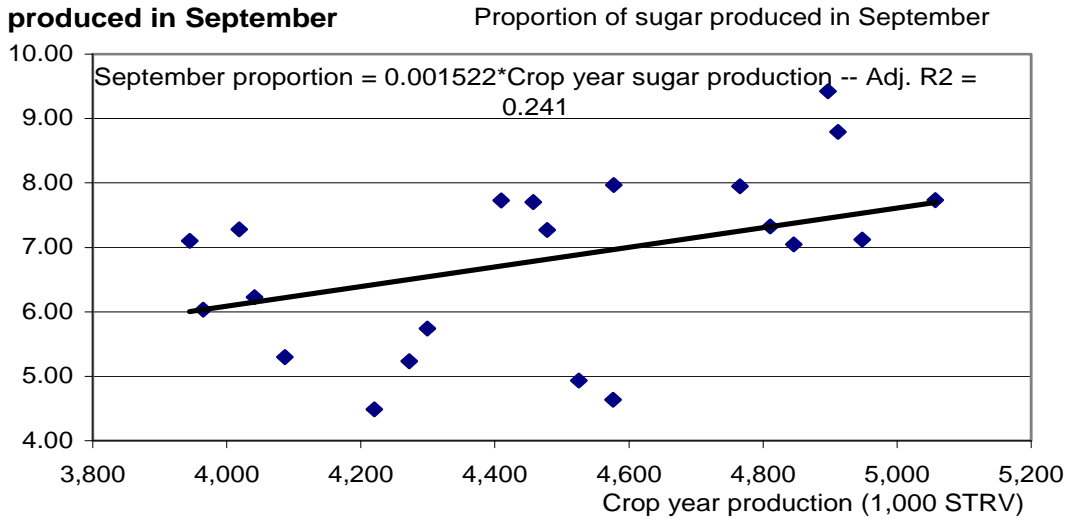
U.S. beet sugar per acre, crop year (September/August), 2006/07-2011/12



Source: USDA, ERS, *Sugar and Sweetener Outlook* calculations on data from FSA's Sweetener Market Data and NASS's Crop Production.

Figure 2

Estimated relationship between crop year (September/August) sugar production and the proportion produced in September



Source: Sugar and Sweetener Outlook analysis based on data from USDA, FSA, SMD.

Figure 3 shows relationships between area planted and the previous year's sugarbeet price on a national level for two periods: 1981/82-2007/08 and 1981/82-2010/11. Because sugarbeets are grown in a variety of differing regions, the aggregate relationship in the first period is not strong (low R-squared), but there is a statistically significant relationship between area and previous year's sugarbeet price (t-statistic = 2.12). Adding the last few seasons to the observation set nullifies any statistically sound relationship over the entire period (R-squared less than 1 percent and no statistical significance for the lagged price coefficient).

Figure 4 shows area intended for planting and the realized sugarbeet yield from the previous year. The step-increase in sugarbeet yields that began in 2006/07 was accompanied by a marked decrease in area intended for planting. The trade-off was relatively weak for the first 2007/08 season but was well established in the next and succeeding seasons. One conclusion would be that sizeable production would not need as much area because of the jump increase in yields.

Another factor is that the lower area period (2008/09 forward) corresponds to the period when the provisions of 2008 Farm Act have been in force. One of the most notable features of this Act was the elimination of the suspension criterion for marketing allotments. An interesting hypothesis is that with marketing ceilings placed on beet processing firms based on sales from an earlier period, inter-firm competition became less of a factor in the market. The 2008 Farm Act was intended to provide competition corresponding to at least 46.2 percent of the domestic sugar market (minimum marketing allotment for U.S. producers of 0.85 of expected consumption times the legislatively set 0.5435 proportion assigned to beet processors). The average share since 2008/09 has been only 41.5 percent. This percentage contrasts markedly with the 46.8 percent share for the 2002/03-2007/08 period covered by the 2002 Farm Act.

Other U.S. Sugar Supply

There were no WASDE changes for FY 2012 cane sugar production. Florida cane sugar processors remain optimistic regarding the harvest. February production in Texas was only 4,679 STRV, far below average. To meet the USDA forecast of 145,000 STRV, production will have to continue into April. Oddly enough, the sole Texas processor increased its forecast of season-long production in the Sweetener Market Data from 145,624 STRV last month to 163,058 STRV this month.

The USDA reduced its forecast of sugar imports from Mexico by 385,000 STRV to 730,000 STRV. As detailed below, Mexican exportable supply is lower due to lower than expected production and increased domestic demand. There have been no announcements of new sugar imports under a tariff-rate quota that would allow Mexico to meet consumption needs without a reduction in exports or ending stocks.

October-March imports from Mexico are estimated by the Foreign Agricultural Service (FAS) at 524,000 STRV. This estimate implies that only 206,000 STRV will enter in the next 6 months of the fiscal year, which averages out to only 34,333 STRV per month.

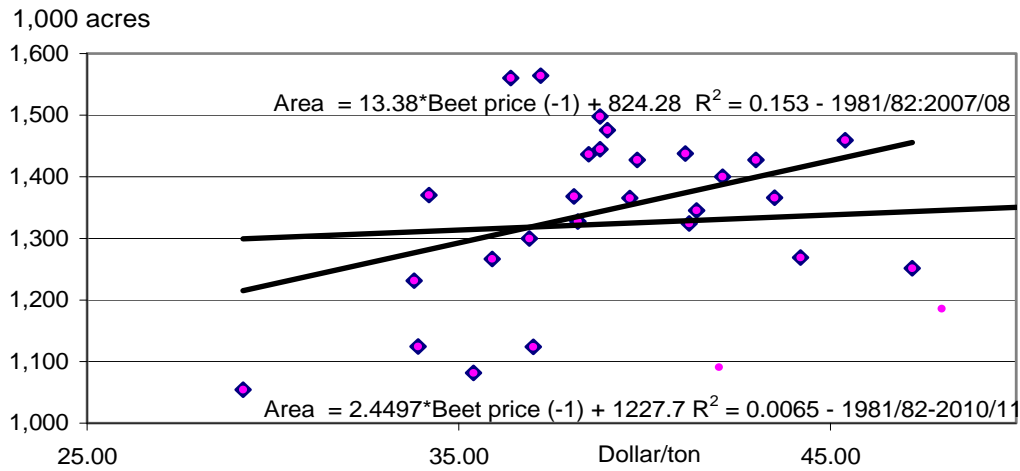
The USDA increased its projection of high-tier tariff sugar imports by 5,000 STRV to 10,000 STRV. The change was made on the basis of pace to date.

Use and Ending Stocks

Exports continue to be forecast at 250,000 STRV. Deliveries made in February were in line with expectations; therefore, no changes were made in the WASDE.

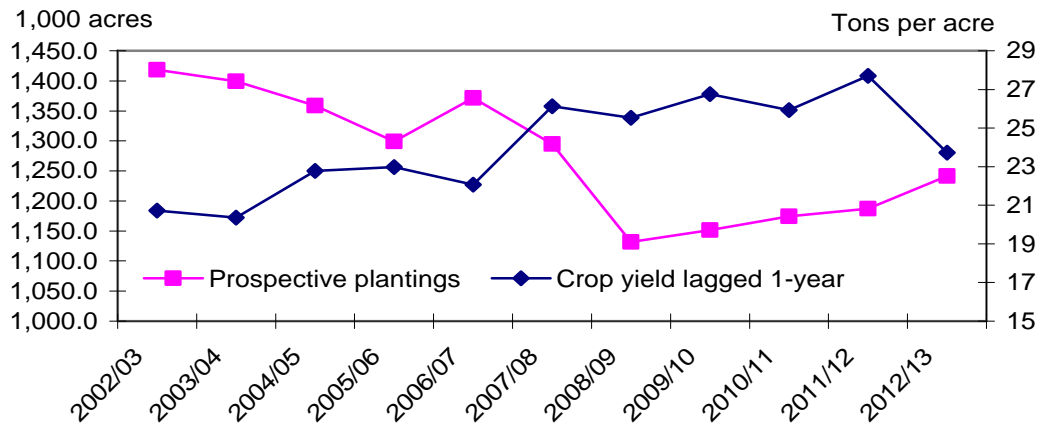
Ending stocks, forecast as the difference between projected total supply and total use, are projected at 798,000 STRV. This level implies an ending stocks-to-use ratio of 6.8 percent, down from the 9.0 percent projected last month.

Figure 3
Relationship between U.S. sugarbeet area and previous year sugarbeet price, crop years 1981/82-2007/08 and 1981/82-2010/11



Source: *Sugar and Sweetener Outlook* analysis of data from USDA, NASS, Crop Report and Crop Values.

Figure 4
U.S. sugarbeets: Prospective plantings, sugarbeet yields, and U.S. sugar program covered by 2002 Farm Act and 2008 Farm Act



|---- Period covered under 2002 Farm Act-- |---- Period covered under 2008 Farm Act--

Source: USDA, NASS, Prospective Plantings and Crop Report.

Mexico Sugar and High Fructose Corn Syrup

The USDA lowered its forecast of 2011/12 Mexico sugar production by 100,000 metric tons (mt) to 4.900 million mt. The two-stage USDA methodology is set out in table 1. The first stage is based on production parameters (sugarcane yield and sucrose recovery) calculated from historical data of already-completed harvests. For each parameter, a ratio is calculated of a within-season interim value to the end-of-season final value, and an average ratio value spanning several years is estimated. In the second stage, these interim-to-final parameter ratios are applied to interim 2011/12 production data to forecast final 2011/12 production parameter values from which sugarcane and sugar production are calculated.

The starting point is the 2011/12 area harvest estimate from *Comite Nacional Para El Desarrollo Sustentable de la Cana de Azucar* (CNDSCA) of 706,185 hectares. Based on factory surveys, the CNDSCA estimates that through April 7, 2012, 35,879,800 mt of sugarcane and 3,876,966 mt of sugar has been produced from 536,716 hectares harvested. The interim sugarcane yield is 66.85 mt per hectare and sucrose recovery is 10.81 percent. Based on the ratios shown in the table, a final-point estimate of sugarcane yield is 63.42 mt per hectare and sucrose recovery is 10.91 percent. Implied 2011/12 sugar production is rounded up to 4.9 million for the WASDE.

Table 2 compares the USDA estimate with the CNDSCA first (January revision) estimate and the second production estimate just released. Unlike in the USDA procedure, CNDSCA estimates are based on factory surveys conducted during the harvest. CNDSCA lowered its estimate of area harvested from the first estimate by 10,705 hectares to 706,185 hectares but increased expected sugarcane yield as a partial offset. In the second estimate, sugar production is projected at 5,036,215 mt, about 3.1 percent higher than the USDA forecast but only about 1.2 percent lower than its first estimate. In comparison with the USDA forecasts, the CNDSCA projects a higher sugarcane yield of 64.93 mt, higher sucrose recovery of 10.98, and a higher sugar yield of 7.13 mt per hectare.

In a stochastic version of the USDA production model, estimated production has a standard deviation of 95,505, implying that the CNDSCA forecast is 1.582 standard deviations away from the USDA estimate. Statistically speaking, the CNDSCA is technically within the confidence bounds of the USDA estimate, but so is production at a lower level of 4.800 million mt or less.

Sugar and Sweetener Consumption

Forecasting sugar and sweetener consumption in Mexico is a challenging task. Using data from the CNDSCA, per capita sweetener consumption in 2010/11 fell 4.3 percent from the previous year to 49.11 kilograms. The percentage drop was the greatest since 1982/83 and per capita sweetener was at its lowest level since 2002/03. Although real per capita Gross Domestic Product (GDP) had fallen about 9 percent in 2008/09, it had grown by 3 percent in 2009/10 and 4.3 percent in 2010/11. Real sugar prices were high in 2010/11—401.9 real 2005 pesos per 50-kilogram bag in Mexico City—but lower than the average 429.6 real 2005 pesos in the preceding year. (High sugar prices have likely been more influential in the shift toward greater use of high fructose corn syrup (HFCS) in beverage and food processing uses.) A further complication has been reports of undocumented sugar entering from Guatemala and Honduras. Press reports have quoted entries of 40,000 mt for the year, but José Orive, Executive Director of Sugar Producers of the Central American Isthmus (AICA), speaking before the USDA Outlook Conference in February 2012, estimated the undocumented inflow at between 80,000-120,000 mt. These inflows (if they did occur) would likely offset consumption from recorded sources (domestic production and legal imports).

The rationale for undocumented sugar entries into Mexico would be Mexican sugar prices that are higher than those in neighboring countries, especially where evasion of border security is possible. Figure 5 shows wholesale sugar prices in the Mexican State of Chiapas and in Guatemala City for the period since January 2008 (date of implementation of the sugar provisions of the North American Free Trade Agreement, or NAFTA). Mexican prices were mostly lower than corresponding Guatemalan prices up to May 2009. Correlation between the two price series does not become evident until early 2010. For the remainder of 2010 and 2011, movements in the series track each other, with Guatemalan prices remaining below Mexican prices. Mexican prices began to decline in October 2011

Table 1 -- Mexico production statistics through April 7 (interim) and end of harvest season (final)

		2008/09	2009/10	2010/11	2011/12
Area harvested	Interim (hectares-ha)	512,126	487,724	535,395	536,716
	Final (ha)	662,927	647,576	670,668	706,185 1/
	Ratio (interim/final)	0.773	0.753	0.798	0.760
Sugarcane yield	Interim (tons/ha)	68.714	69.256	69.563	66.851
	Final (tons/ha)	64.150	66.970	65.802	63.417 2/
	Ratio (interim/final)	1.071	1.034	1.057	1.054 3/
Sugarcane	Interim (tons)	35,190,184	33,777,923	37,243,606	35,879,800
	Final (tons)	42,526,838	43,368,387	44,131,570	44,784,221 4/
Sucrose recovery	Interim	11.61	10.91	11.68	10.81
	Final	11.67	11.13	11.75	10.91 5/
	Ratio -interim/final	0.995	0.980	0.994	0.991 6/
Sugar	Interim (tons)	4,084,774	3,683,960	4,349,472	3,876,966
	Final (tons)	4,962,818	4,825,561	5,183,500	4,885,098 7/

1/ Source: Comité Nacional Para El Desarrollo Sustentable de la Cana de Azúcar (CNDSCA).

2/ Final sugarcane yield (2011/12) = Interim yield (2011/12=66.851)/yield ratio (2011/12=1.0541).

3/ Yield ratio (2011/12) = average over 2008/09 - 2010/11 = 1.0541.

4/ Sugarcane production (2011/12) = Area harvested (2011/12=706,185 ha)*Yield(2011/12=63.417.)

5/ Recovery (2011/12) = Interim recovery (2011/12=10.81)/Ratio(2011/12=0.991).

6/ Ratio = average over 2005/06 - 2010/11) where 2005/06=0.994, 2006/07=0.982,2007/08=0.999.

7/ Sugar(2011/12) = Sugarcane(2011/12=44,784,221 tons)*Recovery(2011/12=10.9081)*.01.

Source: CNDSCA (data), ERS, Sugar and Sweeteners Outlook(calculations).

Table 2 -- Comparison of Mexico sugar and sugarcane forecasts by CNDSCA and USDA in April 2012 1/

	Area harvested (Hectares)	Sugarcane yield (tons/hectare)	Sugarcane (tons)	Sugar (tons)	Sucrose recovery (percent)	Sugar yield (tons/hectare)
CNDSCA (January 2012)	716,890	63.81	45,747,744	5,098,901	11.15	7.11
CNDSCA (April 2012)	706,185	64.93	45,856,075	5,036,215	10.98	7.13
USDA (April 7, 2012)	706,185	63.42	44,784,221	4,885,098 2/	10.91	6.92

1/ CNDSCA = Comité Nacional Para El Desarrollo Sustentable de la Cana de Azúcar.

2/ Rounded to 4,900,000 in the April 2012 World Agricultural Supply and Demand Estimates (WASDE).

and by January 2012 were below the Guatemalan price. Sugar trade sourcing from Guatemala would seemingly be less advantageous in this pricing environment.

Figure 5 shows sweetener consumption for October-February for the last 3 years as reported by CNDSCA. Combined sugar and HFCS consumption is running ahead of last year by 5.4 percent and ahead of 2009/10 by 2.9 percent. HFCS is up 8.8 percent relative to last year and sugar is up 4.1 percent. Figure 6 shows monthly cumulative sweetener ratios for 2010/11 and 2011/12 relative to the corresponding monthly totals in 2009/10. January and February ratios show steady cumulative sweetener consumption growth of about 2.9 percent relative to corresponding monthly totals in 2009/10. If this trend were to continue for the next 7 months, aggregate sweetener consumption would be close to 5.940 million mt.

Another approach to forecasting Mexican sweetener consumption is based on the relationship of sweetener consumption, prices, and real income. Table 3 shows an estimated relationship between per capita sweetener consumption and real per capita GDP from 1996/97 through 2010/11. Attempts to include statistically significant real sugar prices were unsuccessful. The estimation indicates that per capita sweetener consumption varies in a significant systematic way with real per capita GDP for current and 2-year lagged periods. (Figure 8 shows the estimated relationship graphically.) Two outlying periods not explained were 2005/06 and (as already discussed) 2010/11. Based on a 2011/12 forecast of per capita real GDP growth of 3.9 percent (used in USDA long-term projections released at the February 2012 Outlook Conference), Mexican per capita sweetener consumption is estimated at 51.49 kilograms per capita. Assuming a resident population of 114.975 million, total sweetener consumption is forecast at 5.920 million mt. (This amount is close to the 5.938 million mt from the analysis which assumes a 2.9 percent total sweetener growth over the 2009/10 level.)

CNDSCA sweetener data indicates that 2010/11 HFCS consumption was 1.635 million mt, dry weight. The USDA had adopted this amount as its forecast for 2011/12. Recent sources have indicated that HFCS use in Mexico is likely to expand above this level. As already discussed, HFCS consumption is already 8.8 percent more than last year's consumption through 5 months of the marketing year. The USDA now projects HFCS consumption to grow at 5 percent for the entire year. This rounds to 1.720 million mt, dry weight. The forecast for sugar is calculated as the difference between total sweetener consumption (5.920 million) and the HFCS amount, or 4.200 million mt. Deriving this same result from the per capita sweetener model discussed above produces a standard deviation of 122,072 mt.

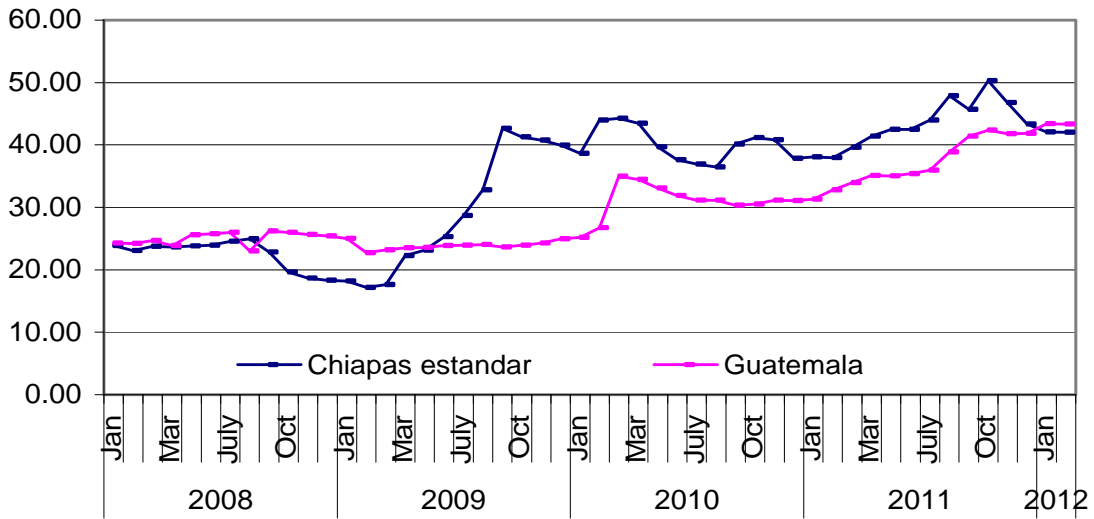
Implications for Imports, Ending Stocks, and Exports

The practice adopted by the Interagency Commodity Estimations Committee (ICEC) for sugar is not to forecast imports from a TRQ until that TRQ is officially announced. Although publically discussed, it is not certain that the 250,000 mt TRQ most usually mentioned will actually be established. Until a definite pattern can be discerned with respect to sugar exports, the ICEC assumes that ending sugar stocks will be maintained at a level to assure sufficient supplies until the start of the next year's harvest. Historically, this has been interpreted as 22 percent of human consumption at the end of September. With the application of these two restrictions (imports and ending stocks), exports become the residual that balances total use with total supply.

The change in total supply is a negative 100,000 mt. Consumption increases by 188,000 mt, along with stocks of 41,000 mt (22 percent of the consumption increase), for a total of 229,000 mt. Exports, therefore, have to decrease by 329,000 mt to match the total supply decrease of 100,000 mt. The new export forecast is 635,000 mt.

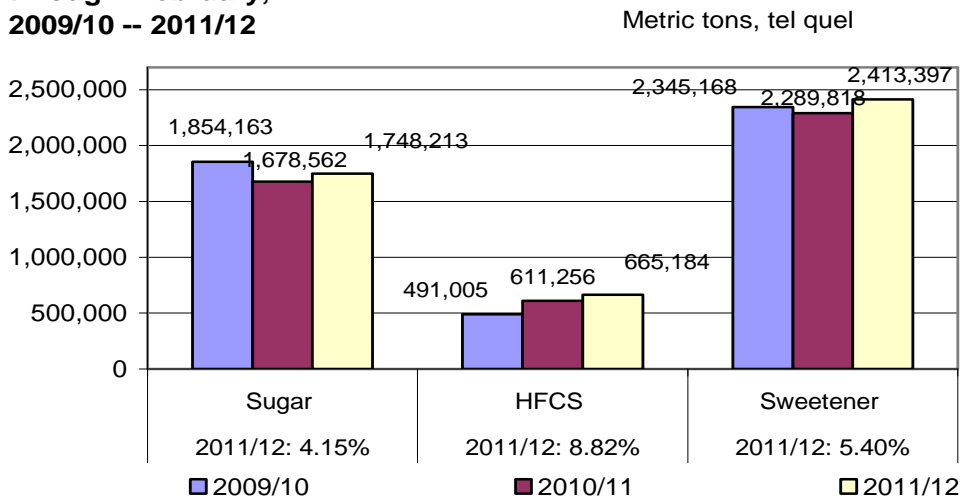
Figure 5
Wholesale sugar prices in Guatemala City and Chiapas

U.S. cents per pound



Source: SNIIM, Ministerio de Agricultura, Ganadería y Alimentación, ICE.

Figure 6
Cumulative sweetener consumption in Mexico, October through February, 2009/10 -- 2011/12



Source: CNDSCA.

Table 3 -- Estimated relationship between sweetener per capita (sweet-per-cap) in Mexico and real per capita Gross Domestic Product (GDP-per-cap)

Dependent Variable: LOG(sweet-per-cap)

Method: Least Squares

Date: 04/04/12 Time: 13:43

Sample(adjusted): 1997 2011

Included observations: 15 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic
Constant	1.548	0.179	8.648
D2006 1/	0.049	0.010	4.833
D2011 2/	-0.040	0.010	-3.838
Lag Distribution of LOG (GDP-per-cap) 3/			
Lag	Coefficient	Std. Error	T-Statistic
0	0.088	0.039	2.246
1	0.069	0.005	13.102
2	0.051	0.037	1.367
Sum of Lags	0.208	0.016	13.102
R-squared	0.961	Mean dependent var	3.895
Adjusted R-squared	0.945	S.D. dependent var	0.040
S.E. of regression	0.009	Akaike info criterion	-6.247
Sum squared resid	0.001	Schwarz criterion	-6.011
Log likelihood	51.856	F-statistic	60.832
Durbin-Watson stat	2.766	Prob(F-statistic)	0.000

1/ D2006=1 for observation corresponding to 2006, zero otherwise.

2/ D2011=1 for observation corresponding to 2011, zero otherwise.

Note: D2006 and D2011 are used to account for outlying observations not explained by the main variables in the equation.

3/ Coefficients derived from polynomial distributed lag specification.

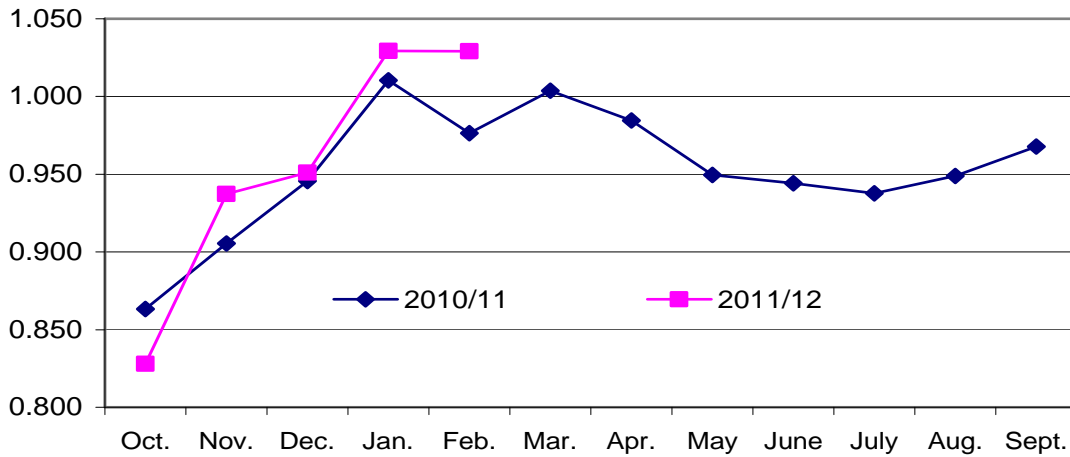
	Coefficient	Std. Error	T-Statistic
Distributed lag variable	0.069	0.005	13.102
Squared term	-0.018	0.038	-0.486

Source: USDA, ERS, *Sugar and Sweetener Outlook*.

Figure 7

Monthly cumulative sweetener consumption ratios for 2010/11 and 2011/12 relative to corresponding months in 2009/10

Proportion

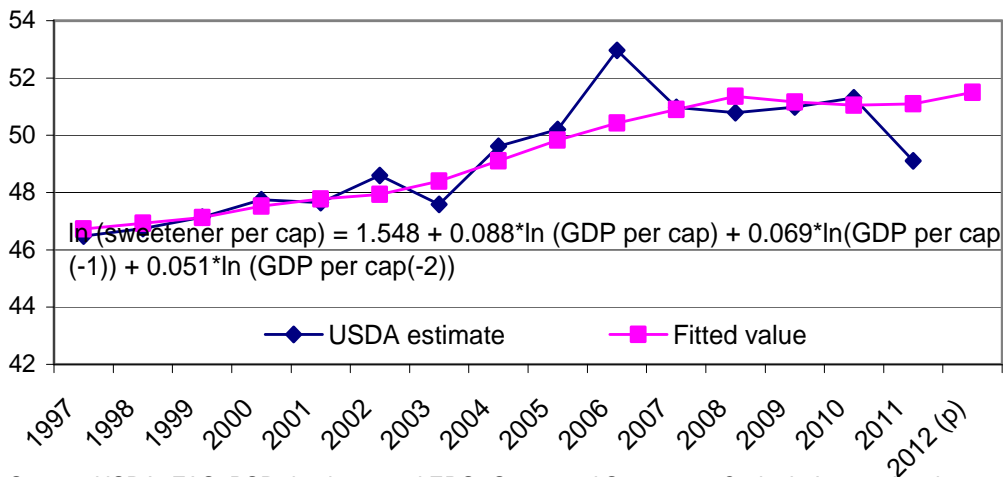


Source: CNDSCA.

Figure 8

Per capita sweetener consumption in Mexico: Actual and fitted values from correlation with real per capita gross domestic product

Kilograms per capita



Source: USDA, FAS, PSD database and ERS, *Sugar and Sweetener Outlook*; International Financial Statistics.

Honey

The U.S. honey crop was expected to be down in 2011 due to drought conditions in the South and heavy rainfall in many northern States. Spring honey flows on the West Coast and parts of the intermountain area were hampered by excessive rainy, cool weather. Dry and hot weather in the Southeast and Southwest reduced the spring honey crop for many beekeepers. As a result, domestic honey production dropped 16 percent in 2011 from 2010 as the number of bee colonies fell 7.5 percent and yield per colony declined 9 percent. The States that had the biggest production setbacks—at least 2000 pounds—were North Dakota, California, Florida, Texas, and Minnesota. In total, the crop reduction was 28.1 million pounds of honey, despite record-high average prices received by honey producers in both 2010 and 2011.

Although honey prices received by domestic producers were 7 percent higher on average in 2011 than in 2010, prices received by foreign honey exporters were even higher, by 16 percent. Even with the gain in domestic prices, honey producers in North Dakota and California experienced steep falls in value of production--\$15.4 and \$14 million, respectively, in 2011. Producers in Florida, Minnesota, and Texas saw their production values drop by around \$3 million each from 2010. Overall, the value of U.S. honey production declined by \$29.2 million in 2011.

Despite the smaller U.S. honey harvest in 2011, imports and beginning stocks were higher, which raised total honey supply by 3.6 percent to 482 million pounds. After subtracting lower ending stocks and 25 percent higher exports from total supply, domestic use equaled a record 433 million pounds, which translates to 1.4 pounds per capita in 2011. Given the higher honey prices in 2011, the domestic use estimated value is \$2.04 per capita at the wholesale level, which is 15 percent higher than \$1.78 per capita in 2010.

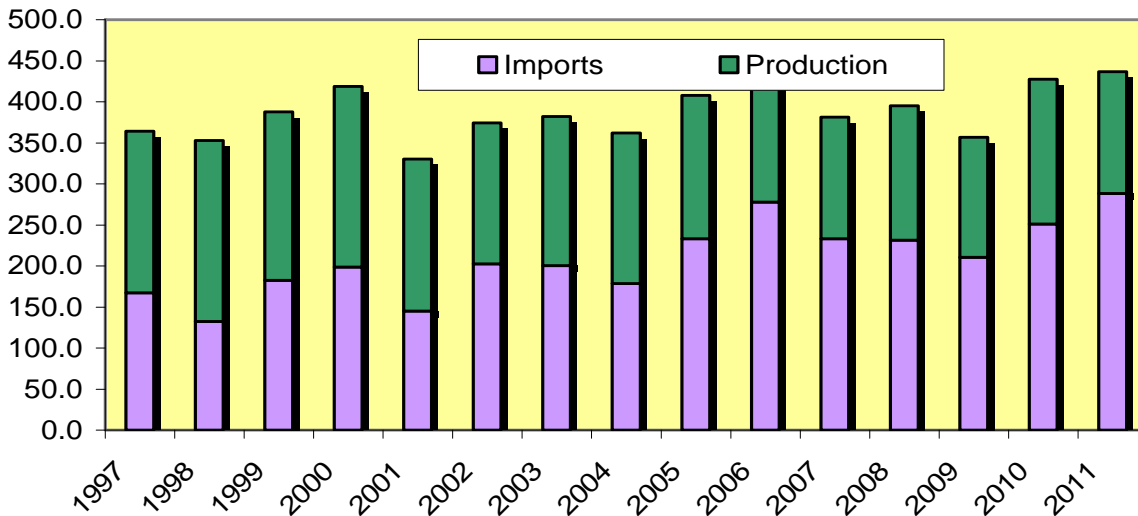
The import share of domestic consumption of natural honey reached a record high of 66.6 percent in 2011, which was 2.6 percent higher than the previous import share record of 64.9 percent in 2006. The volume and value of U.S. honey imports were both at record levels even as import unit values continued to climb, averaging \$1.35 per pound in 2011. Honey imports totaled 288.3 million pounds in 2011, twice the amount imported a decade ago in 2001. The value of these imports was \$388 million, more than 5 times the \$71.6 million value in 2001.

The top foreign suppliers of natural honey to the United States in 2011 were Argentina at 73.9 million pounds, followed by Vietnam at 61.3 million pounds and India with 59.3 million pounds. These three suppliers account for two-thirds of total U.S. imported honey. In 2011, honey shipments from Uruguay and Brazil jumped significantly, by 731 percent and 49 percent, respectively. Although the U.S. honey crop was smaller in 2011, exports climbed to 12 million pounds, valued at \$18.7 million. Israel is the biggest buyer of U.S.-produced honey. Export unit values for U.S. honey averaged \$1.56 per pound in 2011, which kept the terms of trade (i.e., export unit value/import unit value) at 1.2, much lower than the recent high of 2 in 2007.

Figure 9

As U.S. honey production plunged, imports jumped sharply in 2011

Million pounds



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

Table 4 -- U.S. sugar: supply and use, by fiscal year (Oct./Sept.)

Items	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
	1,000 short tons, raw value											
Beginning stocks	2,216	2,180	1,528	1,670	1,897	1,332	1,698	1,799	1,664	1,534	1,498	1,472
Total production	8,769	7,900	8,426	8,649	7,876	7,399	8,445	8,152	7,531	7,963	7,831	8,160
Beet sugar	4,680	3,915	4,462	4,692	4,611	4,444	5,008	4,721	4,214	4,575	4,659	4,655
Cane sugar	4,089	3,985	3,964	3,957	3,265	2,955	3,438	3,431	3,317	3,387	3,172	3,505
Florida	2,057	1,980	2,129	2,154	1,693	1,367	1,719	1,645	1,577	1,646	1,433	1,790
Louisiana	1,585	1,580	1,367	1,377	1,157	1,190	1,320	1,446	1,397	1,469	1,411	1,400
Texas	206	174	191	175	158	175	177	158	152	112	146	145
Hawaii	241	251	276	251	258	223	222	182	192	161	182	170
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0
Total imports	1,590	1,535	1,730	1,750	2,100	3,443	2,080	2,620	3,082	3,320	3,738	2,820
Tariff-rate quota imports	1,277	1,158	1,210	1,226	1,408	2,588	1,624	1,354	1,370	1,854	1,721	1,580
Other Program Imports	238	296	488	464	500	349	390	565	308	448	291	500
Non-program imports	76	81	32	60	192	506	66	701	1,404	1,017	1,726	740
Mexico							60	694	1,402	807	1,708	730
Total Supply	12,575	11,615	11,684	12,070	11,873	12,174	12,223	12,571	12,277	12,817	13,067	12,452
Total exports	141	137	142	288	259	203	422	203	136	211	248	250
Miscellaneous	123	-24	161	23	94	-67	-132	0	0	-45	10	0
Deliveries for domestic use	10,132	9,974	9,711	9,862	10,188	10,340	10,135	10,704	10,607	11,152	11,337	11,405
Transfer to sugar-cont. products	98	156	183	142	121	106	169	141	120	201	196	180
for exports under reexport program	33	33	24	41	48	51	53	61	46	35	31	40
Transfer to polyhydric alcohol, feed	10,000	9,785	9,504	9,678	10,019	10,184	9,913	10,501	10,441	10,917	11,109	11,185
Deliveries for domestic food and beverage use 1/												
Total Use	10,395	10,087	10,014	10,172	10,542	10,476	10,424	10,907	10,743	11,319	11,595	11,655
Ending stocks	2,180	1,528	1,670	1,897	1,332	1,698	1,799	1,664	1,534	1,498	1,472	797
Privately owned	1,395	1,316										
CCC	784	212										
Stocks-to-use ratio	20.97	15.15	16.68	18.65	12.63	16.21	17.25	15.26	14.28	13.24	12.70	6.84

1/ For FY 2008-09, combines SMD deliveries for domestic human use, SMD miscellaneous uses, and the difference between SMD imports and WASDE imports.

Source: USDA, WASDE.

NOTE: Numbers may not add due to rounding.

Table 5 -- U.S. sugar: supply and use (including Puerto Rico), fiscal years (Oct./Sept.), metric tons

Items	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
1,000 metric tons, raw value												
Beginning stocks	2,010	1,977	1,386	1,515	1,721	1,208	1,540	1,632	1,510	1,392	1,359	1,336
Total production	7,955	7,167	7,644	7,846	7,145	6,712	7,662	7,396	6,832	7,224	7,104	7,403
Beet sugar	4,245	3,552	4,048	4,257	4,183	4,032	4,543	4,283	3,822	4,151	4,227	4,223
Cane sugar	3,710	3,615	3,596	3,590	2,962	2,681	3,119	3,113	3,009	3,073	2,877	3,180
Florida	1,866	1,796	1,932	1,954	1,536	1,240	1,559	1,492	1,431	1,493	1,300	1,624
Louisiana	1,438	1,433	1,240	1,249	1,049	1,079	1,198	1,312	1,267	1,332	1,280	1,270
Texas	187	158	173	159	143	159	161	143	138	101	132	132
Hawaii	219	227	251	228	234	202	201	165	174	146	165	154
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0
Total imports	1,443	1,393	1,570	1,588	1,905	3,124	1,887	2,377	2,796	3,012	3,391	2,559
Tariff-rate quota imports	1,158	1,051	1,098	1,113	1,277	2,348	1,473	1,228	1,243	1,682	1,561	1,434
Other Program Imports	216	269	443	421	454	317	354	513	279	407	264	454
Non-program imports	69	73	29	54	174	459	60	636	1,274	923	1,566	671
Mexico	0	0	0	0	0	0	54	630	1,272	732	1,549	662
Total Supply	11,408	10,537	10,599	10,949	10,771	11,044	11,088	11,404	11,138	11,627	11,854	11,297
Total exports	128	125	129	261	235	184	383	184	123	191	225	227
Miscellaneous	112	-22	146	20	85	-61	-120	0	0	-41	9	0
Deliveries for domestic use	9,191	9,048	8,810	8,946	9,243	9,381	9,194	9,710	9,623	10,117	10,284	10,346
Transfer to sugar-cont. products for exports under reexport program	89	141	166	129	110	96	153	128	109	183	178	163
Transfer to polyhydric alcohol, feed	30	30	22	38	44	46	48	56	42	31	28	36
Deliveries for domestic food and beverage use 1/	9,072	8,877	8,622	8,780	9,089	9,239	8,993	9,527	9,472	9,903	10,078	10,147
Total Use	9,431	9,151	9,084	9,228	9,563	9,504	9,457	9,895	9,746	10,268	10,519	10,573
Ending stocks	1,977	1,386	1,515	1,721	1,208	1,540	1,632	1,510	1,392	1,359	1,336	723
Privately owned	1,266	1,194	0	0	0	0	0	0	0	0	0	0
CCC	711	192	0	0	0	0	0	0	0	0	0	0
Stocks-to-use ratio	20.97	15.15	16.68	18.65	12.63	16.21	17.25	15.26	14.28	13.24	12.70	6.84

1/ For FY 2008-09, combines SMD deliveries for domestic human use, SMD miscellaneous uses, and the difference between SMD imports and WASDE imports.

Source: USDA, WASDE.

NOTE: Numbers may not add due to rounding.

Table 6 -- Mexico: sugar production and supply, and sugar and HFCS utilization

Fiscal Year (Oct/Sept)	2008/09 2/	2009/10	2010/11	2011/12 1/
1,000 metric tons, raw value				
Beginning Stocks	1,975	623	973	806
Production	5,260	5,115	5,495	5,194
Imports	159	861	307	405
Imports for consumption	37	668	114	224
Imports for other uses (includes IMMEX)	122	193	193	181
Total Supply	7,394	6,600	6,774	6,405
Disappearance				
Human consumption	5,293	4,615	4,187	4,452
Other deliveries (IMMEX)	388	287	310	300
Miscellaneous	-288	-27	-86	
Total	5,392	4,875	4,411	4,752
Exports	1,378	751	1,558	673
Exports to the United States & Puerto Rico	1,365	751	1,518	663
Exports to other countries	13	0	40	11
Total Use	6,771	5,626	5,969	5,426
Ending Stocks	623	973	806	979
1,000 metric tons, tel quel/actual weight				
Beginning Stocks	1,863	588	918	760
Production	4,962	4,825	5,184	4,900
Imports	150	813	289	383
Imports for consumption	35	630	107	211
Imports for other uses (includes IMMEX)	115	183	182	171
Total Supply	6,975	6,226	6,391	6,042
Disappearance				
Human consumption	4,993	4,354	3,950	4,200
Other deliveries (IMMEX)	366	271	293	283
Miscellaneous	-272	-25	-81	
Total	5,087	4,599	4,161	4,483
Exports	1,300	709	1,469	635
Exports to the United States & Puerto Rico	1,288	709	1,432	625
Exports to other countries	13	0	38	10
Total Use	6,387	5,308	5,631	5,118
Ending Stocks	588	918	760	924
Stocks-to-Human Cons.	11.8	21.1	19.2	22.0
Stocks-to-Use	9.2	17.3	13.5	18.1
HFCS Cons. (dry weight)	678.52	1417.71	1635.11	1720.00

1/ Forecast

2/ The USDA revised 2008/09 sugar and HFCS human consumption to equal the amount estimated by *Comite Nacional Para El Desarrollo Sustentable de la Cana de Azucar* (CNDSCA). The USDA also revised exports and imports to agree with data reported by Secretariat of Economy, Government of Mexico.

Source: USDA, WASDE and ERS, MTED, Sugar and Sweeteners Outlook.

U.S.-Mexico High Fructose Corn Syrup Trade: Divergent Estimates and Implications

This article examines divergence in estimates of consumption of U.S.-produced high fructose corn syrup (HFCS) in Mexico. Estimates made in Mexico imply that HFCS consumption is greater than that implied by official U.S. export estimates compiled by the U.S. Census Bureau. The issue is important because HFCS displaces sugar consumption in Mexico and makes sugar available for export to the United States. Along with estimation of U.S. sugar production, measurement of Mexican exportable surplus is a very important factor in considering increases in the U.S. sugar tariff-rate quota to assure adequate supplies of sugar to the U.S. market. There are implications as well for estimating the size of U.S. HFCS production and the demand that the U.S. wet milling sector has for U.S.-produced corn.

Divergence in Estimating U.S. HFCS Use in Mexico

The Food, Conservation, and Energy Act of 2008 (2008 Farm Act) requires the Secretary of Agriculture to collect publically available information on Mexican production, consumption, and trade of HFCS. Each month in the *World Agricultural Supply and Demand Estimates* (WASDE), the U.S. Department of Agriculture (USDA) publishes estimates of U.S. HFCS exports to Mexico from the U.S. Census Bureau for the fiscal years (FY) covered in the WASDE. These export estimates are meant to signal the level of HFCS consumption in Mexico.

In the March 2012 WASDE, U.S. HFCS exports to Mexico for October-December 2011 (the first 3 months of FY 2012) were reported at 233,991 metric tons (mt). Compared with the corresponding period in FY 2011, this represents a drop of 26.7 percent in estimated exports. Given that Mexico imports almost all its HFCS for consumption from the United States and that its domestic production is capped at about 40,000 mt per month, the decline in reported exports could be interpreted as a sign of a decline in HFCS consumption for the entire year. With less HFCS substituting for sugar in Mexico, the implication is that there may be less sugar in Mexico for export to the United States.

An advantage of the export data from the U.S. Census Bureau is that it is easily available from the Foreign Agricultural Service (<http://www.fas.usda.gov/gats/default.aspx>), the U.S. International Trade Commission (http://dataweb.usitc.gov/scripts/user_set.asp), and other assessable sites. Less well known is data availability about HFCS consumption and trade in Mexico. The *Comite Nacional Para El Desarrollo Sustentable de la Cana de Azucar* (CNDSCA) publishes monthly sugar and HFCS supply and use figures at its Spanish-language internet site based on data sourced in Mexico (<http://www.cndscgob.mx/>). Trade data from the Secretariat of the Economy (*Economia*) is available but usually is only convenient for use by paid subscribers of reporting services such as the Global Trade Atlas from the Global Trade Information Services, Inc. (<http://www.gtis.com/gta/>).

Table A-1 shows a comparison of HFCS imports from the United States reported by *Economia* with U.S. HFCS exports to Mexico reported by the U.S. Census Bureau. Fiscal year totals are shown in figure A-1. In 14 of the 16 fiscal years, *Economia* imports exceed U.S. Census Bureau exports. For the entire 16-year period, *Economia* imports exceed exports by about 16 percent. In the early period of the North American Free Trade Agreement (NAFTA), reported annual imports exceeded reported exports by between 19 and 135 percent, but the annual totals were relatively low—below 300,000 mt, dry weight.

Two years after the full implementation of the NAFTA sweetener provisions in 2008, imports of U.S. HFCS in Mexico became sizeable—more than 900,000 mt in each year. Reported imports were 4.4 percent greater than reported exports in FY 2010 and 14.1 percent greater in FY 2011. Figure A-2 shows monthly trade for 2010 and 2011. Average monthly reported imports exceed reported exports by 6,073 mt in 2010 and by a more sizable 20,007 mt in 2011. If the average difference for 2011 were to extend through the 9 remaining months of FY 2012, the projection of FY 2012 HFCS consumption in Mexico would be 1.345 million mt instead of the March 2012 projection of 1.635 million. The difference of 290,000 mt would imply a corresponding decrease in the projection of exportable surplus.

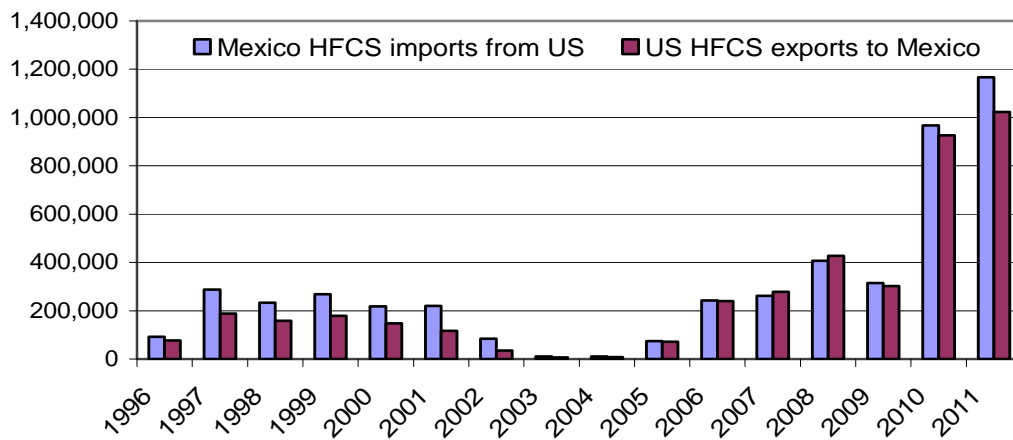
Table A-1 -- U.S.-produced high fructose corn syrup in Mexico 1/

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Calendar Year	Fiscal Year
Metric Tons, dry weight basis														
Mexico imports of HFCS from the United States														
1995	4,424	3,280	3,984	4,310	3,075	7,557	2,438	5,980	3,606	7,159	4,063	4,984	54,859	NA
1996	6,607	7,622	5,436	5,163	3,912	9,360	13,571	12,370	11,915	27,671	27,654	21,363	152,646	92,162
1997	25,404	10,831	20,730	31,085	18,470	23,029	30,084	12,305	38,491	17,319	19,278	22,816	269,842	287,118
1998	27,867	9,510	20,063	23,847	23,589	16,574	26,048	13,721	13,083	13,455	18,682	22,895	229,335	233,715
1999	15,851	9,405	13,997	17,579	17,741	18,516	21,923	51,486	46,844	18,735	13,675	21,635	267,386	268,373
2000	10,514	14,474	22,535	14,923	25,227	19,008	18,337	23,130	16,212	21,039	25,973	18,522	229,893	218,404
2001	12,679	17,771	18,295	13,239	24,780	16,718	18,042	18,924	13,442	21,597	17,526	17,040	210,052	219,423
2002	1,930	1,286	10,737	2,179	1,894	520	5,555	1,168	2,605	465	732	476	29,545	84,035
2003	499	767	956	2,677	1,846	999	637	541	729	1,059	667	744	12,120	11,323
2004	280	789	1,357	719	792	969	1,064	1,571	574	1,393	1,213	818	11,538	10,584
2005	1,107	1,585	2,378	6,525	7,139	11,475	11,888	9,227	20,161	12,991	11,130	10,398	106,003	74,908
2006	23,198	10,284	20,247	16,434	23,556	25,820	20,903	38,398	29,243	6,771	21,158	12,277	248,289	242,602
2007	19,495	23,054	26,895	23,165	24,031	22,830	26,152	34,220	21,472	19,581	27,881	34,594	303,370	261,520
2008	43,480	31,707	29,108	46,131	22,955	39,576	46,917	26,572	38,629	36,477	18,399	31,634	411,585	407,131
2009	13,619	13,716	13,470	19,478	25,553	29,516	30,017	36,002	46,355	59,424	61,491	71,497	420,138	314,235
2010	55,223	66,295	83,801	103,668	81,707	97,931	112,758	76,142	97,677	81,605	93,639	84,792	1,035,239	967,614
2011	73,104	73,042	114,361	103,556	115,082	125,938	84,406	119,836	97,340	94,070	106,644	90,741	1,198,120	1,166,701
U.S. Exports of HFCS to Mexico														
1995	3,473	1,493	2,706	3,250	3,542	4,745	3,280	5,263	4,729	6,958	3,245	3,821	46,505	NA
1996	4,685	5,229	4,806	6,132	4,522	6,505	10,447	10,045	11,305	39,614	19,047	18,055	140,392	77,700
1997	8,760	6,929	11,020	11,005	7,849	9,363	13,206	14,515	29,153	11,291	14,144	11,688	148,924	188,516
1998	5,110	7,203	9,941	18,738	19,594	11,887	23,670	13,697	11,653	7,114	20,451	19,152	168,210	158,617
1999	18,777	8,652	15,074	14,838	17,212	9,108	20,233	11,789	16,986	13,951	8,244	19,534	174,398	179,386
2000	13,138	6,204	6,479	13,058	15,505	16,511	16,702	11,493	6,933	17,202	11,623	21,380	156,229	147,752
2001	3,500	15,763	12,841	4,108	9,655	7,989	2,889	3,105	6,997	6,986	6,335	14,997	95,164	117,051
2002	1,326	589	755	941	747	234	553	500	1,768	441	465	173	8,494	35,733
2003	107	234	419	1,882	1,091	324	417	456	385	839	342	606	7,101	6,393
2004	265	522	1,190	706	646	995	848	838	889	1,385	1,011	1,044	10,340	8,687
2005	1,001	1,822	2,944	4,643	11,400	3,273	9,451	10,195	23,545	16,982	14,852	16,686	116,794	71,714
2006	16,222	13,544	25,274	10,103	32,921	17,646	15,988	19,400	40,418	5,965	21,892	13,998	233,370	240,036
2007	24,469	17,330	20,633	37,319	18,640	27,762	18,280	29,884	41,595	25,907	31,918	35,062	328,799	277,767
2008	43,016	25,074	29,517	31,259	42,275	42,368	40,436	35,494	45,378	35,392	17,973	32,929	421,113	427,705
2009	14,099	8,708	19,292	19,058	23,656	21,502	37,818	27,244	45,174	71,051	65,441	72,489	425,529	302,844
2010	51,287	64,160	88,200	81,780	73,422	104,528	106,075	55,971	92,818	77,525	83,318	83,279	962,363	927,221
2011	63,412	77,124	111,533	90,354	98,565	96,206	87,288	94,624	59,061	57,564	55,699	66,607	958,037	1,022,289

1/ Sum of HFCS-42, HFCS-55, and crystalline fructose, metric tons, dry weight.

Source: *Economia* (Mexico Government's Secretariat of the Economy); U.S. Census Bureau, HTS Export Data.

Figure A-1
U.S. high fructose corn syrup in Mexico: Fiscal year U.S. Census Bureau exports and *Economia* imports of HFCS from the United States
 Metric tons, dry weight

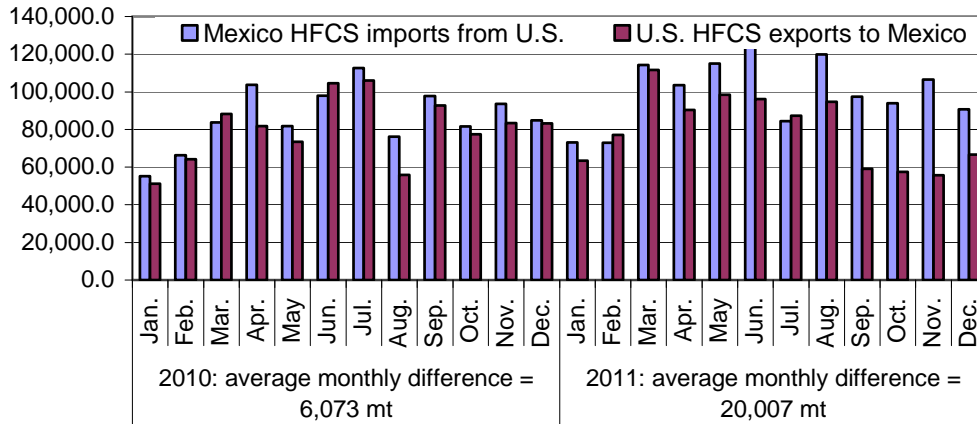


Source: *Economia* (Mexico Government Secretariat of the Economy), U.S. Census Bureau.

Figure A-2

U.S. high fructose corn syrup in Mexico: Monthly U.S. Census Bureau exports and Economia imports of HFCS from the United States, 2011-12

Metric tons, dry weight

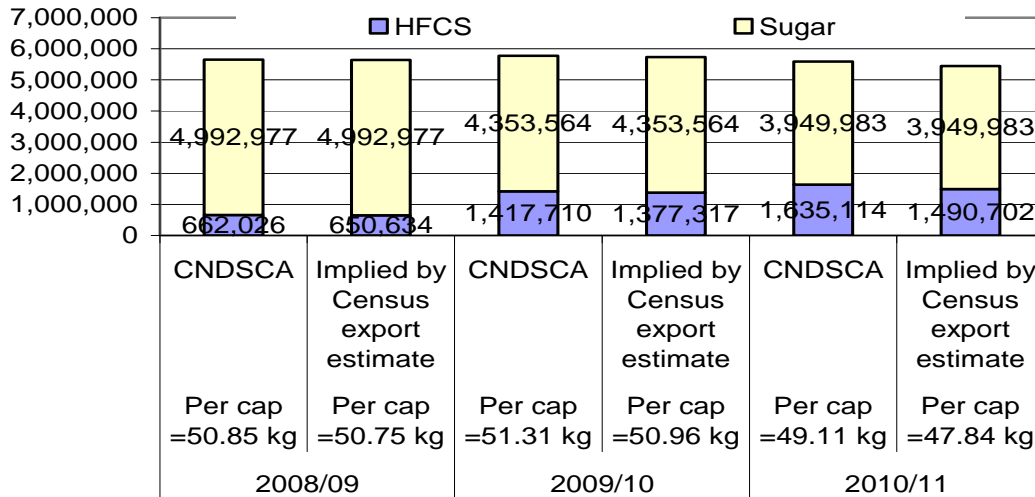


Source: Economia (Mexico Government Secretariat of the Economy), U.S. Census Bureau.

Figure A-3

Sweetener consumption in Mexico, CNDSCA and alternative implied by use of U.S. Census HFCS exports to Mexico

Metric tons



Source: CNDSCA, Economia, U.S. Census Bureau.

Figure A-3 shows alternative estimates of sweetener consumption in Mexico using both sets of HFCS trade data. The first estimate comes from the CNDSCA and second set is obtained by substituting U.S. Census export estimates for *Economia*'s estimates of HFCS imports from the United States. Differences in implied per capita sweetener consumption are not great for 2008/09 or 2009/10, but the 144,412 mt difference in 2010/11 implies a per capita estimate of 47.84 kilograms—a difference of 1.27 kilograms, that is, 2.6 percent less than the official CNDSCA estimate. While the year-over-year decrease in per capita consumption is already a large 4.3 percent using the CNDSCA data, the decrease using the U.S. export data is 6.1 percent.

Implications for Estimating U.S. HFCS Production

There are no direct estimates of HFCS production available to the USDA. Agricultural economists in ERS make estimates of HFCS deliveries, and these are supplemented by U.S. Census Bureau estimates of HFCS exports and imports. Production is residually estimated as the sum of deliveries plus exports (to Mexico and all other countries), less imports.

Domestic HFCS consumption has been declining on a per capita basis since 1999 due to reduced consumption of soft drink carbonates. As seen in figure A-4, the trend accelerated in 2007 as total deliveries began to decrease on average by more than 275,000 tons per year. By 2011, deliveries were at only 81.7 percent of their level of 2002. As a partial offset, HFCS exports began to increase in 2005, but it was not until 2010 that export growth exceeded the decline in deliveries. HFCS production increased for the first time since 2006. However, the data indicate that the growth spurt was short-lived, with exports flattening in 2011 while domestic deliveries declined by 242,000 tons.

The flattening in exports runs counter to Mexican sweetener data that shows large declines in Mexican sugar consumption as HFCS gains consumer market share. Table A-2 shows the implications of using *Economia*'s import estimates (bottom panel) instead of the U.S. Census Bureau's export estimates to Mexico (top panel). Because most HFCS trade to Mexico consists of HFCS 55, the production estimates of HFCS 55 are the most affected.

Figure A-5 shows a comparison of total of HFCS production estimates for the last 5 years. Not surprisingly, the estimates are close for the pre-2010 years when exports to Mexico were not nearly as large as they became in 2010 and 2011. HFCS production in 2010, using the import data, is estimated at 9.173 million tons, dry basis – about 1 percent higher than the standard measure. HFCS production in the next year using the import data is estimated at 9.163 million tons – about 3 percent higher than the standard measure. The alternative estimation implies that for two years in a row, exports have offset domestic delivery declines and arrested—at least temporarily—the downward production spiral. This result would seem to be in line with many in the HFCS industry that appear more optimistic about the future than they did a couple of years ago.

Conclusion

When the USDA analyzes sweetener consumption in Mexico, it usually uses data generated in Mexico by the CNDSCA, SAGARPA (Mexico's Department of Agriculture), *Economia*, the Cámara Nacional de las Industrias Azucarera, the Unión Nacional de Cañeros, the Foreign Agricultural Service (FAS) office in the U.S. Embassy in Mexico City, press reports, and personal contacts. What has been discussed in this article is that the information gathered from these sources has been at odds with data from the U.S. Census Bureau, which has introduced more uncertainty into the projection process. Nonetheless, the USDA is likely to continue with its current methodology because it has proved consistent with projections made by other sweetener market observers.

An open question concerns USDA estimates of U.S. HFCS production. The present method of using trade data exclusively from the U.S. Census Bureau may be underestimating production. Until the trade data discrepancies have been resolved, perhaps production ranges should be reported. For USDA's estimate of corn use, the variance of the production range amounts to about 16 million bushels. Although this is small relative to a crop of over 12 billion bushels, the overall corn use estimation process might be improved upon resolution of this issue.

Table A-2 --U.S. high fructose corn syrup (HFCS) supply and use base and alternative formulations 1/

Year	Supply					Utilization			
	Domestic production 2/		Total	Imports	Total supply	Domestic disappearance			Total
	HFCS-42	HFCS-55				Exports	HFCS-42	HFCS-55	
1,000 short tons, dry weight									
Yearbook: All trade data from U.S. Census Bureau									
1992	2,793	3,841	6,634	193	6,827	100	2,822	3,905	6,727
1993	2,924	4,173	7,097	189	7,286	113	2,918	4,255	7,173
1994	2,994	4,474	7,467	137	7,605	123	3,005	4,476	7,481
1995	3,055	4,705	7,759	79	7,838	104	3,075	4,658	7,733
1996	3,076	5,081	8,157	123	8,280	224	3,095	4,962	8,057
1997	3,187	5,490	8,677	116	8,793	276	3,225	5,291	8,517
1998	3,296	5,854	9,150	117	9,267	388	3,318	5,561	8,879
1999	3,523	5,889	9,412	121	9,533	350	3,546	5,637	9,183
2000	3,519	5,795	9,313	121	9,434	320	3,550	5,565	9,114
2001	3,496	5,740	9,236	148	9,385	236	3,556	5,593	9,149
2002	3,640	5,663	9,303	136	9,439	145	3,695	5,599	9,294
2003	3,632	5,518	9,150	144	9,294	159	3,692	5,443	9,135
2004	3,611	5,452	9,063	156	9,220	160	3,685	5,374	9,060
2005	3,681	5,545	9,227	157	9,384	325	3,744	5,314	9,058
2006	3,707	5,668	9,375	165	9,541	496	3,752	5,292	9,045
2007	3,616	5,651	9,267	151	9,417	652	3,638	5,127	8,765
2008	3,410	5,461	8,870	177	9,048	686	3,394	4,968	8,361
2009	3,150	5,414	8,564	147	8,710	684	3,187	4,839	8,026
2010	3,101	5,982	9,083	177	9,260	1,359	3,041	4,860	7,901
2011	2,975	5,917	8,892	165	9,057	1,410	2,894	4,753	7,647
Alternative: HFCS exports to Mexico revised by substituting <i>Economia</i> import data for U.S. Census export data									
1992	2,793	3,841	6,634	193	6,827	100	2,822	3,905	6,727
1993	2,924	4,173	7,097	189	7,286	113	2,918	4,255	7,173
1994	2,994	4,474	7,467	137	7,605	123	3,005	4,476	7,481
1995	3,064	4,717	7,781	79	7,860	126	3,075	4,658	7,733
1996	3,088	5,110	8,197	123	8,320	264	3,095	4,962	8,057
1997	3,183	5,633	8,816	116	8,932	415	3,225	5,291	8,517
1998	3,295	5,948	9,243	117	9,360	481	3,318	5,561	8,879
1999	3,523	5,997	9,519	121	9,640	457	3,546	5,637	9,183
2000	3,519	5,885	9,404	121	9,525	410	3,550	5,565	9,114
2001	3,496	5,873	9,369	148	9,517	368	3,556	5,593	9,149
2002	3,640	5,686	9,326	136	9,462	169	3,695	5,599	9,294
2003	3,633	5,524	9,157	144	9,301	166	3,692	5,443	9,135
2004	3,612	5,457	9,069	156	9,225	166	3,685	5,374	9,060
2005	3,715	5,506	9,221	157	9,378	320	3,744	5,314	9,058
2006	3,719	5,674	9,393	165	9,558	514	3,752	5,292	9,045
2007	3,609	5,643	9,252	151	9,402	637	3,638	5,127	8,765
2008	3,394	5,468	8,861	177	9,039	677	3,394	4,968	8,361
2009	3,165	5,395	8,560	147	8,707	681	3,187	4,839	8,026
2010	3,131	6,042	9,173	177	9,350	1,449	3,041	4,860	7,901
2011	2,988	6,175	9,163	165	9,328	1,681	2,894	4,753	7,647

1/ Includes Puerto Rico.

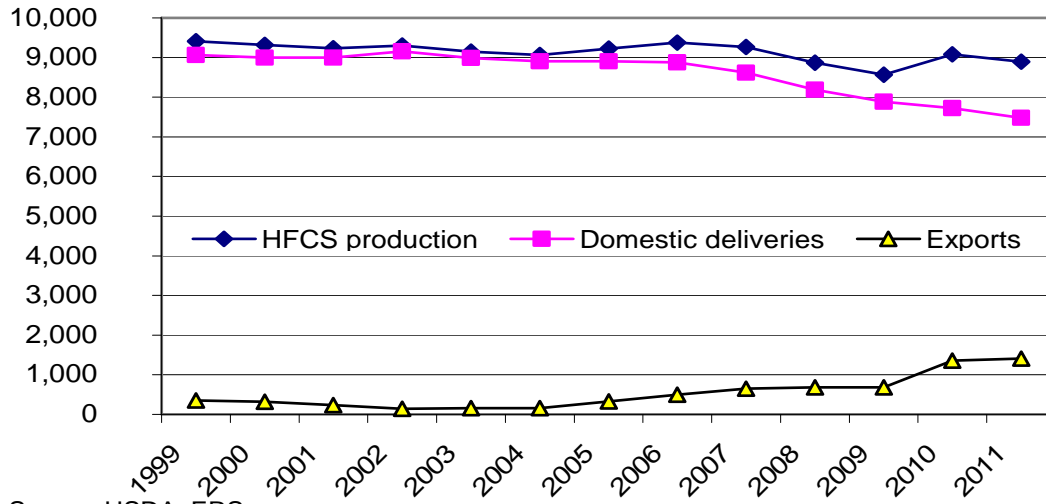
2/ Estimation of production = Deliveries + Exports to Mexico + Exports to other countries - Imports.

Source: Estimates by Sugar and Sweetener Team, Market Trade Economic Division, Economic Research Service.

Figure A-4

U.S. HFCS production, domestic deliveries, and exports, 1999-2011

1,000 short tons, dry weight

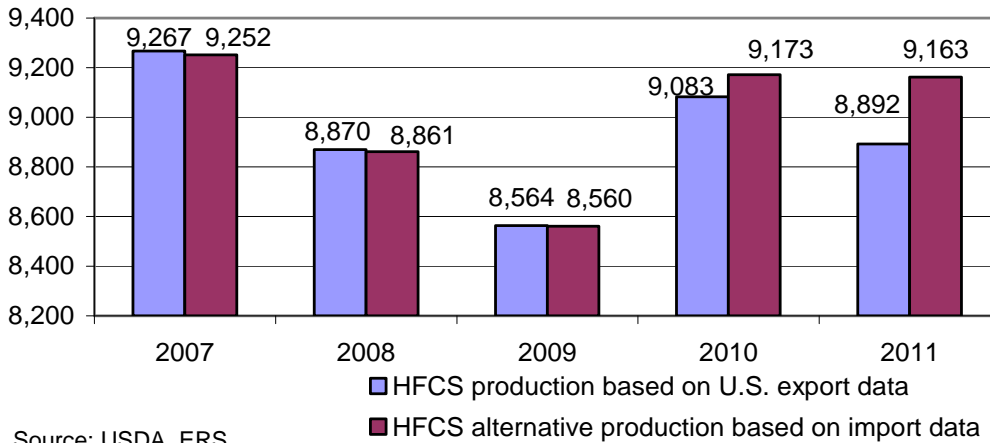


Source: USDA, ERS.

Figure A-5

Fiscal year HFCS production implied by alternative method of estimating exports: U.S. Census exports and exports using Mexico Secretariat of Economy imports of HFCS from the United States

1,000 short tons, dry weight



Source: USDA, ERS.

U.S. Sugar Exports in the WASDE Revisited

As reported in the September 2011 *Sugar and Sweetener Outlook*, the Interagency Commodity Estimates Committee (ICEC) for sugar has been considering a change in the sourcing of U.S. sugar exports for the World Agricultural Supply and Demand Estimates (WASDE). The current series is based on exports reported by the Farm Service Agency (FSA) in its *Sweetener Market Data* (SMD) database. These data constitute the historical estimates reported in the WASDE and are the basis for the current and 1-year-ahead WASDE forecasts. The issue is whether to change reporting and forecasting from the SMD-base to a broader range of sugar exports reported by the U.S. Census Bureau in its Foreign Trade reporting system. Sugar exports made by entities beyond those required to report to the FSA would be captured and be more representative of actual sugar supply and use. Another advantage would be the capability to report on destinations of sugar exports (especially to Mexico), not currently possible with the SMD-based system.

The sugar ICEC examined and compared U.S. sugar export data reported by the U.S. Census Bureau; Mexican U.S. sugar import data reported by the *Economia* Secretariat, Government of Mexico; and Foreign Agricultural Service (FAS) data on U.S. sugar going to Mexico reported for export credit. As earlier reported, the problem was that the Census-based monthly export data to Mexico averaged nearly twice as much as the other-sourced data in 2010 and 2011. The sugar ICEC decided against making any export-sourcing change until the discrepancy could be resolved.

The FAS reported the problem to the U.S. Census Bureau. The Census Bureau investigated and on March 13, 2012, issued a letter with new, corrected export data. These data pertained specifically to exports of refined beet sugar to Mexico under the Harmonized Tariff Schedule (HTS) 170112. The top panel of table B-1 reports the original monthly HTS 170112 data for 2010 and 2011, revisions to the data, and the corrected series. Because the HTS 170112 exports are a subset of total refined exports to Mexico and to all countries, these series are shown in the two panels below the top panel.

Figure B-1 compares the old and corrected series. The refined sugar exports to Mexico were reduced 26.6 percent to 184,095 metric tons for 2010 and 44.6 percent to 147,109 metric tons for 2011. Correspondingly, total refined sugar exports were reduced 23.8 percent to 213,637 metric tons for 2010 and 37.4 percent to 198,137 metric tons for 2011.

Table B-2 shows a comparison of U.S. sugar exports (in raw value) from the sources: U.S. Census Bureau for the corrected series; destination country reports for sugar imports from the United States, including Mexico's *Economia*; FAS for sugar reported for Export Credit; and SMD for sugar sales for export. Although the totals do not match exactly, they are close to each other. Exact matches would not be expected due to differences in reporting methodologies and timing differences. Also, SMD records only exports by processors and refiners that report data to the USDA. Export credits are issued only to those entities that participate in the U.S. Refined Sugar Re-Export Program.

¹The WASDE already bases its import reporting on data from either the U.S. Census Bureau or the U.S. Customs Service and not on *Sweetener Market Data*.

²In accordance with the 2008 Farm Act, U.S. sugarbeet processors, sugarcane processors, and cane sugar refiners supply data to the FSA on exports and other important data series necessary for the administration of the U.S. sugar program.

Table B-1 -- U.S. Census Bureau corrected Harmonized Tariff Schedule (HTS) 170112 beet sugar exports to Mexico and implications for total refined exports to Mexico and to all other countries

HTS 170112 exports to Mexico						
	Original		U.S. Census Bureau revision		Corrected 1/	
	2010	2011	2010	2011	2010	2011
Jan	7,341	13,627	-2,867	-9,148	4,474	4,478
Feb	20,158	21,032	-12,733	-14,195	7,425	6,837
Mar	25,120	18,411	-14,915	-12,480	10,205	5,932
Apr	10,867	20,273	-3,775	-13,974	7,092	6,298
May	9,826	21,280	-3,797	-14,790	6,029	6,489
Jun	10,100	19,394	-1,454	-13,327	8,647	6,067
Jul	4,630	18,599	-138	-12,881	4,492	5,718
Aug	7,246	27,658	-276	-18,449	6,970	9,210
Sep	6,622	13,499	-428	-9,004	6,194	4,495
Oct	15,549	7,904	-7,162	-94	8,387	7,811
Nov	22,869	5,772	-14,257	0	8,612	5,772
Dec	7,436	3,707	-4,986	0	2,450	3,707
Total	147,763	191,157	-66,786	-118,342	80,977	72,814

Refined sugar exports to Mexico 2/						
	Original		U.S. Census Bureau revision		Corrected 1/	
	2010	2011	2010	2011	2010	2011
Jan	12,472	21,636	-2,867	-9,148	9,605	12,488
Feb	27,883	27,102	-12,733	-14,195	15,150	12,907
Mar	33,250	23,051	-14,915	-12,480	18,335	10,572
Apr	21,840	24,522	-3,775	-13,974	18,066	10,548
May	21,046	24,545	-3,797	-14,790	17,249	9,755
Jun	20,098	23,769	-1,454	-13,327	18,644	10,442
Jul	11,348	24,635	-138	-12,881	11,211	11,753
Aug	15,948	34,126	-276	-18,449	15,673	15,678
Sep	15,161	19,651	-428	-9,004	14,733	10,647
Oct	26,072	15,600	-7,162	-94	18,910	15,506
Nov	33,079	14,296	-14,257	0	18,822	14,296
Dec	12,683	12,519	-4,986	0	7,697	12,519
Total	250,881	265,451	-66,786	-118,342	184,095	147,109

Refined sugar exports to all countries 3/						
	Original		U.S. Census Bureau revision		Corrected 1/	
	2010	2011	2010	2011	2010	2011
Jan	14,174	24,700	-2,867	-9,148	11,307	15,552
Feb	29,781	30,106	-12,733	-14,195	17,048	15,911
Mar	36,186	37,931	-14,915	-12,480	21,271	25,451
Apr	24,380	28,145	-3,775	-13,974	20,606	14,170
May	23,820	27,842	-3,797	-14,790	20,023	13,052
Jun	22,473	26,963	-1,454	-13,327	21,020	13,636
Jul	13,641	27,988	-138	-12,881	13,503	15,107
Aug	18,986	37,912	-276	-18,449	18,710	19,463
Sep	16,985	23,264	-428	-9,004	16,557	14,260
Oct	28,767	19,472	-7,162	-94	21,605	19,379
Nov	35,599	17,037	-14,257	0	21,342	17,037
Dec	15,631	15,120	-4,986	0	10,645	15,120
Total	280,423	316,480	-66,786	-118,342	213,637	198,137

1/ Corrected = Original + U.S. Census Bureau revision.

2/ Refined sugar exports to Mexico = HTS 170112 exports + HTS170191 exports + HTS170199 exports.

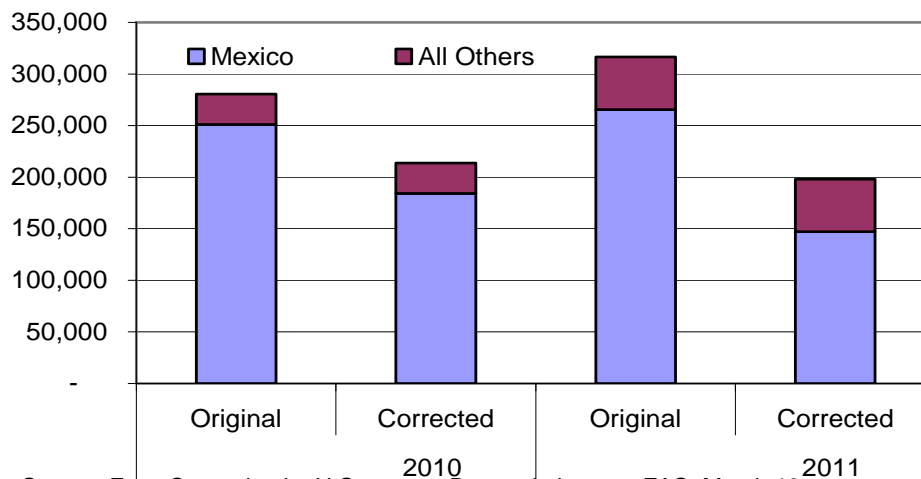
3/ Refined sugar exports to all countries = refined sugar exports to Mexico + refined sugar exports to all other countries.

Source: Error Correction by U.S. Census Bureau in letter to FAS, March 13, 2012.

Figure B-1

U.S. Census Bureau corrections to U.S. sugar exports to Mexico and world for 2010 and 2011

Metric tons



Source: Error Correction by U.S. census Bureau in letter to FAS, March 13, 2012

Table B-2 -- U.S. sugar exports for fiscal years 2010 and 2011 reported by differing sources

Fiscal year	Export destination	U.S. Census Bureau refined sugar exports: revised March 2012	Sugar imports sourced from United States: reported by importing nations	U.S. refined sugar reported for Export Credit: U.S. Refined Sugar Re-Export Program	U.S. sugar sales for exports reported by USDA's <i>Sweetener Market Data</i> (SMD)
Metric tons, raw value					
2010	Mexico	196,981	150,670	162,545	
	All other countries	31,610	15,879	19,932	
	Total	228,591	166,549	182,477	191,249
2011	Mexico	157,407	175,818	167,697	
	All other countries	54,600	30,351	30,160	
	Total	212,007	206,169	197,857	225,193

Source: Error Correction by U.S. Census Bureau in letter to FAS, March 13, 2012; Global Trade Atlas (www.gtis.com): USDA, FAS; USDA, FSA, SMD.

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Related Websites

Sugar and Sweeteners Outlook <http://www.ers.usda.gov/Publications/SSS/>

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

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