



Sugar and Sweeteners Outlook

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Less Domestic Production Projected for 2017/18, Lowering Expected Ending Stocks

U.S. sugar production for 2017/18 is projected to total 9.140 million short tons, raw value (STRV). This is a 99,000 STRV reduction from the previous month's projection, based on an 80,000-STRV reduction to beet sugar production and a 19,000-STRV reduction to cane sugar production. Despite the reduction, the current production projection would still be a record, if realized. A slight 5,000-STRV increase in imports marginally offset the decline due to higher expected high-tier tariff imports. Total use remains unchanged from the previous month, with domestic deliveries for food and beverage use expected to be 12.325 million STRV, or 1.8 percent higher than the previous year. Expected ending stocks are reduced 94,000 STRV, as a result, with the stocks-to-use ratio projected at 14.7 percent.

The outlook for the sugar market in Mexico remains unchanged from the March report. Mexico sugar producers continue their harvest campaign, on track to reach a projected 6.050 million metric tons, raw value (MT). Production of low-polarity sugar is also on pace to realize the current export projection of 1.347 million MT. Domestic deliveries of sugar in Mexico have continued to lag relative to the previous year, as the pace of HFCS deliveries have increased and sugar prices have been relatively high over the past several months. Recent price declines in Mexico's domestic market may help facilitate deliveries going forward and mitigate the yearly decline.

U.S. Domestic Outlook

Production in Both the Beet and Cane Sector Reduced for 2017/18

Reductions in projected production in both the U.S. beet and cane sugar sectors result in lower overall sugar supplies in the United States for 2017/18. The April *World Agricultural Supply and Demand Estimates* (WASDE) projects U.S. sugar production to total 9.140 million short tons, raw value (STRV) in 2017/18. While a reduction of 99,000 STRV from the March forecast, the total would remain a record—with 9.050 million STRV produced in 1999/2000 as the current high-mark. The reduction in production accounts for the majority of the April WASDE's adjustments to projected total sugar supplies—reduced 94,000 STRV to 14.489 million STRV.

Table 1: U.S. sugar: supply and use, by fiscal year (Oct./Sept.), April 2018

| Items | 1,000 Short tons, raw value | | | 1,000 Metric tons, raw value | | |
|---|-----------------------------|-----------------------|-----------------------|------------------------------|-----------------------|-----------------------|
| | 2015/16 | 2016/17 (estimate) | 2017/18 (forecast) | 2015/16 | 2016/17 (estimate) | 2017/18 (forecast) |
| Beginning stocks | 1,815 | 2,054 | 1,876 | 1,647 | 1,863 | 1,702 |
| Total production | 8,989 | 8,969 | 9,140 | 8,155 | 8,137 | 8,292 |
| Beet sugar | 5,119 | 5,103 | 5,139 | 4,644 | 4,629 | 4,662 |
| Cane sugar | 3,870 | 3,866 | 4,001 | 3,511 | 3,507 | 3,630 |
| Florida | 2,173 | 2,055 | 1,973 | 1,971 | 1,864 | 1,790 |
| Louisiana | 1,428 | 1,628 | 1,859 | 1,296 | 1,477 | 1,686 |
| Texas | 116 | 140 | 170 | 106 | 127 | 154 |
| Hawaii | 152 | 43 | 0 | 138 | 39 | 0 |
| Total imports | 3,341 | 3,244 | 3,472 | 3,031 | 2,943 | 3,150 |
| Tariff-rate quota imports | 1,620 | 1,611 | 1,788 | 1,469 | 1,462 | 1,622 |
| Other program imports | 396 | 419 | 400 | 359 | 380 | 363 |
| Non-program imports | 1,325 | 1,213 | 1,284 | 1,202 | 1,101 | 1,165 |
| Mexico | 1,309 | 1,201 | 1,269 | 1,187 | 1,090 | 1,152 |
| Total supply | 14,145 | 14,267 | 14,489 | 12,832 | 12,943 | 13,144 |
| Total exports | 74 | 95 | 150 | 67 | 86 | 136 |
| Miscellaneous | -33 | 38 | 0 | -30 | 35 | 0 |
| Deliveries for domestic use | 12,051 | 12,258 | 12,480 | 10,932 | 11,121 | 11,322 |
| Transfer to sugar-containing products for exports under re-export program | 148 | 127 | 120 | 134 | 115 | 109 |
| Transfer to polyhydric alcohol, feed, other alcohol | 22 | 29 | 35 | 20 | 27 | 32 |
| Commodity Credit Corporation (CCC) sale for ethanol, other | 0 | 0 | 0 | 0 | 0 | 0 |
| Deliveries for domestic food and beverage use | 11,881 | 12,102 | 12,325 | 10,778 | 10,979 | 11,181 |
| Total use | 12,091 | 12,391 | 12,630 | 10,969 | 11,241 | 11,458 |
| Ending stocks | 2,054 | 1,876 | 1,859 | 1,863 | 1,702 | 1,686 |
| Private | 2,054 | 1,876 | 1,859 | 1,863 | 1,702 | 1,686 |
| Commodity Credit Corporation (CCC) | 0 | 0 | 0 | 0 | 0 | 0 |
| Stocks-to-use ratio | 16.99 | 15.14 | 14.72 | 16.99 | 15.14 | 14.72 |

Source: U.S. Dept. of Agriculture, Economic Research Service, Sugar and Sweetener Outlook.

Beet sugar production projections are reduced 80,000 STRV to 5.139 million STRV, based on the latest data provided by sugarbeet processors to the Farm Service Agency's (FSA) *Sweetener Market Data* (SMD). The reduced projection would still be a record on a fiscal year

basis, if realized. The reduction is largely due to lower expected sucrose recovery from sliced sugarbeets.

Table 2: Beet sugar production projection calculation, 2017/18

| | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | 2016/17 | 2017/18 March | 2017/18 April |
|--|---------|---------|---------|---------|---------|---------|---------|---------|------------------|------------------|
| Sugarbeet production (1,000 short tons) 1/ | 29,783 | 32,034 | 28,896 | 35,224 | 32,789 | 31,285 | 35,371 | 36,881 | 35,325 | 35,325 |
| Sugarbeet shrink 2/ | 5.7% | 5.9% | 5.9% | 4.8% | 6.8% | 5.4% | 6.5% | 8.3% | 6.4% | 6.4% |
| Sugarbeet sliced (1,000 short tons) | 28,097 | 30,137 | 27,184 | 33,532 | 30,545 | 29,595 | 33,066 | 33,834 | 33,076 | 33,076 |
| Sugar extraction rate from slice | 14.3% | 15.4% | 15.0% | 15.3% | 14.3% | 14.6% | 14.6% | 13.7% | 15.3% | 15.0% |
| Sugar from beets slice (1,000 STRV) | 4,023 | 4,631 | 4,086 | 5,142 | 4,325 | 4,325 | 4,820 | 4,643 | 5,045 | 4,967 |
| Sugar from molasses (1,000 STRV) 2/ | 325 | 357 | 401 | 327 | 324 | 341 | 380 | 352 | 345 | 345 |
| Crop year sugar production (1,000 STRV) 3/ | 4,348 | 4,987 | 4,487 | 5,469 | 4,648 | 4,667 | 5,201 | 4,995 | 5,390 | 5,312 |
| August-September sugar production (1,000 STRV) | 396 | 623 | 294 | 708 | 315 | 461 | 688 | 606 | 715 | 715 |
| August-September sugar production forecast (1,000 STRV) 4/ | 623 | 294 | 708 | 315 | 461 | 688 | 606 | 715 | 504 | 504 |
| Sugar from imported beets (1,000 STRV) 5/ | -- | -- | -- | -- | -- | -- | -- | -- | 40 | 38 |
| Fiscal year sugar production (1,000 STRV) | 4,575 | 4,659 | 4,900 | 5,076 | 4,794 | 4,893 | 5,119 | 5,103 | 5,219 | 5,139 |

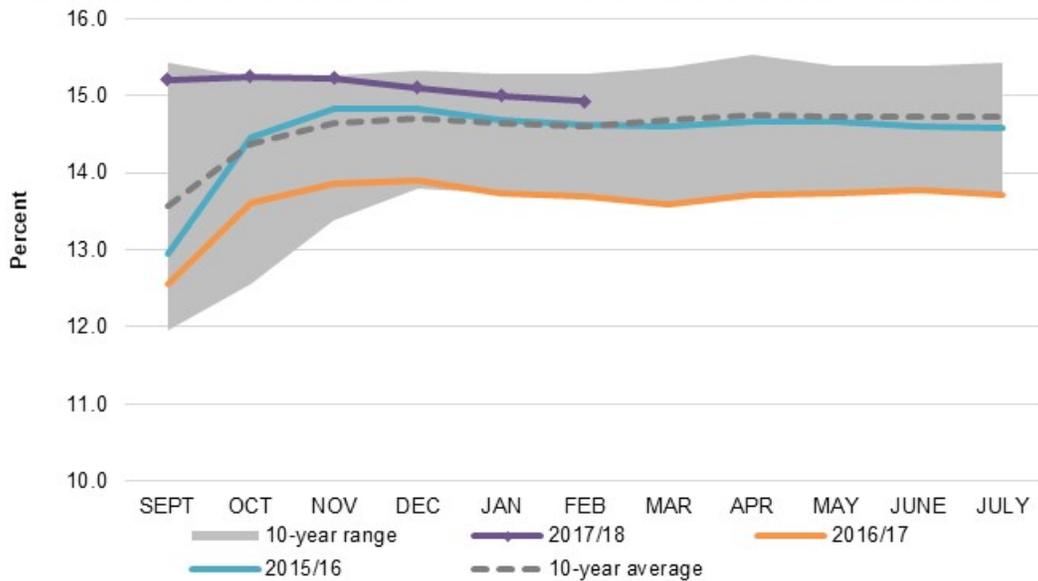
Notes: 1/ National Agricultural Statistics Service, U.S. Dept. of Agriculture. 2/Projections based on processor forecasts published by U.S. Dept. of Agriculture, Farm Service Agency. 3/ August-July basis. 4/ 2017/18 based on 10-year historical average. 5/ Sugar from imported beets split out for projections only, included in total once full crop year slice is recorded. They are incorporated into total production in historical data.

Source: U.S. Dept. of Agriculture, Economic Research Service and World Agricultural Outlook Board.

Based on data from SMD, sucrose recovery rates through February have totaled 14.9 percent—well above the previous year’s cumulative rate of 13.7 percent and the 10-year average of 14.6 percent. Normal seasonal patterns typically show the cumulative rate increasing slightly from February through the remainder of the processing season. Many sugarbeet processing regions complete slicing by early March, when warmer weather would typically begin to deteriorate the quality of the sugarbeet piles. Colder sugarbeet regions—particularly in North Dakota and Minnesota—account for a higher proportion of the slicing activity after March. Processors in these States use the severe cold during the winter to put sugarbeet piles in a deep freeze; they have increasingly deployed techniques to cover and ventilate piles to improve the likelihood that they remain frozen throughout the entire spring.

Cumulative sucrose extraction rates for 2017/18 started off strong during the pre-pile production period beginning in late August. Rates have remained strong through beginning of the winter slicing period, although they fell from the 10-year highs in the latest reported months. Weather conditions have been mostly favorable for maintaining the quality of the piles, particularly in the Red River Valley, which constitutes much of the remaining production for the year. The cold winter and cool spring should aid extraction rates, as well as the shrink rate, underlying the current production forecast.

Figure 1
Cumulative sugar extraction rate, beet sugar produced per sugarbeet sliced, by crop year



Source: U.S. Dept. of Agriculture, Economic Research Service and Farm Service Agency.

Cane sugar production in 2017/18 is projected to be 4.001 million STRV, 19,000 STRV lower than the previous month's report. The reduction is due entirely to less production expected from Florida—reduced to 1.973 million STRV based on processor reports submitted in the April SMD. Florida growers and processors are still realizing the effects of Hurricane Irma in September 2017 as the harvest continues, as well as effects of a delayed and very wet rainy season during the early stages of the harvest. Cane sugar production in Louisiana and Texas remains unchanged from the previous month, at 1.859 million STRV and 170,000 STRV, respectively.

Fewer Planted Sugarbeet Acres Expected for 2018/19

Growers are forecast to plant 1.113 million acres of sugarbeets in 2018/19 according to the National Agricultural Statistics Service's (NASS) March 29 *Prospective Plantings* report. If realized, this would represent a 1.6-percent decrease in planted area in 2017/18 and would be the second-consecutive yearly decline. The report represents growers planting intentions prior to the start of planting operations. The forecast will be updated, as well as an initial forecast for harvested acreage, in the June 30 *Acreage* report.

Most sugarbeet-growing regions are forecast to reduce planted acres. Planted area in North Dakota and Minnesota, which includes the Red River Valley producing region, is forecast to be 1.9-percent fewer acres in 2018/19 than the previous year. Michigan, the only remaining producing State in the Great Lakes region, is forecast to increase planted area by 1.7 percent.

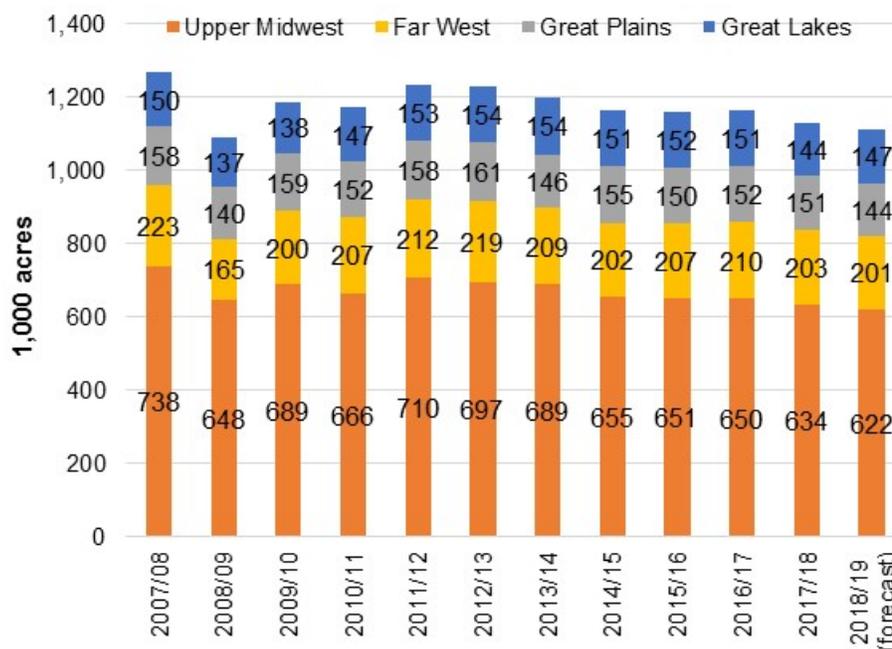
Great Lakes is the only region expecting an expansion. The Far West region is forecast to decrease by 1.1 percent, primarily due to reductions in Idaho. States in the Great Plains region reported a 4.3 percent decrease.

Table 3: Sugarbeet planted area, 2015/16 to 2018/19

| State | 2015/16 | 2016/17 | 2017/18 | 2018/19 (Prospective) | Annual Change percent |
|--------------|--------------------|---------|---------|--------------------------|--------------------------|
| | <i>1,000 acres</i> | | | | <i>percent</i> |
| Minnesota | 443.0 | 437.0 | 420.0 | 422.7 | 0.6 |
| North Dakota | 208.0 | 213.0 | 214.0 | 199.1 | -7.0 |
| Idaho | 174.0 | 172.0 | 167.0 | 163.4 | -2.2 |
| Michigan | 152.0 | 151.0 | 144.0 | 146.5 | 1.7 |
| Nebraska | 47.5 | 48.0 | 46.1 | 45.6 | -1.1 |
| Montana | 44.0 | 45.6 | 42.9 | 43.1 | 0.5 |
| Wyoming | 31.3 | 30.7 | 32.1 | 29.6 | -7.8 |
| Colorado | 27.5 | 28.1 | 29.4 | 25.8 | -12.2 |
| California | 24.7 | 25.3 | 24.8 | 24.6 | -0.8 |
| U.S. Total | 1,159.8 | 1,163.4 | 1,131.2 | 1,112.9 | -1.6 |
| Washington | N/A | 2.0 | 1.8 | 1.8 | 0.0 |
| U.S. Total | 1,159.8 | 1,163.4 | 1,131.2 | 1,112.9 | -1.6 |

Source: U.S. Dept. of Agriculture, National Agricultural Statistics Service.

**Figure 2
Planted area, sugarbeets, by region, 2007/08 to 2018/19**



Note: 2018/19 planted area based on *Prospective Plantings*, published March 2018.
Source: U.S. Department of Agriculture, National Agricultural Statistics Service.

The cold winter and cool spring that occurred in much of the producing-regions may have an impact on planting progress, with implications for production in 2018/19 as well as 2017/18. The past several U.S. sugarbeet crops have benefited from favorable weather and soil conditions that allowed for timely planting progress. Along with good weather conditions during the growing season, early-season beet sugar production allowed supplies to become available to the market before October 1 and were counted in the previous years' production totals. If cold weather currently being experienced through much of the Midwest delays planting progress, it will likely reduce expectations for early-season production. Current 2017/18 beet sugar production assumes that early-season production will be in line with the 5-year average. As planting progresses through the spring season, conditions will be monitored to assess how they may impact the crop's yield potential and early-season production prospects

Sugar Imports in 2017/18 Remain On Pace

U.S. sugar imports in 2017/18 are projected to be 3.472 million STRV, a 5,000-STRV increase from the previous month's report. The only change in April forecast is a 5,000-STRV increase in sugar entering under high-tier tariffs based on the pace-to-date through March, according to the Foreign Agricultural Service's (FAS) *U.S. Sugar Monthly Import and Re-Export* report.

Imports under quota programs are projected to total 1.788 million STRV, unchanged from the previous month. Imports under the WTO raw sugar TRQs are projected to be 1.368 million STRV, taking into account imports under the FY2017 quota that extended into the 2017/18 fiscal year and a 99,000-STRV shortfall for the FY2018 quota. Imports under Free Trade Agreements (FTA) are projected at 223,000 STRV for 2017/18. These quota are established on a calendar year basis. As a result, the fiscal year projection takes into account the 3 months of imports in 2017, as well as the expected entries for the first 9 months of the 2018 quota for each FTA entered into force.

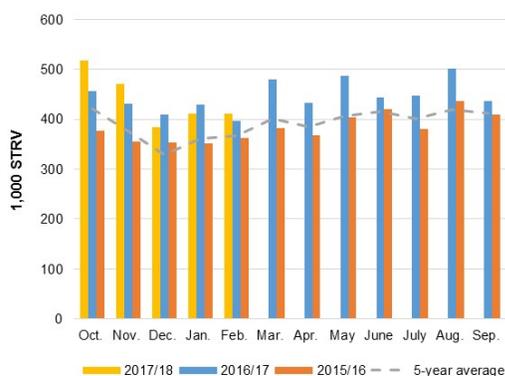
Imports from Mexico are projected to total 1.269 million STRV, also unchanged from the previous month's projection. The projection is based on Mexico filling the entirety of its 2017/18 Export Limit, set by the U.S. Department of Commerce (USDOC) in March based on the terms of the suspension agreements signed between the USDOC and the Government of Mexico in December 2014 and amended in June 2017. Further discussion on shipments from Mexico can be found in the Mexico Outlook section of this report.

No Changes to Projected Sugar Use for 2017/18

Total U.S. sugar use in 2017/18 is projected to total 12.630 million STRV, unchanged from the March WASDE. Domestic deliveries for food and beverage use is projected to account for 12.325 million STRV, also unchanged. If realized, this would constitute a 1.8 percent year-over-year increase from 2016/17 deliveries.

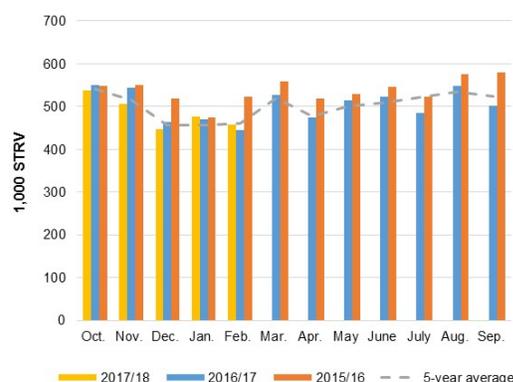
Through February, SMD has reported a 1.0-percent year-over-year increase in food and beverage deliveries compared with the same period the previous year. Deliveries from beet processors have increased 3.5 percent compared with the pace during the record-setting 2016/17 season. Deliveries from cane refiners have been 1.9 percent lower than the previous year. Cane refiner deliveries have been above the previous year for the last 2 consecutive reported months, however. Tight supplies of raw sugar for cane refiners persisted through the latter portion of 2016/17. This was alleviated to a great degree by the USDA's actions to increase the FY2017 WTO raw sugar TRQ and extend the entry period into the early months of 2017/18. The increased pace of imports from September to November 2017 coincided with higher reported inventories of raw sugar by cane refineries—which remained higher than the past few years and the 5-year average in February based on the latest SMD. The pace of deliveries is expected to increase for the remainder of 2017/18, with more supplies available for refining and marketing in the cane sector, facilitating the current deliveries projection.

Figure 3
Beet sugar deliveries, monthly, 2015/16 through 2017/18



Source: U.S. Department of Agriculture, Farm Service Agency.

Figure 4
Cane sugar deliveries, monthly, 2015/16 through 2017/18



Source: U.S. Department of Agriculture, Farm Service Agency.

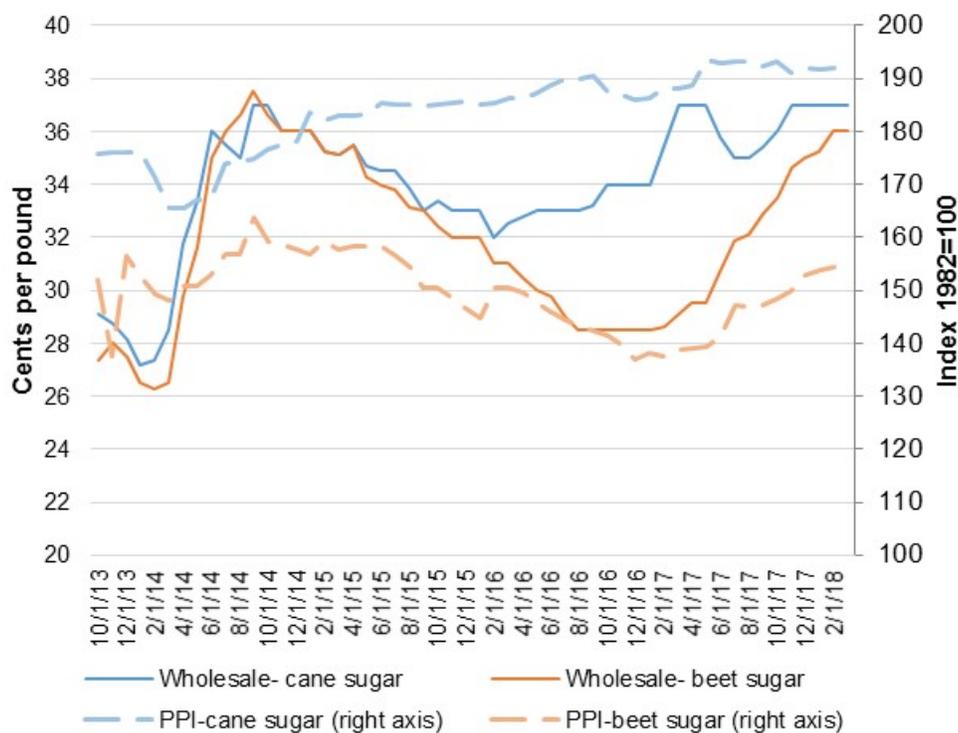
Projections for domestic deliveries for other uses and exports remain unchanged from the previous month, at 155,000 STRV and 150,000 STRV, respectively.

Projected Ending Stocks Reduced Based on Lower Supplies

Ending stocks for 2017/18 are projected to total 1.859 million STRV, a 94,000-STRV decline from the March report due to a net reduction of expected supplies. This reduces the stocks-to-use ratio for 2017/18 to 14.7 percent, compared with the previous month's mark of 15.5 percent.

Average spot prices for U.S. refined sugar, reported by *Milling and Baking News*, remained at 36 cents per pound for beet sugar and 37 cents per pound for cane sugar in March. Refined cane sugar prices have remained flat since November 2017, while refined beet sugar prices have leveled off in recent weeks after steadily climbing since January 2017. The current 1-cent spread between the two products is in line with historical averages, after a period of stark divergence in 2016 and early 2017. These trends are also reflected in the Producer Price Index (PPI) published by the Bureau of Labor Statistics, which has seen the differences between the two indices narrow to a level more in line with historical averages.

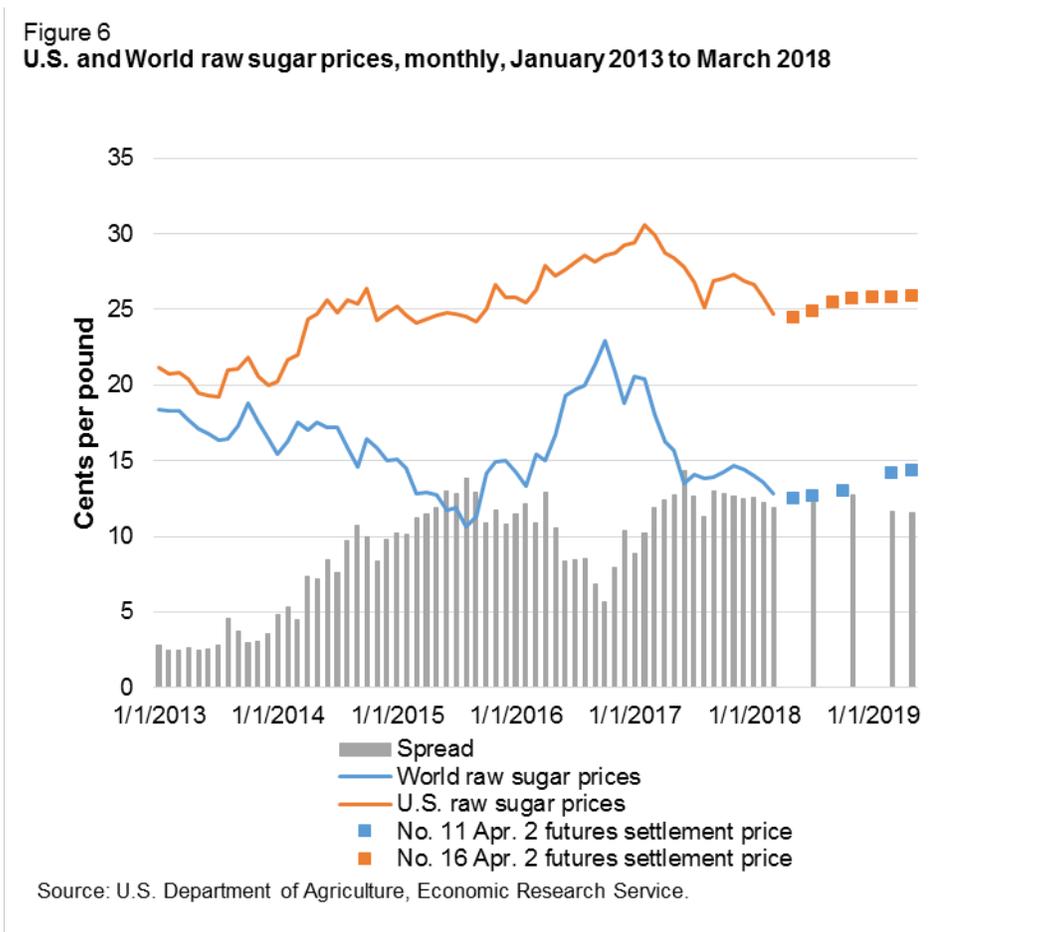
Figure 5
Refined sugar prices, wholesale and Producer Price Indices, monthly



Source: U.S. Department of Agriculture, Economic Research Service.

U.S. raw sugar prices have been falling the past few months. The average settlement price of the nearby future contract in March was 24.73 cents per pound—down by 9.3 percent from the

recent monthly high reached in November 2017. The January-to-March-quarter average price was 14.2 percent lower than the same period in 2017, reflecting increased availability of raw sugar supplies in 2017/18 over the previous year. Raw sugar prices on the world market have also been falling over the past several months, mostly driven by increased production expectations in Asia. The March price of 12.83 cents per pound was the lowest since September 2015. The spread between the U.S. and world raw sugar prices has narrowed over the past few months, although the spread has remained at the higher end of the range since 2014, when the anti-dumping and countervailing duty investigations against sugar from Mexico were initiated.



Mexico Outlook

Sugar Outlook for Mexico Unchanged from Previous Month

Mexico is projected to finish the 2017/18 year with ending stocks of 989,000 metric tons, actual value (MT), unchanged from the March WASDE report. This is due to no changes having been made to the projected Mexico balance sheet from the previous month's report. The resulting stocks-to-consumption ratio is projected to be 22.0 percent, in line with historical levels of inventories held to bridge the Mexican market from the end of the fiscal year to the beginning of the production season in late-November and December.

Table 4: Mexico sugar supply and use, 2015/16 - 2016/17 and projected 2017/18, April 2018

| Items | 2015/16 | 2016/17 (estimate) | 2017/18 (forecast) |
|---|----------------------------------|--------------------|--------------------|
| | 1,000 metric tons, actual weight | | |
| Beginning stocks | 811 | 1,037 | 1,002 |
| Production | 6,117 | 5,957 | 6,050 |
| Imports | 83 | 93 | 170 |
| Imports for consumption | 17 | 48 | 120 |
| Imports for sugar-containing product exports, IMMEX 1/, other | 66 | 45 | 50 |
| Total supply | 7,011 | 7,087 | 7,222 |
| Disappearance | | | |
| Human consumption | 4,387 | 4,515 | 4,496 |
| For sugar-containing product exports (IMMEX) | 390 | 397 | 390 |
| Other deliveries and end-of-year statistical adjustment | -10 | -61 | 0 |
| Total | 4,767 | 4,851 | 4,886 |
| Exports | 1,207 | 1,234 | 1,347 |
| Exports to the United States & Puerto Rico | 1,120 | 1,028 | 1,086 |
| Exports to other countries | 86 | 205 | 261 |
| Total use | 5,974 | 6,085 | 6,233 |
| Ending stocks | 1,037 | 1,002 | 989 |
| | 1,000 metric tons, raw value | | |
| Beginning stocks | 859 | 1,099 | 1,062 |
| Production | 6,484 | 6,315 | 6,413 |
| Imports | 88 | 98 | 180 |
| Imports for consumption | 18 | 51 | 127 |
| Imports for sugar-containing product exports (IMMEX) | 70 | 47 | 53 |
| Total supply | 7,431 | 7,512 | 7,656 |
| Disappearance | | | |
| Human consumption | 4,650 | 4,786 | 4,766 |
| For sugar-containing product exports (IMMEX) | 413 | 420 | 413 |
| Other deliveries and end-of-year statistical adjustment | -10 | -64 | 0 |
| Total | 5,053 | 5,142 | 5,179 |
| Exports | 1,279 | 1,308 | 1,428 |
| Exports to the United States & Puerto Rico | 1,187 | 1,090 | 1,152 |
| Exports to other countries | 92 | 218 | 277 |
| Total use | 6,332 | 6,450 | 6,607 |
| Ending stocks | 1,099 | 1,062 | 1,048 |
| Stocks-to-human consumption (percent) | 23.6 | 22.2 | 22.0 |
| Stocks-to-use (percent) | 17.4 | 16.5 | 15.9 |
| High fructose corn syrup (HFCS) consumption (dry weight) | 1,482 | 1,522 | 1,608 |

1/ IMMEX = Industria Manufacturera, Maquiladora y de Servicios de Exportación.

Source: USDA, *World Agricultural Supply and Demand Estimates* and Economic Research Service, Sugar and Sweeteners Outlook; Conadesuca.

The 2017/18 production season in Mexico has continued to progress relatively smoothly and without any major disruptions, according to data from the *Comité Nacional para el Desarrollo Sustentable de la Caña de Azúcar* (Conadesuca). Through March 31, mills in Mexico have produced 4.278 million MT of sugar in the harvest campaign, a 0.3-percent increase from the same period last year. While harvested area and sugarcane production have lagged behind last year's mark, the recovery rate of this year's crop is has been the highest since 2012/13, boosting overall production.

Figure 7
Mexico sugar production, by week of harvest, 2015/16-2017/18

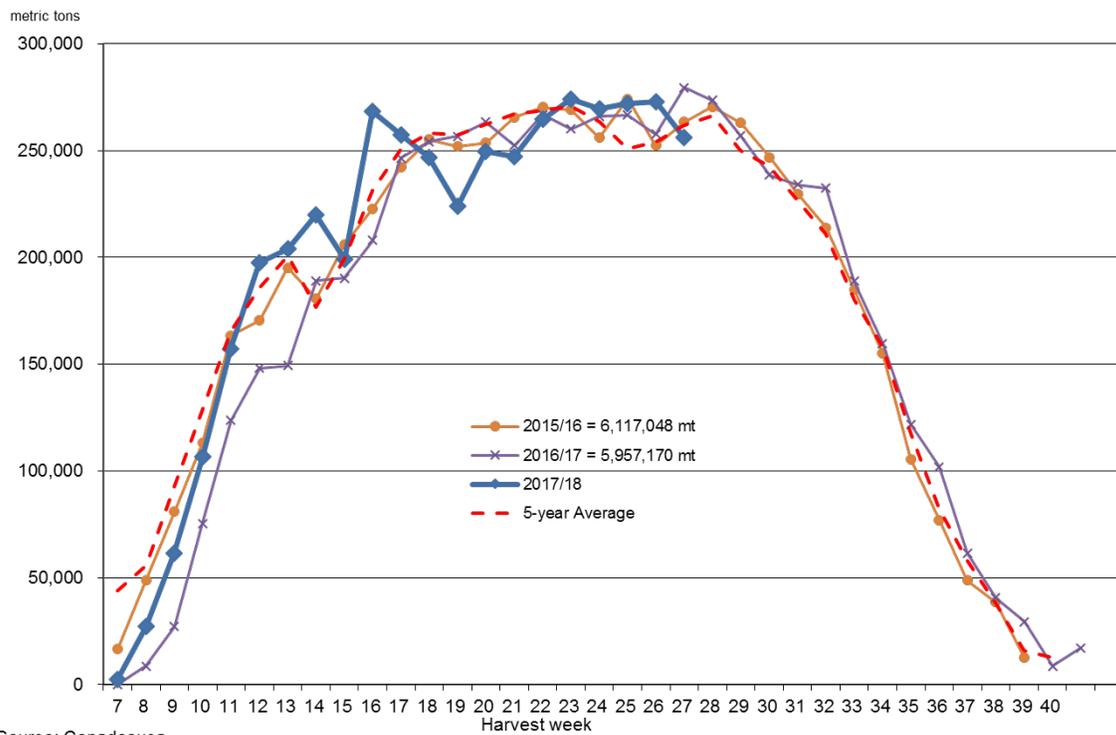
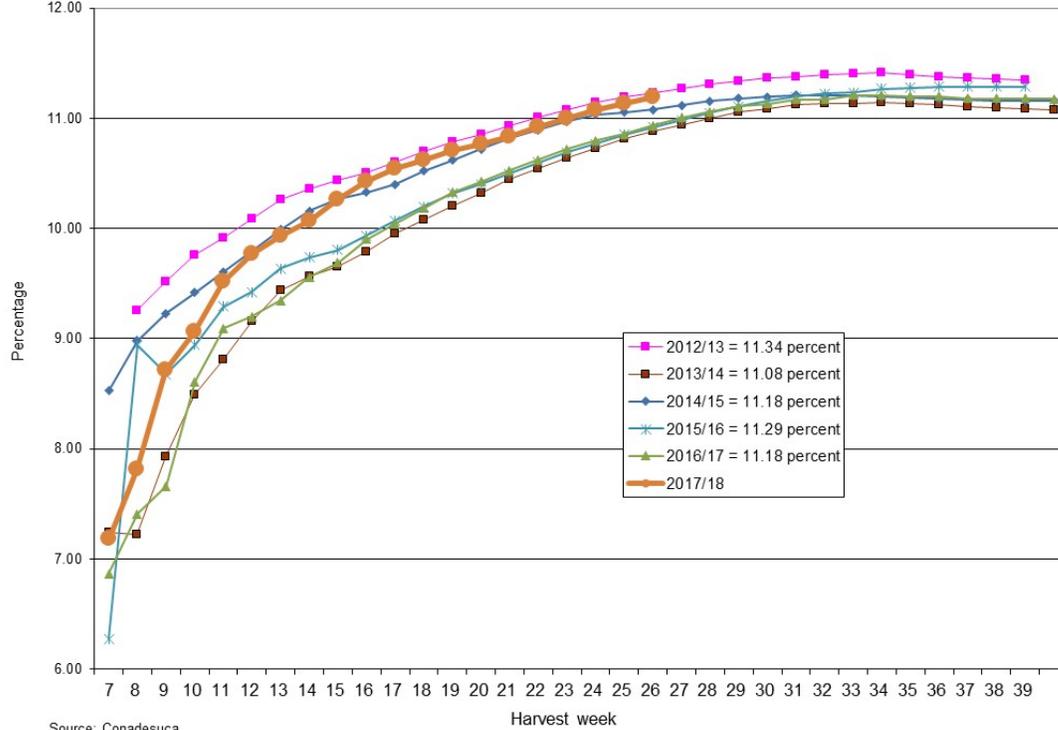


Figure 8
Intra-seasonal, cumulative sugar recovery rates in Mexico, recent crop years



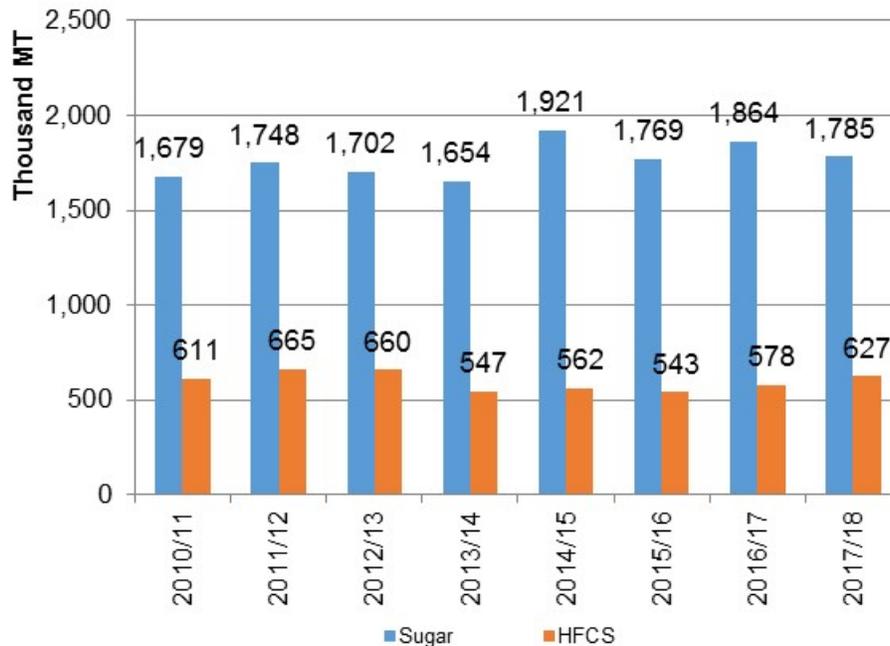
Conadesuca has also reported 556,000 MT of sugar produced below a polarity of 99.2. Sugar with this specification qualifies for the “Other Sugar” portion of the Export Limit, under the terms of the suspension agreements. This has been an uncommon specification for Mexican mills prior to this year and is likely to be exported to the United States, as it has few domestic markets and production has been concentrated in mills that are close to Gulf of Mexico ports. Based on the Export Limit set in March 2018 by the USDOC, the production accounts for about 73 percent of the Other Sugar component of the limit. With 4 to 6 weeks of peak production season still to be reported and the production season likely to continue into late June or early July, mills appear to be on track to produce enough low-polarity sugar to fill that portion of the Export Limit.

Domestic Deliveries Below, HFCS Deliveries Above, a Year Ago

Deliveries of sugar to the domestic market continue to lag relative to recent years. Through February, deliveries of sugar for domestic human consumption are 4.2 percent lower than the same period a year ago. Likewise, high fructose corn syrup (HFCS) deliveries are 8.4 percent larger. The pace is primarily due to delivery patterns that occurred early in the fiscal year, when

sugar prices remained very high and domestic sugar production was still getting up to speed. Overall, sweetener deliveries have been 1.2 percent lower than 2016/17, but in line with recent historical levels.

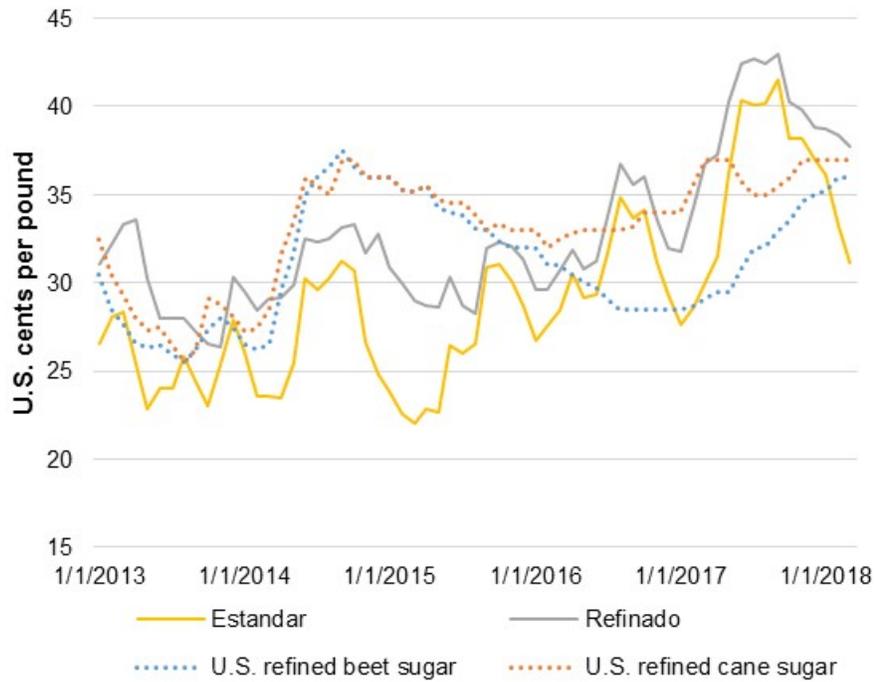
Figure 9
Mexican sweetener consumption October to February



Source: Conadesuca.

Mexico sugar deliveries for domestic human consumption are projected to be 4.496 million MT, which would be a 0.4-percent decline from 2016/17. Deliveries of HFCS are projected to be 1.608 million MT, a 5.4-percent increase. These projections imply that the current pace-to-date trends will likely continue but will be moderated as the year progresses. While still relatively high by historical standards, prices for estandar and refinado sugar in Mexico have fallen in recent months, which may spur additional deliveries of sugar to domestic markets in Mexico.

Figure 10
Mexico Estandar and Refinado sugar prices, monthly, January 2013 to March 2018



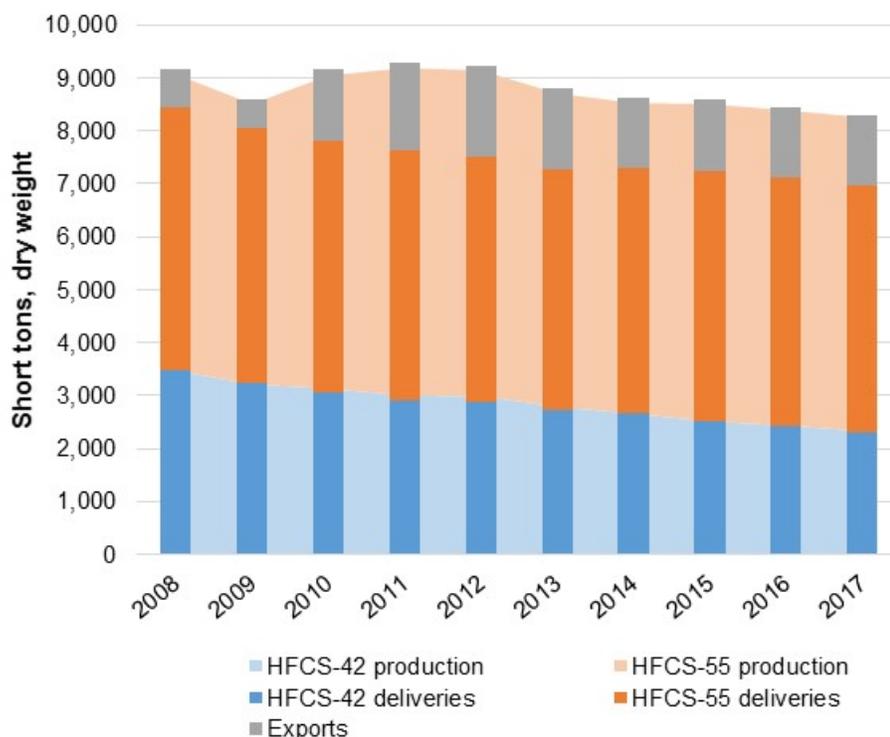
Source: U.S. Department of Agriculture, Economic Research Service.

Special Article: High-Fructose Corn Syrup

HFCS Production Declines Again in the 2017 Calendar Year, Prices Rise

U.S. high fructose corn syrup (HFCS) production in 2017 totaled 8.273 million short tons, dry weight, a 1.1-percent decline from 2016's production of 8.367 million short tons. The decline continues the downward trend that has persisted since HFCS production reached a peak of 9.51 million tons in 1999. Production declines have accelerated since 2011, with 2017 seeing a 94,000 short ton decrease compared to 2016.

Figure 11
United States high fructose corn syrup production, calendar year, 2008 to 2017



Source: U.S. Department of Agriculture, Economic Research Service.

The two dominant types of HFCS in the U.S. market are HFCS-42 and HFCS-55. The number designation represents the percentage of fructose if the water were fully removed; therefore HFCS-55 has more fructose than HFCS-42 for the same mass. The data presented use dry weight to account for this, so the comparison to refined sugar can be examined. Commonly HFCS-42 is primarily used in the baking and food industry, while HFCS-55 is mostly used as a

sweetener in soft drinks. Production of HFCS within the United States has continued to decrease in both forms of HFCS, driven by four factors that have occurred over the past 10 to 15 years, beginning with the increasing prevalence of processed food producers labeling certain products as free of HFCS— a response to a perceived customer push to limit HFCS consumption. Second, higher corn prices have accounted for a larger proportion of U.S. corn production, partly in response to an increase in ethanol production. Third, imports of refined sugar from Mexico increased after the sweetener provisions of NAFTA went into effect in 2008. Finally, the consolidation of the wet corn milling industry increased utilization rates and decreased capacity.

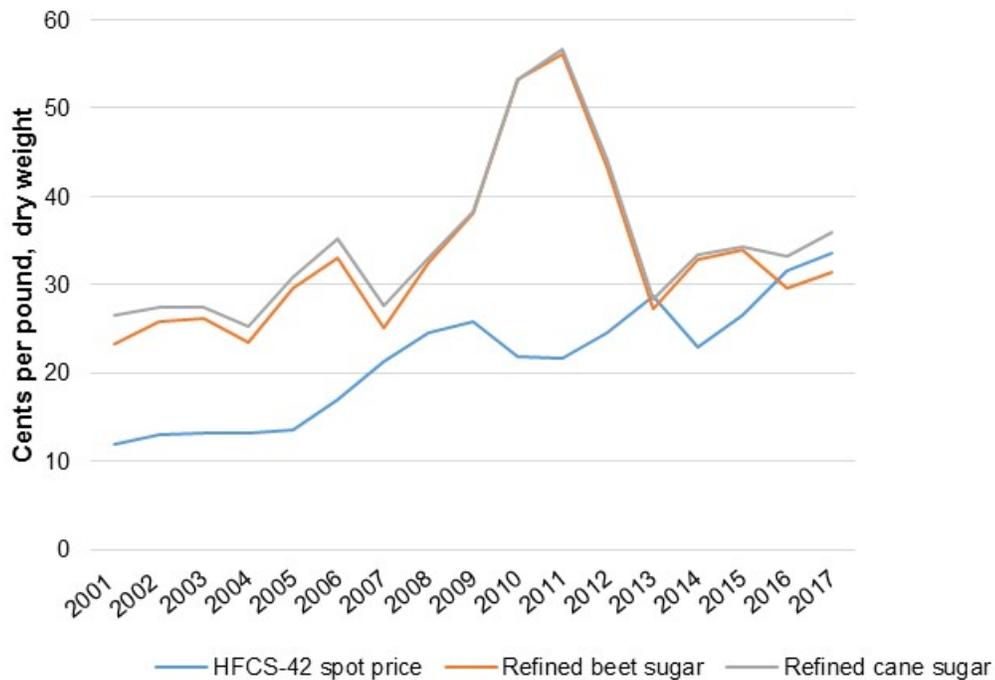
In 2017, production of HFCS decreased by 75,000 short tons, dry weight of HFCS-42 and 19,000 short tons dry weight of HFCS-55 compared with 2016. This represented a decrease of 3.1 and 0.3 percent from the previous year, respectively. This change in sweetener demand has resulted in more trade between the U.S. and Mexico. In 2017, deliveries of sugar (beet and cane) decreased by 37,000 short tons, raw value, which represents a marginal decrease of 0.3 percent from 2016. Long-run trends in the United States over the last two decades have shown a general increase in sugar deliveries. Since 2007, deliveries have increased at an annual rate of 1.7 percent on a calendar year basis. In 2017, disappearance of HFCS decreased by 138,000 short tons, dry weight, to 6.947 million short tons, dry weight. This is roughly in line with the decrease in disappearance observed in 2016 over 2015 of 131,000 short tons, dry weight. On average there has been an annual decrease of 2.0 percent compounded since 2007.

The U.S. export of HFCS is closely aligned with the demand from Mexico as the largest U.S. trading partner. Mexico reported increases in the quantity imported from the United States in all delineated varieties of HFCS in 2017 over the 2016 calendar year. This is reflected in an increase of 70,000 short tons, dry weight (63,300 metric tons), in 2017 over 2016. A majority of this increase comes from an increase of 45,635 short tons, dry weight (41,400 metric tons), in Mexico's imports of HFCS-55. However, Mexico also increased imports of HFCS-42 by 14,200 short tons, dry weight (12,900 metric tons), and crystalline fructose from corn by 9,917 short tons, dry weight (8,997 metric tons).

In general, continued production decreases of HFCS are expected, following the recent trend. Some of this may be explained by price fluctuations in the HFCS market. Through the first 3 months of 2018, the spot price for HFCS-42 has been 6.3 percent higher than the same period in 2017—the fourth consecutive year of increases. Average wholesale market prices also increased in the refined sugar market over the same period. Average beet sugar prices in 2017 were 6.3 percent higher in 2017 than in 2016, and cane sugar prices on average were 11.6

percent higher in 2017. Likely, some corn that could have gone toward the production of HFCS is being used to produce feed, ethanol, and other corn-based products. There has been an increase in the production of alcohol for fuel use over the past 3 marketing years (2015-2017), with alcohol for fuel production from corn increasing by 301.4 million bushels. This increase alone is nearly two-thirds as large as the 460.0 million bushel total of corn going toward HFCS production in the 2016/17 marketing year. With HFCS production taking up only about 3 percent of the total supply of corn, the production predominantly responds to demand for corn sweeteners both in the United States and in Mexico and to that of sweeteners more broadly. In general we anticipate these trends continuing throughout 2018 with the current projected corn for the production of HFCS decreasing by another 5.5 million bushels in 2017/18.

Figure 12
**United States high fructose corn syrup and refined sugar prices,
 calendar year, 2001 to 2017**



Source: U.S. Department of Agriculture, Economic Research Service.

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Data

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

Related Websites

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