



Sugar and Sweeteners Outlook: August 2022

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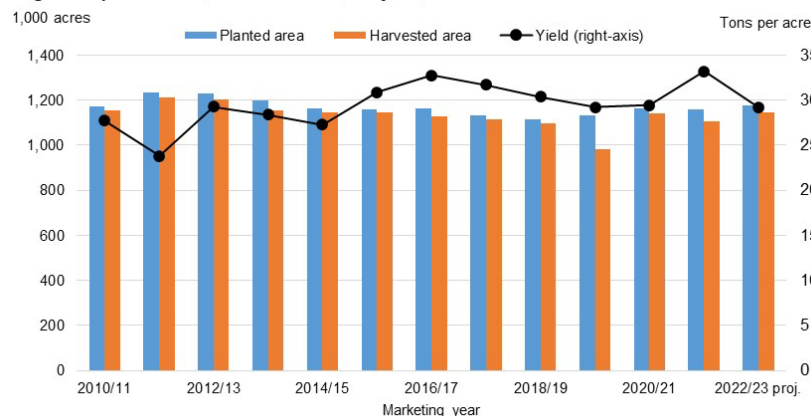
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U.S. Sugar Supply Raised in 2022/23, Mexico Concluded 2021/22 Harvest Season

The August 2022 *World Agricultural Supply and Demand Estimates* slightly reduced the 2021/22 beet sugar production and increased high-tier sugar imports. Correspondingly, U.S. 2022/23 beginning stocks are increased by a net amount of 46,000 short tons, raw value (STRV). The other change to the 2022/23 ledger is a 204,000-STRV increase in beet sugar production resulting from a higher yield outlook. The combination of these changes raised 2022/23 sugar supply by 250,000 STRV. Ending stocks are increased by the same amount resulting to a stocks-to-use ratio of 14.3 percent, up from last month's 12.4 percent. There are minimal changes to the 2021/22 Mexican balance sheet and none for 2022/23. With the sugarcane harvest season completed, Mexican production is increased 5,000 metric tons, actual weight to 6.185 million, which is 8 percent more than the prior year.

Figure 1
Sugarbeet planted area, harvested area, and yield, 2010/11–2022/23



proj = projected.
Source: USDA, National Agricultural Statistics Service.

U.S. Outlook Summary

Higher Sugarbeet Yields Raised U.S. Sugar Supply in 2022/23

The August 2022 *World Agricultural Supply and Demand Estimates (WASDE)* slightly reduced the 2021/22 beet sugar production from last month by 1,000 short tons, raw value (STRV) and increased the high-tier sugar imports by 47,000 STRV (table 1). The 2021/22 outlook for high-tier imports now stands at 325,000 STRV, a record high and 150,000-STRV or 55-percent larger than the previous high of 210,000 STRV in 2009/10. The net effect of these changes raised ending stocks by 46,000 STRV, resulting in a higher stocks-to-use of 14.3 percent from last month's 14 percent.

Correspondingly, U.S. 2022/23 beginning stocks are increased by the same amount, 46,000 STRV. The other change to the 2022/23 supply-use ledger is a 204,000-STRV increase in beet sugar production resulting from a higher yield outlook. In the August *Crop Production* report, the National Agricultural Statistics Service (NASS) published its first survey-based national yield forecast of 29.2 tons per acre (figure 1). This is larger than both the *WASDE*'s model-derived estimate used in the previous months (27.9 tons per acre) and the yield forecast from the most recent processors' submission to the Farm Service Agency's *Sweetener Market Data (SMD)* report (29 tons). The combination of these changes raised 2022/23 sugar supply by 250,000 STRV. Ending stocks are increased by the same amount, resulting to a stocks-to-use ratio of 14.3 percent, up from last month's 12.4 percent.

There has been no announcement to date for the 2022/23 additional specialty sugar tariff rate quota (TRQ). The Department of Commerce will announce the second fiscal year 2023 U.S. Needs calculation, based on a 13.5-percent stocks-to-use ratio and the Mexican Export Limit, after the September *WASDE*.

Table 1: U.S. sugar: supply and use by fiscal year (October/September), August 2022

Items	2020/21		2021/22		2022/23		
		July (estimate)	August (estimate)	Monthly change	July (forecast)	August (forecast)	Monthly change
	1,000 short tons raw value						
Beginning stocks	1,618	1,705	1,705	0	1,782	1,828	46
Total production	9,233	9,118	9,117	-1	8,947	9,151	204
Beet sugar	5,092	5,156	5,155	-1	4,934	5,138	204
Cane sugar	4,141	3,961	3,961	0	4,013	4,013	0
Florida	2,090	1,933	1,933	0	2,000	2,000	0
Louisiana	1,918	1,906	1,906	0	1,910	1,910	0
Texas	134	122	122	0	103	103	0
Total imports	3,221	3,699	3,746	47	3,501	3,501	0
Tariff-rate quota imports	1,749	1,766	1,766	0	1,445	1,445	0
Other program imports	292	300	300	0	250	250	0
Non-program imports	1,180	1,634	1,680	47	1,806	1,806	0
Mexico	968	1,355	1,355	0	1,756	1,756	0
High-duty	212	278	325	47	50	50	0
Total supply	14,072	14,522	14,568	46	14,230	14,479	249
Total exports	49	35	35	0	35	35	0
Miscellaneous	40	0	0	0	0	0	0
Total deliveries	12,277	12,705	12,705	0	12,630	12,630	0
Domestic food and beverage use	12,161	12,600	12,600	0	12,525	12,525	0
To sugar-containing products re-export program	89	80	80	0	80	80	0
For polyhydric alcohol, feed, other alcohol	27	25	25	0	25	25	0
Commodity Credit Corporation (CCC) for ethanol	0	0	0	0	0	0	0
Total use	12,367	12,740	12,740	0	12,665	12,665	0
Ending stocks	1,705	1,782	1,828	46	1,565	1,814	249
Private	1,705	1,782	1,828	46	1,565	1,814	249
Commodity Credit Corporation	0	0	0	0	0	0	0
Stocks-to-use ratio (percent)	13.8	14.0	14.3	0.4	12.4	14.3	2.0

Source: USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates (WASDE)*.

Beet Sugar Production in 2022/23 Raised on Higher Yields

Beet sugar production in crop year 2022/23 (August 2022 to July 2023) is raised 204,000 STRV to 4.930 million STRV due to higher sugarbeet yields expected (table 2). If realized, this crop year sugar production is about 401,000-STRV, or 8 percent, less than 2021/22. To convert this to the fiscal year 2022/23 (October 2022 to September 2023) projection of 5.138 million STRV, the early season sugar production in August-September 2023 (665,000 STRV) is added while that in August-September 2022 (500,000 STRV) is subtracted, and finally, sugar made from sugarbeets imported from Canada (30,000 STRV) is added. Thus, the sugar production in both fiscal years is comparable—5.138 million STRV in 2022/23 and 5.155 million in 2021/22.

The 204,000-STRV increase in crop year 2022/23 sugar production is entirely based on the first survey-based national yield forecast of 29.2 tons per acre for the 2022/23 crop published in the August 12 National Agricultural Statistics Service (NASS) *Crop Production* report (table 2). This is larger than both the *WASDE*'s model-derived estimate used in the previous months (27.9 tons per acre) and the yield forecast from the most recent processors' submission to the Farm Service Agency's *Sweetener Market Data (SMD)* report (29 tons). If realized, this yield forecast reflects a 12-percent decline from last year's record-high yield of 33.2 tons per acre. The forecasts by State show lower yields relative to the 5-year average for most, including the major producing States—Minnesota, Idaho, and North Dakota (table 3). The lower yield outlook is mainly due to the several weather-related setbacks during this year's spring planting season, which delayed planting by up to 3 to 4 weeks—the latest in history for some areas. Timely planting of sugarbeets is correlated with higher yields as it allows the plants to establish before the warmer summer months when key growth and development phases occur.

Table 2: Beet sugar production calculations, 2019/20–2020/23

	2020/21	2021/22		Monthly change	2022/23		Monthly change
		July	August		July	August	
Sugarbeet production (1,000 short tons) 1/	33,610	36,751	36,751	0	31,948	33,486	1,538
Sugarbeet shrink (percent)	6.60	7.6	7.6	0.0	6.6	6.6	0.0
Sugarbeet sliced (1,000 short tons)	31,392	33,966	33,951	-15	29,847	31,282	1,435
Sugar extraction rate from slice (percent)	15.34	14.6	14.6	0.0	14.6	14.6	0.0
Sugar from beets sliced (1,000 STRV) 2/	4,817	4,972	4,971	-1	4,365	4,570	204
Sugar from molasses (1,000 STRV) 2/	362	360	360	0	360	360	0
Crop year sugar production (1,000 STRV) 2/	5,181	5,332	5,331	-1	4,725	4,930	204
August-September sugar production (1,000 STRV)	765	676	676	0	500	500	0
August-September sugar production of subsequent crop (1,000 STRV)	676	500	500	0	678	678	0
Sugar from imported beets (1,000 STRV) 3/	N/A	N/A	N/A	N/A	30	30	0
Fiscal year sugar production (1,000 STRV)	5,092	5,156	5,155	-1	4,934	5,138	204

STRV = short tons, raw value; NA = not applicable.

1/ USDA, National Agricultural Statistics Service.

2/ August–July.

3/ Sugar from imported beets in 2020/21 and 2021/22 are already included in the crop year production. Typically, this component is separated for projections and included in total once full crop year slice is available.

Source: USDA, Economic Research Service; USDA, World Agricultural Outlook Board; USDA, Farm Service Agency.

Table 3: Sugarbeet yields, 2018/19–2022/23

State	2017/18	2018/19	2019/20	2020/21	2021/22 est.	2022/23 proj.	5-year average
	Tons per acre						
Minnesota	30.6	25.7	25.0	26.1	31.0	25.4	27.7
North Dakota	30.4	28.8	26.0	24.9	29.2	25.6	27.9
Idaho	39.2	40.5	39.0	40.5	39.5	39.0	39.7
Michigan	25.2	29.1	28.6	28.3	37.4	31.0	29.7
Nebraska	31.8	31.9	25.4	31.0	31.9	30.6	30.4
Montana	32.7	31.1	31.6	31.3	29.8	30.0	31.3
Wyoming	28.2	30.8	28.3	29.6	29.5	29.4	29.3
Colorado	35.7	32.6	30.7	31.3	33.7	29.6	32.8
California	43.7	48.8	45.4	46.6	46.0	46.7	46.1
Oregon	36.7	39.4	38.5	40.9	37.9	38.5	38.7
Washington	48.3	48.3	45.5	47.9	45.9	45.8	47.2
U.S. total	31.7	30.4	29.2	29.4	33.2	29.2	30.8

est. = estimated; proj. = projected.

Source: USDA, National Agricultural Statistics Service.

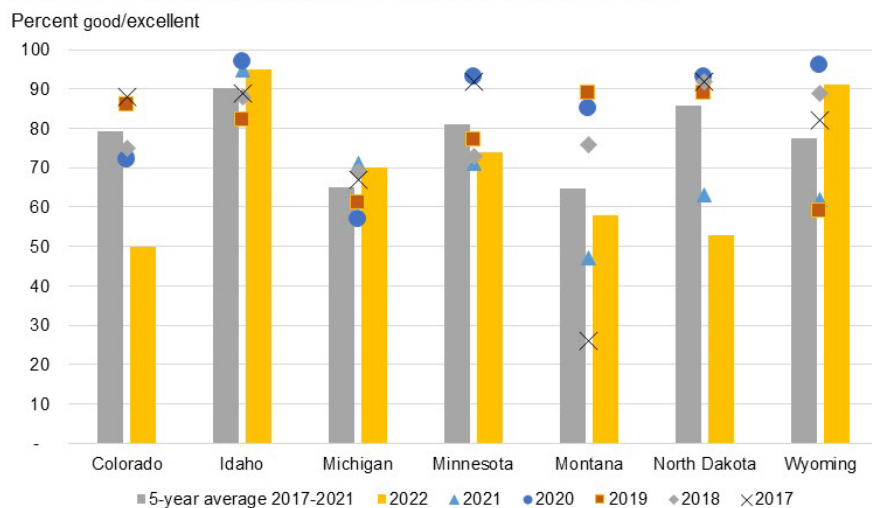
The NASS forecast for planted and harvested acreage in 2022/23 are 1.178 and 1.146 million acres, respectively, both unchanged from the June *Acreage* report. If realized, the 2022/23 planted acreage would be 1.6 percent higher than last year and would be the largest since 2013/14 (figure 1). Harvested area in 2022/23 is forecast at 1,146.1 million acres, a 3.5-percent increase from the previous year and the largest since 2014/15. The higher acreage reflects producers' efforts to compensate for the low yields. With the increase in planted and harvested acreage, as well as in yield, sugarbeet production is increased by 1.538 million short tons from last month to 33.486 million. The forecasts for shrinkage of sugarbeets in piles before they are sliced in the factories (6.6 percent) and sugar recovery from the sliced sugarbeets (14.6 percent)—both based on recent historical averages—are carried over from last month.

The projection for early season production is 500,000 STRV in August-September 2022 and 678,000 STRV in August-September 2023. Both are unchanged from last month. The former is based on *WASDE's* calculation that considers the lower expected yields and harvest delays, while the latter is based on the recent five-year average. Early season harvest typically starts late August to early September, and full-scale harvest commences in early October. For 2022, given this year's delayed spring planting season and less-than-ideal weather in April and June when replanting was underway to compensate for the expected lower yields, it can be possible for some companies to delay the harvest start date. Doing so can allow the crop to get closer to adequate maturity, including those in additional acreage with replanted sugarbeets. Harvest delays, in turn, can be a downside risk to the available sugar supplies from early season production. In addition, high temperatures have also been noted in some growing areas and can

pose crop management challenges, although sugarbeets are considered one of the more drought-tolerant field crops. The root system can extend 10 feet or deeper when the surface moisture is inadequate. To determine yield prospects and the harvest start date, sugarbeet processors typically conduct initial pre-harvest root samples in mid to late July and secondary samples in early August. As such, the USDA projection for the August-September production will be reevaluated next month as more information becomes available.

Based on the latest NASS *Crop Conditions* report for some of the sugarbeet-producing States, the status of the crop is mixed but generally in good condition (figure 2). Given this year's challenging weather and field conditions, the good-to-excellent ratings of the current crop are lower than the 5-year average in Colorado, Minnesota, Montana, and North Dakota. As of the week ending in August 14, sugarbeet crops in Minnesota, the largest producing State, are 74 percent good/excellent, 22 percent fair, and 4 percent poor/very poor. Conditions in Idaho, the second-leading producing State, are 95 percent good/excellent, 5 percent fair, and 0 percent poor/very poor. In North Dakota, the third-leading producer, conditions are 53 percent good/excellent, 40 percent fair, and 7 percent poor/very poor. These ratings, although closely followed by many industry analysts, historically do not have a strong predictive value in forecasting beet sugar production.

Figure 2
Sugarbeet conditions in major producing States as of August 14, 2022 1/



1/ Week 32; exact dates vary by year. Years represent marketing year.
 Source: USDA, National Agricultural Statistics Service.

Given that the campaign was technically done in July, the estimate of sliced beets is based on the most recent processors' submission to the *SMD* report. As a result, beet sugar production in 2021/22 is marginally decreased by 1,000 STRV to 5.155 million solely on a 15,000-STRV downward adjustment on sliced sugarbeets to 33,951 million short tons (table 2). There were no changes to the other variables. While the actual production reported to SMD lags by two months, processors' data through June supports a strong finish as in 2017/18. While the record-high 2021/22 sugarbeet yields forced some processors to extend the processing schedules into early summer, it appears that the quality of the frozen beet piles held up relatively well through the end of the campaign. Note, though, that the 2021/22 beet sugar estimate can still be affected by the onset of harvest and early season production since sugar produced before October 1 will be accounted for in the 2021/22 fiscal year. As discussed above, it is possible for processors to push back harvest to allow sugarbeets to grow and store more sugar, thus there remains some downside risk to the 2021/22 beet sugar production estimate. However, there can also be an upside probability such as when weather conditions in the succeeding weeks are favorable and allow for a typical start of harvest. In the *SMD*, beet processors' reported estimate for early season sugar production is 608,488 STRV, about 100,000-STRV more than the *WASDE*'s 500,000 estimate.

Cane Sugar Production Unchanged in 2021/22 and 2022/23

As with sugarbeets, the NASS August *Crop Production* report provided the first survey-based sugarcane yield forecast for 2022/23 in Florida, Louisiana, and Texas. There were differences between the NASS and last month's *WASDE* yields forecast. NASS projected a national sugarcane yield of 36.6 tons per acre (versus July *WASDE*'s 36.4) while State-level yields are as follows: 43.8 tons per acre for Florida (versus July *WASDE*'s 42.4); 31.3 tons per acre for Louisiana (31.5); and 27.8 tons per acre for Texas (34.8). However, since it is still early in the season, the *WASDE* numbers were carried over to this month.

The *Crop Production* report also provided an update on the 2022/23 sugarcane harvested area from the NASS June *Acreage* report. Planted area is not projected because sugarcane is a multi-year crop. Since there was only a relatively small revision on the Louisiana harvested acreage and none in Florida or Texas, no changes were made to the acreage forecasts.

Given that the other variables are the same as last month's, the 2022/23 cane sugar production is unchanged—2 million STRV in Florida, 1.910 million in Louisiana, and 103,000 in Texas—for a national cane sugar production forecast of 4.013 million. If realized, this reflects a 52,000-STRV increase, or 1.3 percent, from the prior year.

Louisiana is the only State for which NASS publishes a weekly sugarcane crop condition rating. As of week 32, which ended on August 14, the good-to-excellent rating stands at 74 percent, which is the second highest at this same time since 2017/18 (table 4). The rest of the ratings are 25 percent fair (versus 32 percent last year) and 1 percent poor/very poor (5 percent). As with the sugarbeet crop condition rating it is widely followed metric in the industry, even though it is not necessarily a significant variable in predicting the actual cane sugar production.

Table 4: Crop conditions in Louisiana through August 14, 2022 1/

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	5-year average
Excellent	16	13	15	30	8	17	16
Good	62	45	44	51	55	57	51
Fair	18	35	33	17	32	25	27
Poor	3	6	7	2	5	1	5
Very poor	1	1	1	0	0	0	1
Weighted condition index 2/	389	363	365	409	366	390	378

1/ Week 32; exact dates vary by year.

2/ This weighted condition index is generated by multiplying the percentage of crops in excellent condition by 5, percentage good by 4, fair by 3, poor by 2, and very poor by 1.

Source: USDA, Economic Research Service; USDA, National Agricultural Statistics Service.

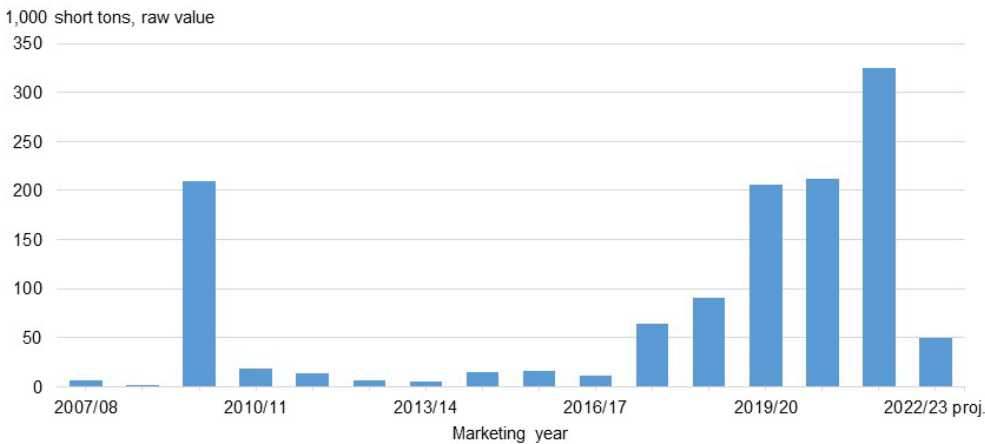
There are no changes to the 2021/22 cane sugar production, which remains at 3.961 million STRV. While Florida and Texas are done, some Louisiana mills start in September. Thus, any changes to early season sugar production—currently at the 5-year average level equal to 44,837 STRV—can still affect the fiscal year 2021/22 cane sugar estimate.

Imports in 2021/22 Are Up on Larger High-tier Imports

Imports in 2022/23 are forecast at 3.501 million STRV, unchanged from last month. The 2021/22 imports are raised by 47,000 STRV to 3.746 million solely on increased estimate of high-tier imports. If realized, the 2021/22 imports will be the second largest since 2012/13, just behind 2019/20 which saw record-high imports in response to the weather-reduced beet sugar production. There are no changes to the other 2021/22 import categories.

Based on the USDA Foreign Agricultural Service (FAS) *Sugar Monthly Import and Re-Export Data* report, high-tier imports in 2021/22 are increased by 47,000 STRV to 325,000 on additional entry of raw sugar imports in early August that paid the high duty, as well as on the expectation of increased entry pace of high-duty refined sugar during the last fiscal year quarter. If realized, this would be a new record and will be 150,000-STRV or 55 percent larger than the previous high of 210,000 in 2009/10 (figure 3). This is the sixth consecutive month since the February 2022 *World Agricultural Supply and Demand Estimates (WASDE)* that the 2021/22 high-tier imports estimate is revised upwards. With the upward revision, an estimated 85 percent of the estimated total high-tier imports has already been imported, compared with the 5-year average pace to date of 73 percent (table 5). Aside from the record volume, a noteworthy feature of the 2021/22 high-tier imports is the significant share of raw sugar imports.

Figure 3
U.S. imports of high-tier tariff sugar, 2007/08 to 2022/23



proj. = projected.
 Sources: USDA, Foreign Agricultural Service; U.S. Department of Commerce, Bureau of the Census.

Table 5: U.S. sugar imports, October to July, 2016/17 to 2021/22

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22 estimated	5-year average
October to July	1,000 short tons, raw value						
Mexico	958	981	803	1,114	808	1,090	933
WTO raw sugar TRQ	971	1,156	984	1,167	1,146	923	1,085
WTO refined sugar TRQ	219	190	206	405	215	237	247
FTA sugar TRQ	178	170	154	223	203	205	186
Re-export program	321	289	349	306	247	264	302
High-duty sugar	9	37	79	114	152	277	78
Total	2,656	2,823	2,576	3,327	2,770	2,996	2,830
Share of fiscal year total	Percent						
Mexico	80	80	80	81	83	80	81
WTO raw sugar TRQ	82	91	86	79	88	71	85
WTO refined sugar TRQ	100	100	99	99	99	98	100
FTA sugar TRQ	85	84	81	81	86	88	83
Re-export program	77	89	80	71	85	88	80
High-duty sugar	76	58	87	62	81	85	73
Total	82	86	84	80	87	80	84

WTO = World Trade Organization; TRQ = tariff rate quota; FTA = free trade agreement.

Source: USDA, Foreign Agricultural Service.

Since these imports are required to pay the cost prohibitive out-of-quota tariff (15.36 cents per pound for raw sugar and 16.21 cents per pound for refined sugar), traditionally, high-tier imports are composed of high-value specialty sugars that are difficult to source domestically. The FAS report, which breaks down high-tier tariff imports through June by port and country of origin, showed that 52 percent entered in Savannah, Georgia and 13 percent in Philadelphia, Pennsylvania (table 6). This implies that more than half of the total is comprised of raw sugar brought in by import-dependent cane refiners. Unlike the vertically integrated refiners, import-dependent refiners do not have a dedicated domestic cane processor that can reliably provide the raw throughput. Interestingly, it was also during the prior record-setting year of 2009/10 when raw sugar comprised a significant portion of the total high-tier sugar imports.

Table 6: U.S. high-duty sugar imports, October to June 2022

	Oct-Dec 2021	Jan-Mar 2022	Apr-Jun 2022	Total	Share of total
Top five ports:	Short tons, raw value				Percent
Savannah, GA	62,749	498	71,976	135,223	52
Philadelphia, PA	4,016	10,131	19,716	33,864	13
Seattle, WA	8,832	8,461	10,143	27,436	11
San Francisco, CA	1,174	13,626	648	15,448	6
Los Angeles, CA	3,097	2,292	3,167	8,556	3
Rest of ports	10,049	10,558	18,385	38,992	15
Total	89,916	45,566	124,036	259,518	100
Top five origins:					
Brazil	72,033	18,112	41,856	132,001	51
Guatemala	4,578	5,103	54,524	64,205	25
Colombia	5,538	6,004	2,020	13,562	5
Nicaragua	368	12,237	0	12,605	5
El Salvador	1,531	23	19,669	21,223	8
Rest of countries	5,867	4,087	5,967	15,922	6
Total	89,916	45,566	124,036	259,518	100

CA = California, PA = Pennsylvania; GA = Georgia, WA = Washington.

Note: The numbers in the total column may not be exactly the same due to rounding.

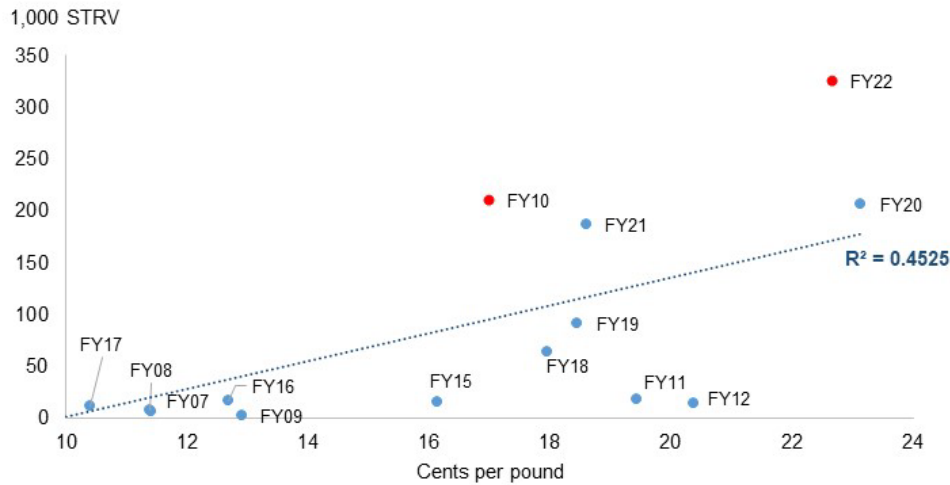
Source: USDA, Foreign Agricultural Service.

High U.S. Prices Contribute to Increased Margin Over World Prices, Making High-Tier Imports Attractive

The entry of high-tier imports is responsive whenever the margin between the U.S. and world prices exceeds the high duty and freight costs. A simple correlation chart between the high-tier imports, and the margin between the average¹ U.S. and world sugar prices show a positive correlation as indicated by the R-squared of 0.45 (figure 4). The R-squared is a statistical measure that represents the proportion of the variance for a dependent variable (here, high-tier imports) that is explained by an independent variable (here, U.S.-world price margin) in a regression model.

¹ For simplicity, the average U.S. sugar price takes the average of the Midwest refined beet sugar, Northeast refined cane sugar, and the No. 16 U.S. raw cane sugar. The average world sugar price is the average of the No. 5 world refined sugar and the No. 11 world raw sugar.

Figure 4
U.S. high-tier sugar imports relative to the margin between the average U.S. and world sugar prices, 2006/07–2021/22



STRV = short tons, raw value; FY = fiscal year.
 Note: Margin = Average U.S. prices - average world prices.
 Source: USDA, Economic Research Service.

U.S. refined sugar prices have been relatively high for a sustained period. The U.S. Midwest refined beet sugar averaged 40.6-cents-per-pound FOB² between October 2021 to April 2022 and was unquoted in May and June—the first occurrence since USDA, Economic Research Service started tracking prices since January 1960—as processors retreated from making offers due to lack of spot supplies. While most beet processors are out of the market, *Sosland Sweetener Report* indicated that beet sugar is nominally available at 70 cents per pound starting the week of July 27. Meanwhile, Northeast (NE) refined cane sugar averaged 55.1 cents over the same 9-month period. On the other hand, No. 5 world refined cane sugar averaged 23.6 cents per pound over the same period—also on the high side relative to prior years. When compared to the NE price of 55.1 cents, the U.S.-world price margin is around 31.5 cents per pound, which makes it economically feasible to bring in refined sugar paying the high duty since it only costs an importer 26.1-cents per pound to do so (6.1 cents for logistics cost from USDA internal calculation to make it equivalent to Northeast price FOB plus 16.21 cents for out-of-quota tariff). Note, however, that there might be other factors, such as continued difficulty in securing shipping containers, that may not be directly captured by the U.S.-world price margins.

² The refined beet and cane sugar prices published by the *Sosland Sweetener Market Report* are on a freight on board (FOB) origin, which means that on top of the sugar price, the buyer of sugar pays for the logistics costs from the shipping location (e.g., beet processing plant or cane refinery) to the destination (e.g., food and beverage manufacturing plant).

This can explain the increased pace of high-tier refined imports in 2021/22. In addition, the continued tight supply situation characterized by unavailability of beet sugar supplies, continued withdrawal of most processors from the market, and uncertainty of beet sugar from early season production add market risks that can incentivize end-users, such as food and beverage manufacturing companies, who do not have any other recourse but to rely on high-tier refined sugar imports.

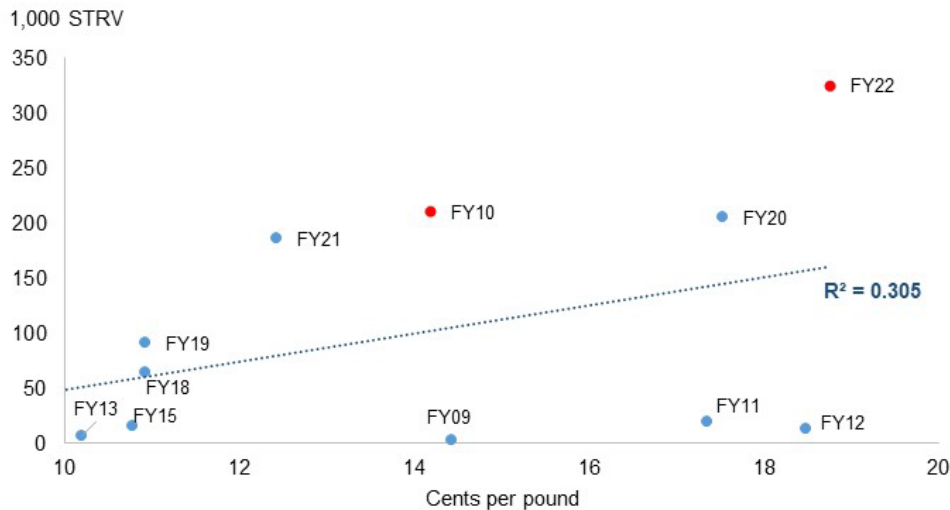
Explaining the entry of a relatively significant volume of high-tier raw sugar imports is less clear-cut. Between October 2021 to June 2022, the No. 16 and No. 11 averaged 36.4 cents and 19.1 cents, respectively, for a margin of 17.3 cents. As such, this margin is lower than the cost of importing high duty sugar, which is around 18.6 cents per pound (3.2 cents for logistics cost from USDA internal calculations to make it equivalent to No. 16 CIF³ plus 15.36 cents for out-of-quota tariff), supposedly making high-tier raw imports uneconomical. However, since the calculated prices above are on a monthly average, it can be the case that import-dependent refiners may have contracted the raw sugar earlier when the margin was more attractive. It can also imply that the actual logistic costs of bringing in this sugar may be lower than thought, perhaps due to efficiencies gained over the sustained period of high-tier imports, which seem to start taking off since 2017/18 (figure 3).

In addition, this year's persistently high U.S. refined cane sugar prices have widened the margin between the domestic raw and refined prices—cane refiner margin. If this margin is high enough, it can potentially make the acquisition of high-tier raw sugar imports worthwhile since the refiner can recoup the raw sugar input costs. Between October 2021 to June 2022, the Northeast refined cane sugar price averaged 55.1-cents per pound, which is only second to the record-high price of 55.5 cents in 2010/11. When compared with the No. 16's 36.4 cents, the resulting cane refiner margin is 18.7 cents—around the ballpark of the incentivizing 18.6-cent level for high-tier raw sugar to enter. The positive correlation between the level of total high-tier imports (raw and refined sugar) and the cane refiner margins—although with a relatively low R-squared of 0.31—seem to support this (figure 5), particularly for the fiscal years 2009/10 and 2021/22 which both saw a large share of raw sugar out of the total high-tier sugar imports. USDA, Foreign Agricultural Service (FAS) only started publishing the breakdown of high-tier by port and origin in 2021/22. High refiner margins also characterize

³ The No. 16 U.S. raw cane sugar futures are on a cost, insurance, and freight (CIF) basis, which means that the price contract includes the logistics costs of delivering sugar to the U.S. refineries in New York, Baltimore, Galveston, New Orleans, and Savannah.

2019/20 and 2020/21, which saw high-tier imports around 200,000 STRV. A similar FAS port breakdown for these years may prove illuminating.

Figure 5
U.S. high-tier sugar imports relative to the U.S. cane refiner margin, 2006/07–2021/22



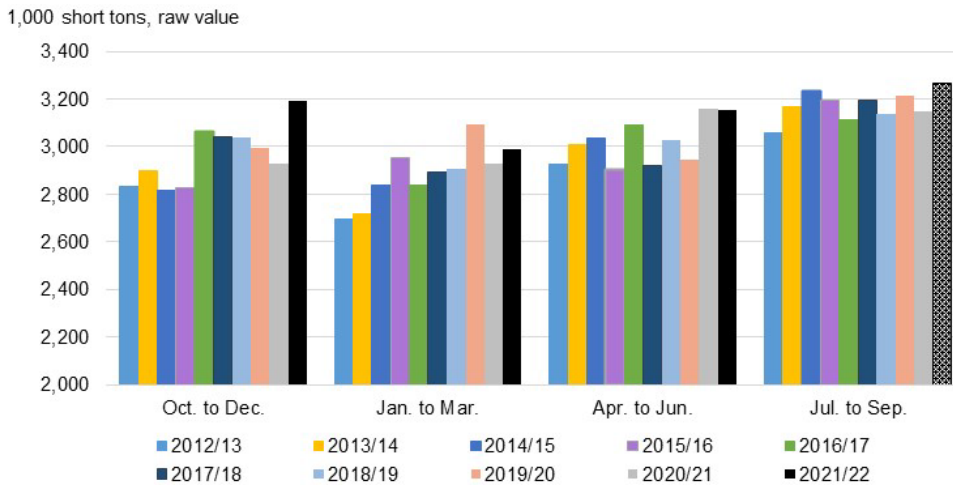
STRV = short tons, raw value; FY = fiscal year.
 Note: Cane refiner margin = U.S. Northeast refined cane sugar price - U.S. No. 16 raw cane sugar.
 Source: USDA, Economic Research Service.

Deliveries Unchanged in 2021/22 and 2022/23

Sugar deliveries for food and beverage use remain at 12.6 million STRV in 2021/22 and at 12.525 million in 2022/23. With the release of the June *Sweetener Market Data* (SMD), there are now three fiscal year (FY) quarters of data available. Between October 2021 to June 2022, deliveries totaled 9.334 million STRV—overtaking 2019/20’s 9.034 million over the same period—and represents 74.1 percent of the 2021/22 total food use deliveries (table 7). This 2021/22 pace is faster than the 10-year average’s 73.6 percent but below the record-high share 74.3 percent last year (table 8).

To reach the 2021/22 total of 12.6 million-STRV total, deliveries in the FY fourth quarter would have to be around 3.266 million (figure 6). If realized, this would overtake the prior record for this quarter of 3.235 million STRV seen in 2014/15 and would be the largest across all quarters since 1991/92.

Figure 6

Total U.S. sugar deliveries, quarterly, 2012/13–2021/22

Note: The last bar chart on the right, Jul. to Sep. in 2021/22, is estimated.
Source: USDA, Farm Service Agency.

The primary driver of the strong delivery pace is the beet sugar deliveries, which through June totaled 3.997 million STRV—323,000 or 8.8 percent more than the same period last year—thereby surpassing the prior record high of 3.962 million in 2016/17 (table 7). The strong beet sugar deliveries compensate for the relatively flat trend in cumulative cane sugar deliveries and non-reporters' direct consumption imports. Across all regions⁴, beet sugar deliveries are higher than the 5-year average with the largest increase in the South, which traditionally is a cane sugar-stronghold (figures 7 and 8).

Table 7: Food and beverage deliveries, October–June, 2016/17–2021/22

	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Annual change	
	1,000 short tons, raw value (STRV)						1,000 STRV	Percent
Beet sugar processors	3,962	3,909	3,738	3,314	3,674	3,997	323	8.8
Cane sugar refiners	4,509	4,496	4,690	4,879	4,670	4,668	-1	0.0
Total reporters	8,471	8,405	8,428	8,192	8,344	8,666	322	3.9
Non-reporter, direct consumption	519	449	543	842	670	668	-2	-0.3
Total	8,990	8,854	8,971	9,034	9,014	9,334	320	3.5

Source: USDA, Farm Service Agency.

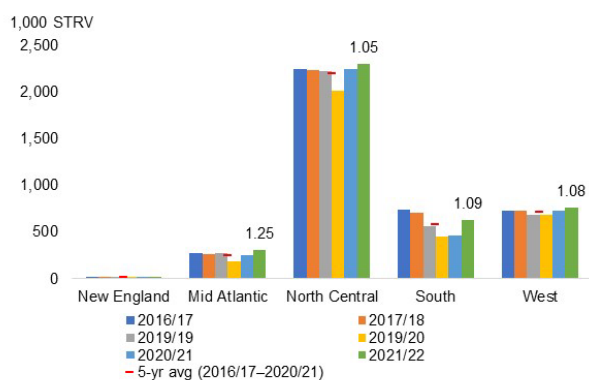
⁴ See Appendix at the end for the States included in each region.

Table 8: Pace of U.S. food and beverage deliveries, October–June, 2010/11–2021/22

	Oct.–Jun. 1,000 short tons, raw value	Fiscal year total	Percent of total
2010/11	8,127	11,193	72.6
2011/12	8,222	11,141	73.8
2012/13	8,452	11,511	73.4
2013/14	8,620	11,786	73.1
2014/15	8,686	11,921	72.9
2015/16	8,685	11,881	73.1
2016/20	8,990	12,102	74.3
2017/18	8,854	12,048	73.5
2018/19	8,971	12,106	74.1
2019/20	9,034	12,250	73.7
2020/21	9,014	12,135	74.3
2021/22 estimate	9,334	12,600	74.1
10-year average	8,753	11,888	73.6

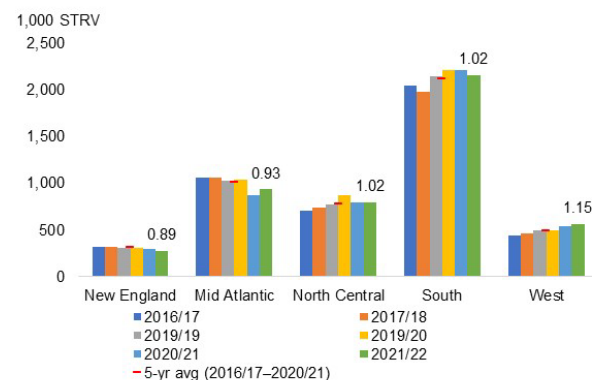
Source: USDA, Farm Service Agency.

Figure 7
Beet sugar deliveries for food use and re-export products, by region, October–June



STRV = Short tons, raw value.
Note: The numbers on top of the green bars represent the ratio between 2021/22 deliveries and the 5-year average.
Source: USDA, Farm Service Agency.

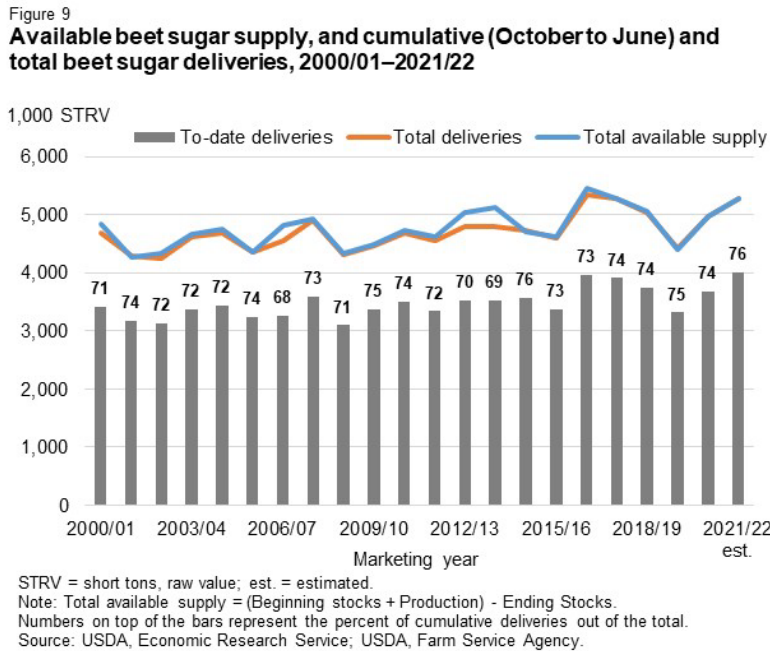
Figure 8
Cane sugar deliveries for food use and re-export products, by region, October–June



STRV = Short tons, raw value.
Note: The numbers on top of the green bars represent the ratio between 2021/22 deliveries and the 5-year average.
Source: USDA, Farm Service Agency.

Beet sugar deliveries are contingent upon domestic production, which along with beginning stocks and reasonable ending stocks, constitute the available beet sugar supply. Unlike refined cane sugar where a significant share is produced from imported sugar, virtually all the refined beet sugar come from domestically grown sugarbeets, with a minor amount imported from Canada. As a result, the high pace of beet sugar deliveries is made possible by the relatively large estimate for 2021/22 beet sugar production of 5.155 million STRV, which if realized would be the second largest production behind 2017/18's 5.279 million STRV. Adding the beginning beet sugar stocks of 843,000 STRV to the estimated production and subtracting a reasonable ending stock by the end of September of 726,000 STRV, the minimum in the last 5 years, yields 5.273 million STRV of potential available supply for delivery (figure 9). If this estimate holds,

3.997 million STRV, or 76 percent, of it has already been delivered through June, the fastest pace since 2000/01.

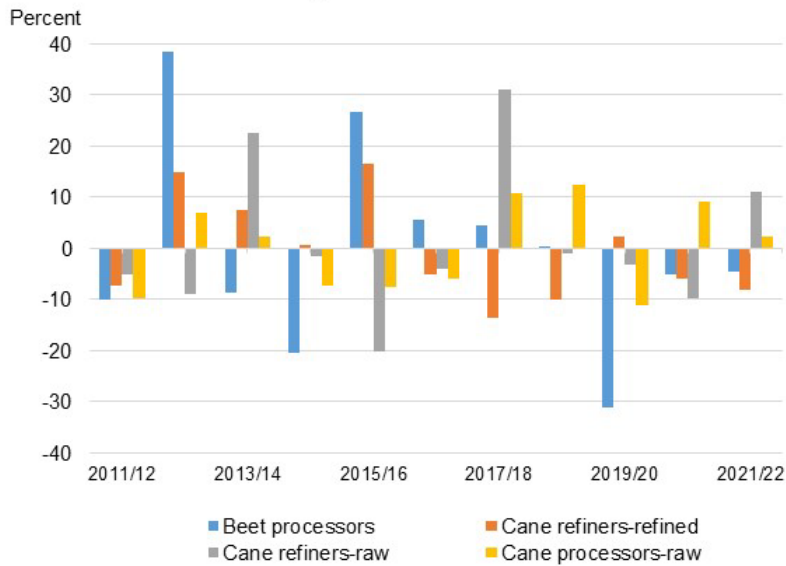


Refined beet sugar stocks as of June 30 equals 1.387 million STRV, which is about 65,000-STRV less than the 10-year average of 1.451 million (figure 10). Given that most sugar beet processors are still out of the market and sugar production in August-September remains uncertain, it can be possible for the processors to deliver above 5.279 million if a business decision calls for drawing down stocks to a lower level than 726,000 STRV by September 30.

Cane refiner deliveries between October to June totaled 4.668 million STRV, about the same level as last year's 4.670 million (table 8). Relative to the 5-year average, the 2021/22 cumulative deliveries are behind in the New England and Mid-Atlantic regions, which are traditional cane sugar destinations (figure 8). In contrast, beet sugar deliveries in these regions seemed to have gained ground. Historically, deliveries closely match melt, which is the quantity of raw sugar that is processed into refined sugar. Since storing bagged refined sugar in climate-controlled storage can be expensive, cane refiners typically only make refined sugar for delivery and not so much for stocking up inventory. Cane refiner's melt was particularly strong relative to the 5-year average back in October 2021, and between March to May 2022 (figure 11). Through the previous 9 months, the cumulative melt amounted to 4.785 million STRV. If cane refiners'

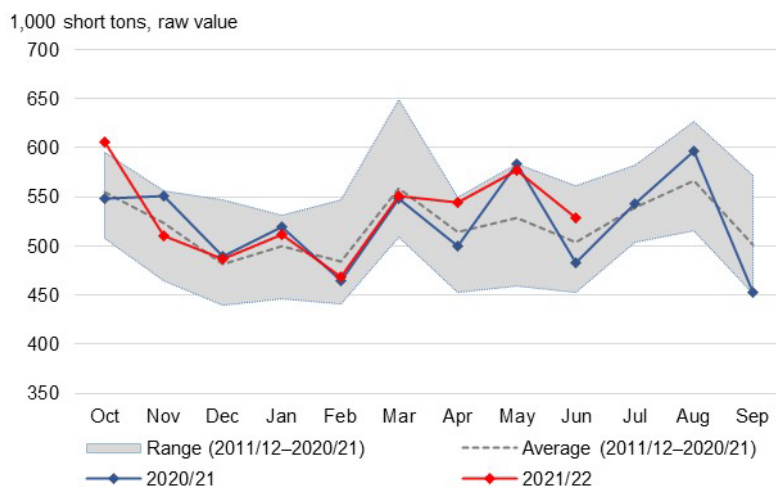
melt mirrors the 5-year average in the remaining quarter of the fiscal year, total melt in 2021/22 would be around 6.3 million STRV, which indicates reasonable estimate for cane sugar deliveries. Though cane refiners' raw sugar stocks are 11 percent higher than the 10-year average, this only translates to a 53,000-STRV potential cushion (figure 9). And with refined stocks relatively lower, a 6.3 million-STRV total for cane sugar delivery seems reasonable at this point.

Figure 10
Ending stocks, by processor type, as of June 30, percent change from the 2011/12-2020/21 average



Source: USDA, Farm Service Agency.

Figure 11
Sugarcane refiners' melt, monthly, 2011/12 to 2021/22



Note: Melt = quantity of raw sugar processed.
 Source: USDA, Farm Service Agency.

The non-reporter, direct consumption imports through June at 668,000 STRV is about 0.3 percent lower than last year over the same period (table 8). Deliveries of this sugar type—from companies other than the beet processors and cane refiners that report to the *SMD*—were relatively strong in the prior months particularly in October 2021, but recent deliveries between March to June seemed to have slowed down. While the monthly series for non-reporter deliveries is inherently volatile, which makes it difficult to forecast, the expectation of increased pace of high-tier refined sugar and the limited availability of refined beet sugar can boost direct consumption imports in the last fiscal year quarter.

Mexico Outlook

2021/22 Campaign Done

The August 2022 *World Agricultural Supply and Demand Estimates (WASDE)* report raised Mexican 2021/22 sugar production from last month by 5,237 metric tons (MT) to 6.185 million (table 9; figure 12). The increase is based on data published by Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA) on its July 30 production report—week 44 of the production campaign—which showed all 41 mills are done. At 6.185 million MT, this year's sugar production is 8-percent higher than the prior year and would be the second largest since 2018/19 (figure 12). The 2021/22 exports to other countries, and consequently total exports, are residually increased by the same amount to 750,000 MT and to 1.794 million MT, respectively. The 2021/22 exports to U.S. are unchanged at 1.160 million MT. There are no other changes in either 2021/22 or 2022/23.

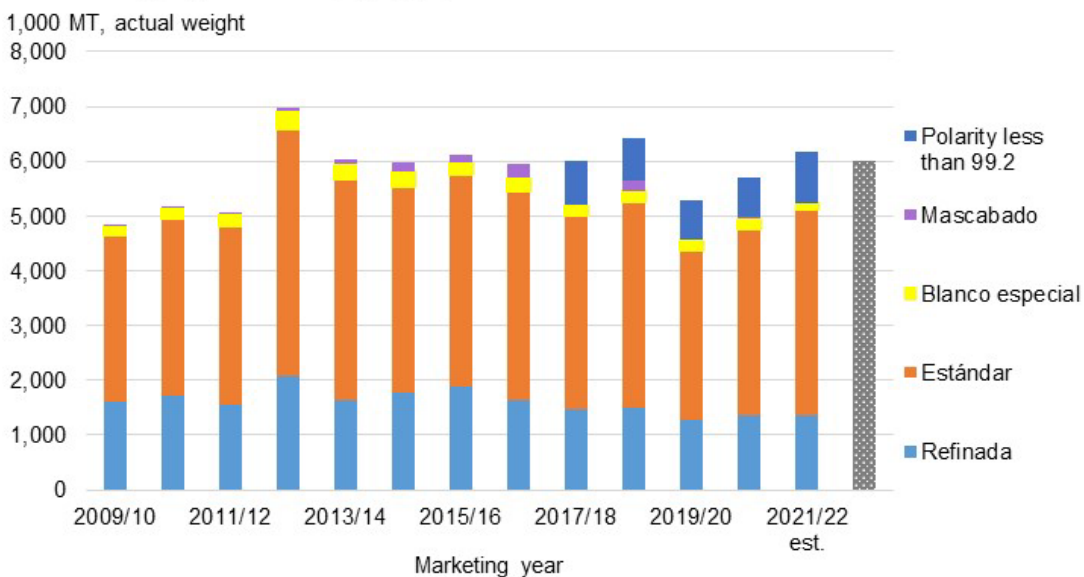
Table 11: Mexican sugar: supply and use by fiscal year (October/September), August 2022

Items	2020/21	2021/22			2022/23		
		July (estimate)	August (estimate)	Monthly change	July (forecast)	August (forecast)	Monthly change
		1,000 metric tons, actual weight					
Beginning stocks	858	1,053	1,053	0	947	947	0
Production	5,715	6,180	6,185	5	6,000	6,000	0
Imports	65	50	50	0	50	50	0
Imports for consumption	32	15	15	0	15	15	0
Imports for sugar-containing product exports, IMMEX 1/	33	35	35	0	35	35	0
Total supply	6,638	7,283	7,288	5	6,997	6,997	0
Disappearance							
Human consumption	3,935	4,050	4,050	0	4,050	4,050	0
For sugar-containing product exports (IMMEX)	485	497	497	0	497	497	0
Other deliveries and end-of-year statistical adjustment							
Total	4,420	4,547	4,547	0	4,547	4,547	0
Exports	1,165	1,789	1,794	5	1,503	1,503	0
Exports to the United States and Puerto Rico	828	1,160	1,160	0	1,503	1,503	0
Exports to other countries	337	629	634	5	0	0	0
Total use	5,585	6,336	6,341	5	6,050	6,050	0
Ending stocks	1,053	947	947	0	947	947	0
Stocks-to-human consumption (percent)	26.8	23.4	23.4	0	23.4	23.4	0
Stocks-to-use (percent)	18.9	15.0	14.9	0	15.7	15.7	0
High-fructose corn syrup (HFCS) consumption (dry weight)	1,320	1,310	1,310	0	1,317	1,317	0

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

Sources: USDA, World Agricultural Outlook Board; USDA, Economic Research Service; Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 12
Mexican sugar production, by type, 2009/10–2021/22



MT = Metric tons; est. = estimated.

Note: The gray bar represents the total 2022/23 projection for sugar production and is not broken down by type.

Source: Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Based on CONADESUCA's latest report, Mexican producers concluded a strong 2021/22 campaign, mostly due to favorable weather conditions throughout the season. Cane was harvested in from 805,682 hectares (ha)—the largest in the last five years—and is up by 2 percent from 2020/21. The regional breakdown shows that the yearly increase in acreage in the rest of the regions offsets the decline in the Pacific/Northwest (figure 13). On the other hand, sugar production is up year over year across regions except in the Northwest (figure 14). The largest over-year percentage increase in sugar production occurred in the largest producing Gulf/Central regions. The national sugarcane yield of 67.87 MT/ha ranks second in the last 5 years, while the sugar recovery rate of 11.31 percent surpassed the prior record of 11.27 percent seen in 2017/18 and 2018/19. Yields went up from last year across all the regions, with the biggest improvement in the Southeast, followed by the Gulf/Central region (figure 15). All the regions saw an improvement in extraction rates compared with last year except in the Northeast region where it was flat (figure 16).

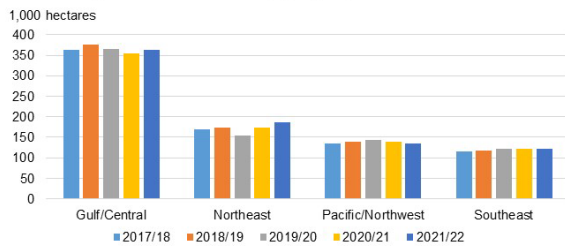
The relatively strong production this year ensured adequate supplies to meet U.S. import requirements per the Suspension Agreement terms. At the conclusion of the 2021/22 campaign, 940,252 MT of less-than-99.2-polarity sugar were produced, corresponding to 15 percent of the total sugar production. This year's production is 27-percent larger than last the year prior and

would be the largest since 2017/18, the first year Mexicans started producing this sugar type per the terms of the U.S.-Mexico Sugar Suspension Agreements (figure 12). Upon the amendments made in 2017/18, the suspension agreements changed the polarity requirement for raw sugar to be exported to United States from less than 99.5 polarity to less than 99.2. Majority of this sugar is produced in the Gulf/Central and Southeast regions primarily due to strategic shipping logistics to port-based U.S. cane refiners (figure 17).

Estándar (standard) sugar, which is the most-used sugar in Mexico, remains the largest share of Mexican sugar production, followed by refined sugar (figure 12). In 2021/22, 3.747 million MT (61 percent of Mexico’s total sugar production) of estándar and 1.362 million MT of refined sugar (22 percent) were produced, up almost 337,000 MT and 13,500 MT, respectively, from last year.

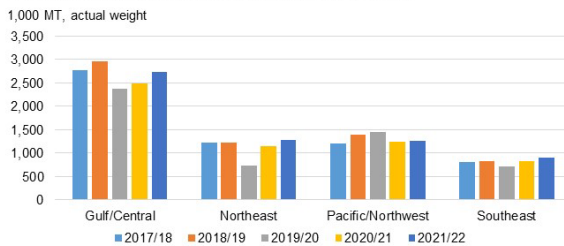
The 2022/23 production forecast remains at 6 million MT. USDA, Foreign Agriculture Service’s post in Mexico City indicated that drought in several areas—including the major-producing states of Veracruz and San Luis Potosi—and reduced fertilizer application due to high prices may lower yields.

Figure 13
Mexican sugarcane harvested area, by region, 2017/18–2021/22



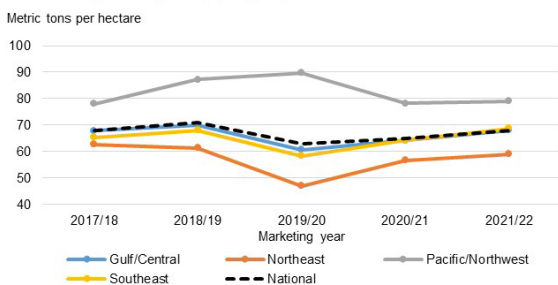
Source: Mexico’s National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 14
Mexican sugar production, by region, 2017/18–2021/22



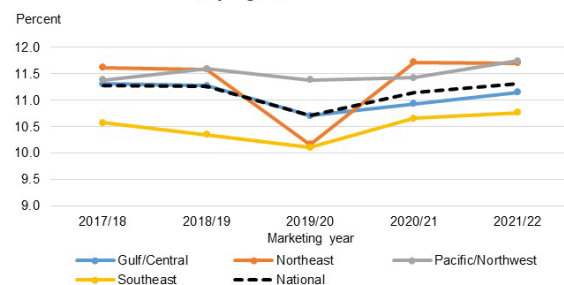
MT = metric tons.
Source: Mexico’s National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 15
Mexican sugarcane yields, by region, 2017/18–2021/22



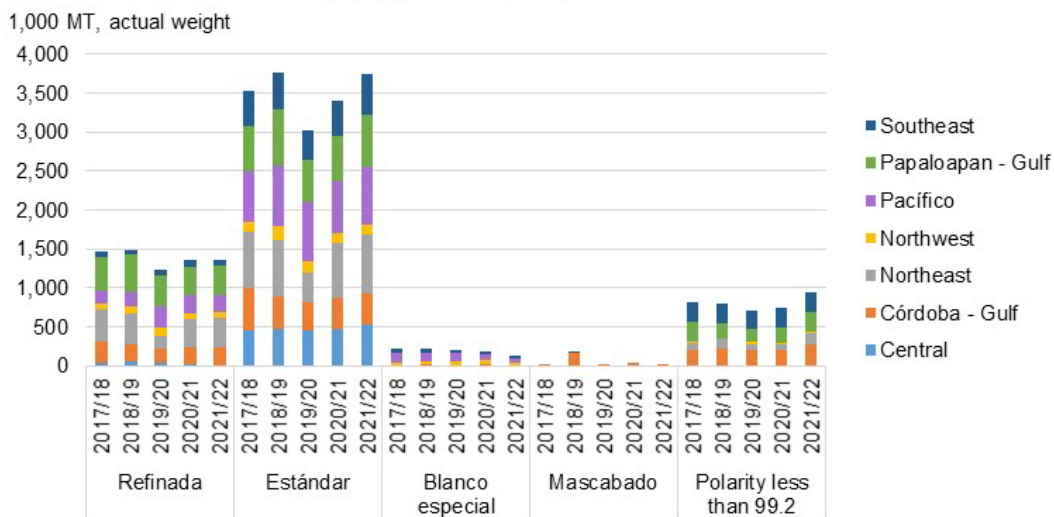
Source: Mexico’s National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 16
Mexican extraction rates, by region, 2017/18–2021/22



Source: Mexico’s National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 17
Mexican sugar production, by type and region, 2017/18–2021/22



MT = Metric tons.
 Note: Years on the x-axis represent marketing years.
 Source: Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Deliveries Unchanged in 2021/22 and 2022/23

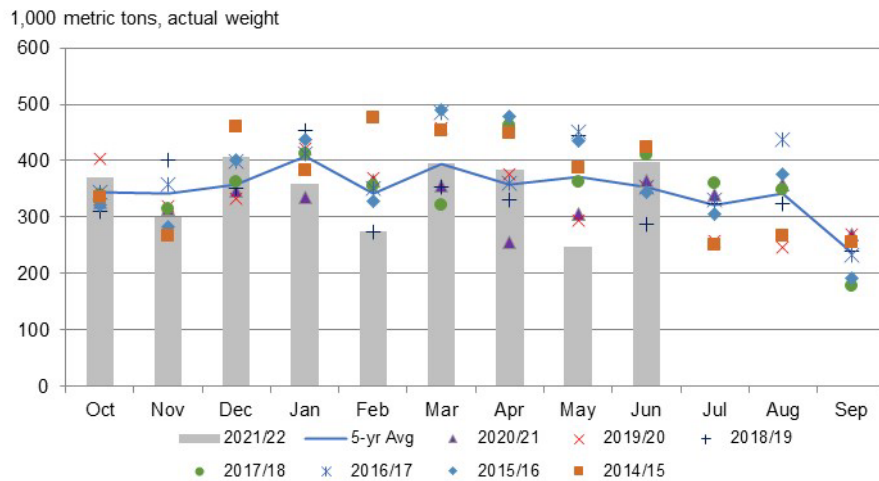
Sugar deliveries for human consumption—both at 4.050 million MT in 2021/22 and 2022/23—are carried over from last month (table 9). While May 2022 registered the lowest since 2014/15, sugar deliveries rebounded in June (figure 18). Through three quarters of data in 2021/22 (October to June), cumulative deliveries represent an estimated 77 percent of 4.050 million MT, the highest pace since 2008/09.

The 2021/22 and 2022/23 consumption of high-fructose corn syrup (HFCS) at 1.310 million MT and 1.317 million MT, respectively, also did not change from last month. As with sugar, HFCS deliveries in June were strong relative to prior years (figure 19). Cumulatively in the last 9 months, an estimated 74 percent of the 2021/22's 1.310 million MT have been consumed, which is only behind 2013/14's 76 percent.

The other delivery component, which is the amount of sugar destined for the *Industria Manufacturera, Maquiladora y de Servicios de Exportación* (IMMEX) program, equal to 497,000 MT in 2021/22 and 2022/23 are also unchanged from last month. Out of the total, 432,000 MT are sourced from domestic production and the remaining (65,000 MT) from imports. IMMEX, a federal program, allows manufacturers of sugar-containing products to use imported and

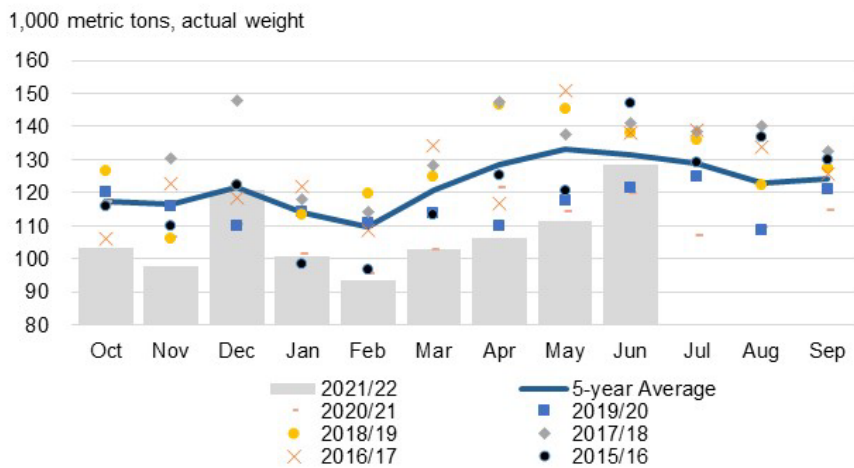
domestically produced sugar as inputs if the products are exported within six months. Monthly data show that the pace in the last 9 months have been relatively high as reflected by the fact that 69 percent of the total 497,000 MT has already been delivered (figure 20).

Figure 18
Mexico sugar deliveries for consumption, monthly, 2014/15–2021/22



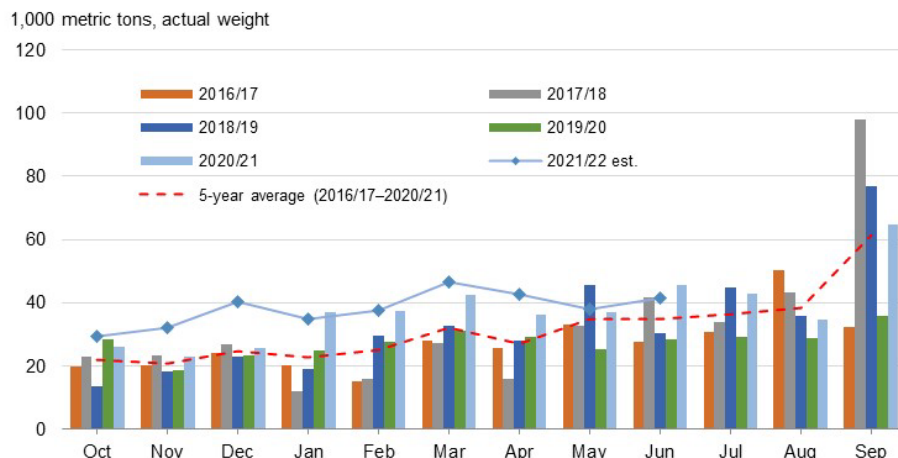
Source: Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 19
Mexico high-fructose corn syrup consumption, monthly, 2015/16–2021/22



Source: Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 20
Mexican domestic IMMEX deliveries, monthly, 2016/17–2021/22



IMMEX = Industria Manufacturera, Maquiladora y de Servicios de Exportación.
 Source: Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Appendix

The regions for the purpose of the USDA, Farm Service Agency, *Sweetener Market Data* report are as follows:

- New England - Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut;
- Middle Atlantic - New York, New Jersey, and Pennsylvania;
- North Central - Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas;
- South - Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama Mississippi, Arkansas, Louisiana, Oklahoma, and Texas;
- West - Alaska, Hawaii, Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, and California; and
- Puerto Rico - entered separately and included with U.S. total.

Suggested Citation

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