



Sugar and Sweeteners Outlook: May 2023

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Lower U.S. Supply Projected in 2023/24

In the May 2023 *World Agricultural Supply and Demand Estimates (WASDE)*, U.S. sugar supply in 2023/24 is projected at 14.259 million short tons, raw value (STRV), 2 percent lower than 2022/23, on lower beginning stocks, production, and imports. Production is forecast to decline by 1 percent from 2022/23 as the lower beet sugar production offsets the increase in cane sugar production. The initial forecast for total imports is down 4 percent partly because the quantities for the World Trade Organization (WTO) raw and refined tariff-rate quotas (TRQs) and free trade agreements (FTAs) are set at the minimum commitment levels, and high-tier tariff imports are at 120,000 STRV. The additional Specialty Sugar TRQ has yet to be announced, and thus excluded. Sugar for total and food use in 2023/24 is set at 12.815 million STRV and 12.675 million respectively, both unchanged from 2022/23. The 2023/24 ending stocks are 1.444 million STRV and the stocks-to-use ratio is 11.3 percent.

Mexico's sugar production in 2022/23 is reduced by 175,000 metric tons (MT) from last month to 5.385 million based on production data through week 31. Given this month's changes to Mexico's supply and use balance sheet, USDA lowered the 2022/23 Mexican exports to the U.S. by 56,000 MT to 1.062 million, which is below the March U.S. Needs of 1.118 million (equivalent to 1.306 million short tons, raw value). Week 32 data, which was released just hours before the *WASDE* and thus not incorporated, implies an even lower production estimate of 5.316 million MT. As such, it is increasingly unlikely that the export quotas for raw and refined sugar will be met. Imports for the *Industria Manufacturera, Maquiladora y de Servicios de Exportación* (IMMEX) are unchanged pending availability of publicly available official data.

U.S. Outlook Summary

Lower Outlook for U.S. Sugar Supply in 2022/23 and 2023/14; Use Raised

In the May 2023 *WASDE*, U.S. sugar supply is projected at 14.259 million short tons, raw value (STRV), 2 percent lower than 2022/23 on lower beginning stocks, production, and imports (table 1, figure 1). Beginning stocks in 2023/24 are 86,000-STRV lower than 2022/23 given the adjustments made to the 2022/23 supply-use balance sheet. Production in 2023/24 is forecast at 9.225 million STRV, a decline of 1 percent from 2022/23, as the lower beet sugar production (down 3.8 percent) offsets the increase in cane sugar production (up 3.3 percent). The initial 2023/24 total imports forecast is down 4 percent partly because the quantities for the World Trade Organization (WTO) raw and refined tariff-rate quotas (TRQs) and free trade agreements are set at the minimum levels, while high-tier tariff imports are at 120,000 STRV. The additional Specialty Sugar TRQ has yet to be announced and is therefore not included in this forecast. In 2022/23, it was set at 220,462 STRV (or 200,000 MT, raw value). The special article on U.S. organic sugar sources indicates a growing demand. Total use in 2023/24 is set at 12.815 million STRV, of which 12.675 million is for food use. The 2023/24 food use forecast is carried over from the 2022/23 food use estimate, which is up 75,000-STRV from last month. With the 2023/24 ending stocks at 1.444 million STRV, the stocks-to-use ratio is 11.3 percent.

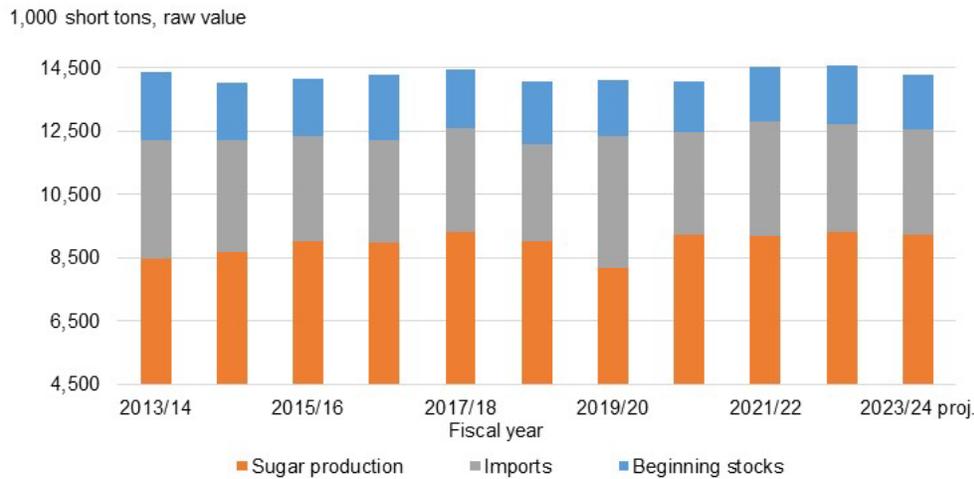
For 2022/23, beet sugar production is up slightly from last month on a minor adjustment to sucrose recovery and the availability of final data on imported sugarbeets from Canada. Cane sugar production is reduced by 29,000 STRV on Florida processors' reporting of lower sugarcane yield and sucrose recovery rate as the harvest campaign nears completion. Based on the Mexican production report through week 31 and supply-use adjustment to its balance sheet, imports from Mexico are reduced by 65,000 STRV to 1.241 million. This would be below the March U.S. Needs of 1.306 million STRV. USDA also estimates the production of low polarity sugar to be below 70 percent of the U.S. Needs. Week 32 data, which was released hours before the *WASDE* and thus not incorporated, implies an even lower Mexican production estimate of 5.316 million MT. U.S. sugar deliveries for 2022/23 are increased by 75,000 STRV to 12.675 million on pace to date. The net effect is a 2022/23 ending stocks of 1.734 million STRV, 163,000-STRV lower than last month. This translates to an ending stocks-to-use ratio of 13.5 percent, down 1.4 percentage points from last month's 14.9 percent.

Table 1: U.S. sugar: supply and use by fiscal year (October/September), May 2023

Items	2021/22	2022/23		2023/24		
	Final	April (estimate)	May (estimate)	Monthly change	May (forecast)	
		1,000 short tons raw value				
Beginning stocks	1,705	1,820	1,820	0	1,734	
Total production	9,157	9,306	9,283	-23	9,225	
Beet sugar	5,155	5,150	5,155	6	4,961	
Cane sugar	4,002	4,156	4,127	-29	4,264	
Florida	1,934	2,044	2,015	-29	2,065	
Louisiana	1,944	2,034	2,034	0	2,092	
Texas	124	78	78	0	107	
Total imports	3,646	3,511	3,446	-65	3,300	
Tariff-rate quota imports	1,579	1,730	1,730	0	1,413	
Other program imports	298	250	250	0	250	
Non-program imports	1,769	1,531	1,466	-65	1,637	
Mexico	1,379	1,306	1,241	-65	1,517	
High-duty	390	225	225	0	120	
Total supply	14,508	14,637	14,549	-88	14,259	
Total exports	29	35	35	0	35	
Miscellaneous	81	0	0	0	0	
Total deliveries	12,578	12,705	12,780	75	12,780	
Domestic food and beverage use	12,470	12,600	12,675	75	12,675	
To sugar-containing products re-export program	80	80	80	0	80	
For polyhydric alcohol, feed, other alcohol	27	25	25	0	25	
Commodity Credit Corporation (CCC) for ethanol	0	0	0	0	0	
Total use	12,688	12,740	12,815	75	12,815	
Ending stocks	1,820	1,897	1,734	-163	1,444	
Private	1,820	1,897	1,734	-163	1,444	
Commodity Credit Corporation	0	0	0	0	0	
Stocks-to-use ratio (percent)	14.3	14.9	13.5	-1.4	11.3	

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

Figure 1
U.S. sugar supply components, 2013/14–2023/24

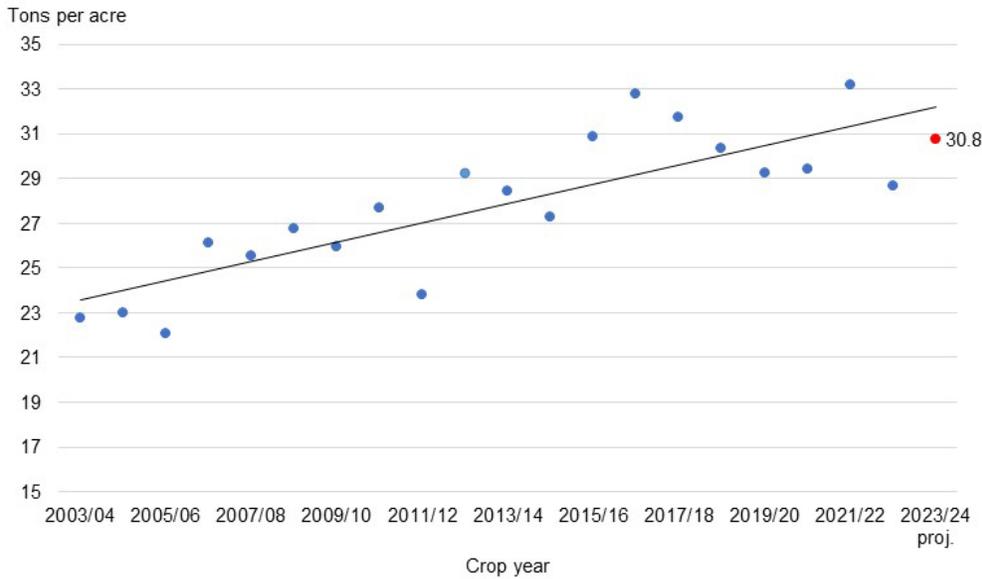


Beet Sugar Production in 2023/24 Lower Than 2022/23

U.S. beet sugar production in fiscal year 2023/24 is projected at 4.961 million STRV. If realized, this would be 194,000-STRV lower (4 percent) than the 2022/23's revised estimate of 5.155 million. With no USDA, National Agricultural Statistics Service (NASS) projection, the national yield forecast of 30.8 tons per acre is derived using a regression model that specifies yield as a function of the NASS planting progress report at week 19 for the 4 largest sugarbeet-growing States (Idaho, Michigan, Minnesota, and North Dakota). Growers typically consider week 19 as relatively good predictor of final yields since mid-May is seen as a critical cut-off point to achieve optimal crop development before harvest. If the 30.8 tons-per-acre yield is realized, it would be above last year (28.6 tons/acre) and the 5-year average (30.2 tons/acre), but below the long-term trend (32.7 tons/acre) (figure 2).

Planting typically occurs in late April and early May to allow the sugarbeets sufficient time to deposit sugar. Through May 14, planting progress in the 4 largest growing States averaged 79 percent, which is ahead of last year's pace (35 percent) and that of the 5-year average (72 percent) (figure 3). Planting in Idaho (99 percent) and Michigan (95 percent) are nearly completed. After a delayed start due to unusually heavy April snows and cold temperatures, planting is on track in Minnesota (75 percent) and North Dakota (60 percent). In other States, planting is almost done in Oregon and on par with the 5-year average in Wyoming, but behind in Colorado and Montana.

Figure 2
National sugarbeet yields, 2003/04 to 2023/24



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

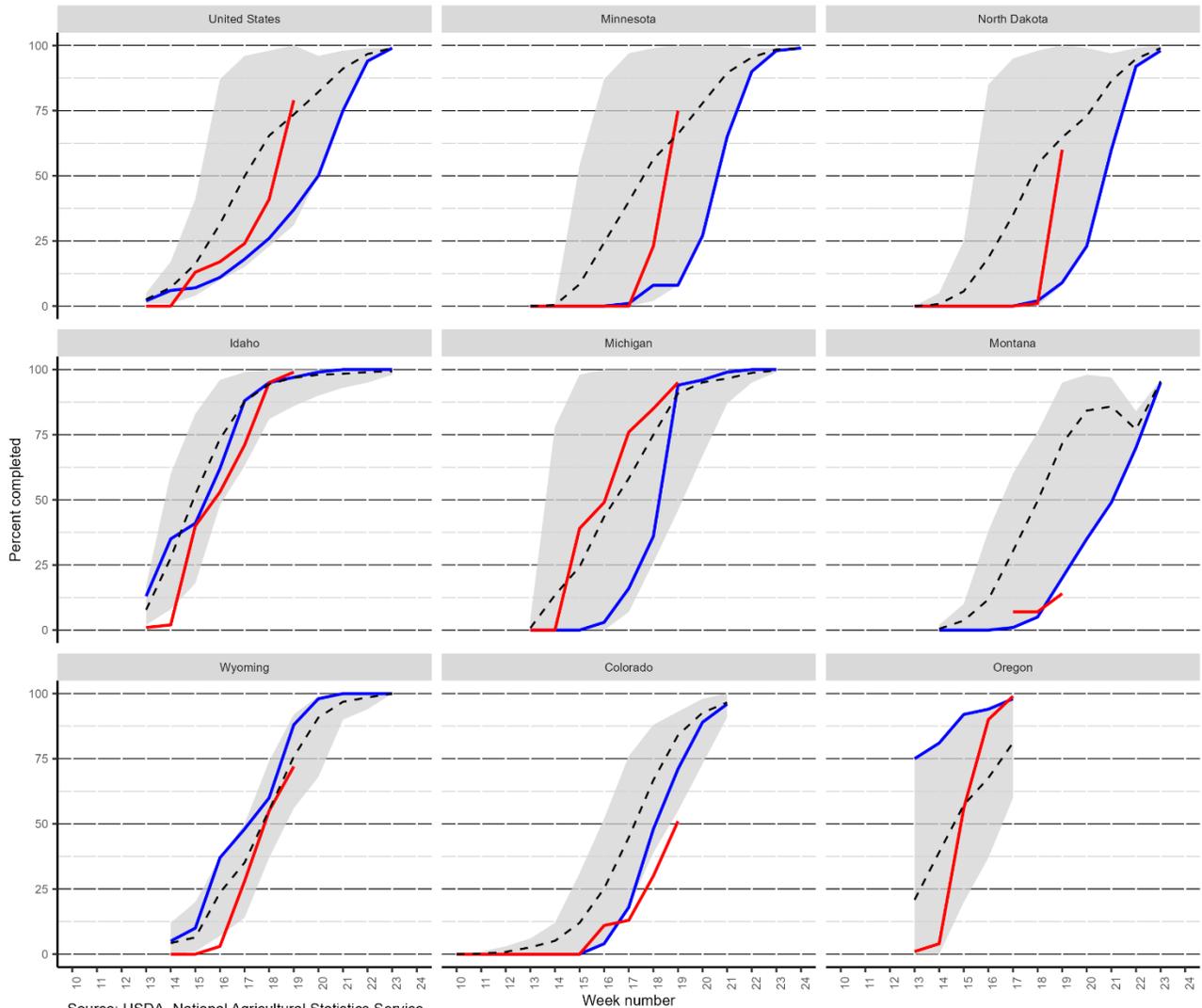
The planted area forecast from the NASS March 2023 *Prospective Plantings* report (1.111 million acres), along with a 10-year Olympic¹ average harvest-to-planted ratio (98 percent), is used to forecast the 2023/24 harvested area (1.084 million acres). The harvested area would be 53,000-STRV lower (5 percent) than last year and 9,000-STRV lower (1 percent) than the 5-year average mainly due to the Sidney Sugars closure and competition from alternative crops for rotation in some areas. The forecast for planted acreage will be updated in the NASS June 30 *Acreage* report, which would also include an initial forecast for harvested acreage.

The product of the yield (30.8 tons per acre) and harvested area (1.084 million acres) projections gives a sugarbeet production forecast in 2023/24 of 33.348 million short tons (table 2). Assuming a 10-year average for sugarbeet pile shrink (6.34 percent), sucrose recovery (14.62 percent), and early beet sugar production (633,000 tons both for August–September 2023 and August–September 2024), beet sugar production for the 2023/24 crop year and fiscal year is both projected at 4.961 million STRV.

¹ While the simple average uses all observations, the Olympic average eliminates the high and low observations, and then averages the remaining observations.

Figure 3

Crop year planting progress by State, 2022/23 (blue), 2023/24 (red), average (black), and range (gray area), since 2000



Source: USDA, National Agricultural Statistics Service.

Beet sugar production in fiscal year 2022/23 is increased by 5,000 STRV to 5.155 million from last month, matching that of 2021/22. The increase is based on a minor adjustment to sucrose recovery using actual data through March and the availability of final data on imported sugarbeets from Canada. Both data are reported in the USDA Farm Service Agency's (FSA) *Sweetener Market Data (SMD)* report. Sucrose recovery from sliced beets is slightly reduced from last month's 15.39 percent to 15.38 percent (figure 4) but would still be the highest in the last decade. The resulting 4,000-STRV reduction from lower recovery is offset by a 9,000-STRV increase in sugar production (39,325 STRV) from Canadian sugarbeets, which are typically imported in February and March.

Table 2: Beet sugar production calculations, 2020/21–2023/24

	2021/22	2022/23	2022/23	Monthly	2023/24
		April	May	change	May
Sugarbeet production (1,000 short tons) 1/	36,751	32,574	32,574	0	33,348
Sugarbeet shrink (percent)	7.9	6.99	6.99	0.00	6.34
Sugarbeet sliced (1,000 short tons)	33,850	30,296	30,296	0	31,235
Sugar extraction rate from slice (percent)	14.63	15.39	15.38	-0.01	14.62
Sugar from beets sliced (1,000 STRV) 2/	4,954	4,664	4,660	-4	4,566
Sugar from molasses (1,000 STRV) 2/	341	360	360	0	360
Crop year sugar production (1,000 STRV) 2/	5,294	5,024	5,020	-4	4,926
Aug.–Sep. sugar production (1,000 STRV)	676	537	537	0	633
Aug.–Sep. sugar production of subsequent crop (1,000 STRV)	537	633	633	0	633
Sugar from imported beets (1,000 STRV) 3/	N/A	30	39	9	35
Fiscal year sugar production (1,000 STRV)	5,155	5,150	5,155	6	4,961

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

1/ USDA, National Agricultural Statistics Service.

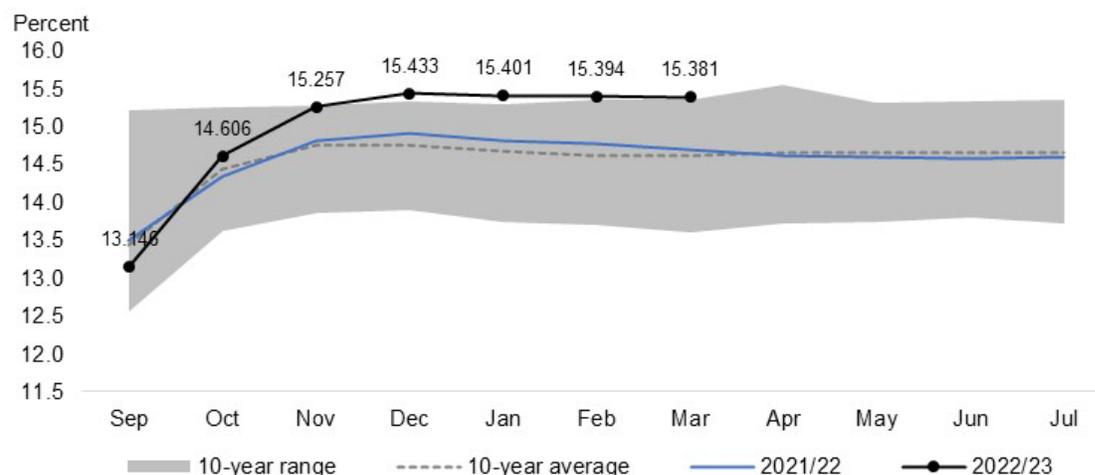
2/ August–July.

3/ Sugar from imported beets in 2020/21 and 2021/22 are already included in the crop year production. Typically, this crop 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.

Figure 4

Cumulative sugar extraction rate, beet sugar produced per sugarbeet sliced, by crop year, 2012/13–2022/23



Source: USDA, Economic Research Service; USDA, Farm Service Agency.

Record-high Forecast for 2023/24 Cane Sugar Production

Cane sugar production for 2023/24 is forecast at 4.264 million STRV, a 137,000-STRV increase (or 3 percent) from last year as production is expected to be higher than 2022/23 in all 3 States (table 3). If realized, this would be a new record, overtaking 2020/21’s 4.142 million STRV by

122,000 STRV (3 percent). The projections are based on extrapolation from recent years and reflect trends in harvested area, yield, and recovery rate for each State. This approach is used because the first official 2023/24 NASS statistics for sugarcane, which includes the initial forecasts for sugarcane harvested, will not be released until the June 30 *Acreage* report and the initial processors' forecast for 2023/24 will not be available from *SMD* until next month.

Production in Florida for 2023/24 is projected at 2.065 million STRV. This would be a 50,000-STRV increase (3 percent) from 2022/23's 2.015 million, which was decreased by 29,000 in the May *WASDE* due to updated processors' reporting. The 2023/24 projection reflects higher yields, recovery rates, and harvested area as current high prices are expected to motivate growers to increase production potential through area expansion and enhanced crop management practices.

Louisiana cane sugar production for 2023/24 is forecast at 2.092 STRV, up by 58,000 STRV (3 percent) from last year's 2.034 million. This implies that Louisiana would have produced more sugar than Florida for three consecutive years (2020/21 to 2023/24), driven mostly by area expansion that offsets the State's yield that tends to be lower than Florida's. Without a competing alternative crop, high sugar prices have been encouraging growers to expand cane area, which has been mostly occurring on the northern edges of the State's growing region. This was made possible by the adoption of higher yielding varieties that can better withstand late-season frost conditions from December to January.

Production in Texas for 2023/24 is projected at 107,000 STRV, an increase of 29,000-STRV (38 percent) from last year's 78,000 STRV. The outlook is for harvested acres, yield, and recovery rate to rebound from last year's insufficient irrigation water and weather-plagued campaign.

Cane sugar production in fiscal year 2022/23 is reduced by 29,000 STRV from last month to 4.127 million, all attributed to Florida. There were no changes to Louisiana and Texas. Florida's cane sugar production is lowered from 2.044 million STRV to 2.015 million based on processors' reporting of lower sugarcane yield and sucrose recovery rate as the harvest campaign nears completion. Barring any significant reduction in early season (September) production, Louisiana's fiscal year 2022/23 sugar production estimate of 2.034 million is higher than Florida.

Table 3: U.S. sugarcane and cane sugar production, by State, 2020/21–2023/4

	2020/21	2021/22	2022/23 est.	2023/24 proj.	Annual change (percent)
Florida					
Sugarcane harvested for sugar and seed (1,000 acres)	423.3	403.5	401.9	407.6	1.4
Sugarcane harvested for sugar (1,000 acres)	409.0	388.0	386.0	392.8	1.8
Sugarcane yield (short tons per acre)	44.3	42.4	44.5	45.8	2.9
Sugarcane production (1,000 net tons)	18,119	16,451	17,177	17,982	4.7
Recovery rate (percent)	11.53	11.76	11.73	11.48	-2.1
Sugar production (1,000 STRV)	2,090	1,934	2,015	2,065	2.5
Louisiana					
Sugarcane harvested for sugar and seed (1,000 acres)	488.4	495.3	497.8	507.5	1.9
Sugarcane harvested for sugar (1,000 acres)	461.0	466.0	475.0	481.8	1.4
Sugarcane yield (short tons per acre)	32.9	29.0	33.3	32.2	-3.4
Sugarcane production (1,000 net tons)	15,167	13,514	15,818	15,498	-2.0
Recovery rate (percent)	13.03	13.92	12.97	12.97	0.0
Crop year sugar production (1,000 STRV) 1/	1,976	1,881	2,054	2,092	1.8
Sep. sugar production (1,000 STRV)	70	12	75	55	-26.6
Sep. sugar production of subsequent crop (1,000 STRV)	12	75	55	55	0.0
Fiscal year sugar production (1,000 STRV) 1/	1,918	1,944	2,034	2,092	2.8
Texas					
Sugarcane harvested for sugar and seed (1,000 acres)	36	36	31	35	12.1
Sugarcane harvested for sugar (1,000 acres)	33	34	31	33	7.9
Sugarcane yield (short tons per acre)	31.5	30.8	22.6	26.1	15.6
Sugarcane production (1,000 net tons)	1,052	1,056	698	870	24.7
Recovery rate (percent)	12.0	11.7	11.1	12.3	10.2
Sugar production (1,000 STRV)	134	124	78	107	37.3
United States					
Sugarcane harvested for sugar and seed (1,000 acres)	947.6	935.2	930.9	950.1	2.1
Sugarcane harvested for sugar (1,000 acres)	903.4	888.3	891.9	907.9	1.8
Sugarcane production (1,000 net tons)	38.0	34.9	37.8	37.8	0.2
Sugarcane production (1,000 short tons)	34,338	31,021	33,693	34,351	2.0
Recovery rate (percent)	12.2	12.7	12.3	12.4	0.8
Crop year sugar production (1,000 STRV)	4,200	3,939	4,147	4,264	2.8
Fiscal year sugar production (1,000 STRV)	4,142	4,002	4,127	4,264	3.3

STRV = short tons, raw value; est. = estimated; proj.=projected.

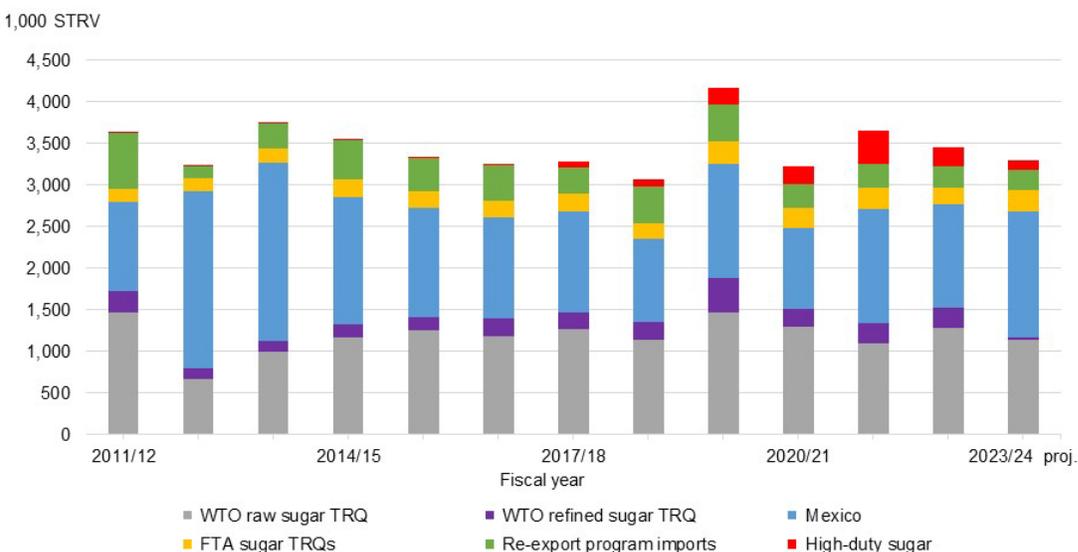
1/ Louisiana's harvest and processing of sugarcane begins typically in September, thus the crop year and fiscal year sugar production for this State tend to be slightly different. Fiscal year production is the final value used for official USDA estimates. For Florida and Texas, the crop year is the same as the fiscal year.

Source: USDA, Farm Service Agency; USDA, National Agricultural Statistics Service; USDA, World Agricultural Outlook Board.

Imports in 2023/24 Set at Minimum Levels; 2022/23 Down on Lower Imports Expected from Mexico

The initial 2023/24 total imports forecast is set at 3.300 million STRV, down by 146,000 STRV (4 percent) from 2022/23's 3.446 million (figure 5). This is partly because the TRQ imports of 1.413 million STRV, which include the WTO raw sugar TRQ net of the expected shortfall (1.137 million²), WTO refined TRQ (24,251 STRV³), and bilateral FTAs⁴ (250,849 STRV), are set at the minimum commitment levels. The additional Specialty Sugar TRQ has yet to be announced by the USDA Secretary and is therefore not included in this forecast. Imports under the re-export and polyhydric alcohol programs—referred to as “Other Program” imports in the *WASDE*—are set at the base level of 250,000 STRV. High-tier tariff imports are initially pegged at 120,000 STRV, higher than the traditional 50,000 STRV given the sustained large volume imported under this category in recent years. Finally, imports from Mexico are at 1.517 million STRV, a residual projection based on Mexico's 2023/24 supply-use balance; that is, the number is not derived using the suspension agreements' U.S. Needs formula.

Figure 5
U.S. sugar imports by type, 2011/12–2023/24



STRV = short tons, raw value; FTA = free trade agreement; WTO = World Trade Organization; TRQ = tariff-rate quota; proj. = projected.
Source: USDA, Foreign Agricultural Service.

² The minimum raw sugar TRQ commitment is 1,231,497 STRV (equivalent to 1,117,195 metric tons, raw value or MTRV). The projected shortfall—an estimate of the quantity of quota that the 40 WTO countries will not be able to fill—is 94,059 STRV. The difference between the two is equal to the 2023/24 initial WTO raw sugar TRQ of 1,137,438 million STRV.

³ Equivalent to 22,000 MTRV.

⁴ Per the negotiation, the free trade agreement for each country increases each year by a small, fixed amount conditional on the country's demonstration of trade surplus.

Total imports in 2022/23 are lowered by 65,000 STRV to 3.446 million from last month solely on Mexico. Based on Mexican production data through week 31 and supply-use balance, expected imports from Mexico are reduced from 1.306 million STRV—the final export limit calculated by the Department of Commerce in March (table 4)—to 1.241 million. USDA also reduced the expected Mexican production of less than 99.2 polarity sugar (“Other Sugar”) to 896,809 STRV⁵, which if realized, would be lower than the allotted 70 percent share (914,130 STRV) of the final export limit. As such, the residual estimate for available “Refined Sugar” bound for the U.S. (344,104 STRV⁶) is also lowered this month since the volume cannot be more than 30 percent (391,770 STRV) of the final export limit. Instead, some of the Refined Sugar is expected to be redirected towards fulfilling IMMEX deliveries.

A caveat is that the Mexican production data through week 32, which was released just before the *WASDE* and thus not incorporated, implies an even lower sugar production estimate. As such, it is increasingly unlikely that the export quotas for raw and refined sugar will be met. A detailed discussion is provided in the Mexico Outlook section.

Table 4. U.S. Needs and Mexican Export Limit calculation by the U.S. Department of Commerce

	U.S. Needs (STRV)	Percent to derive Export Limit	Export Limit (STRV)
Fiscal year 2022/23			
July 2022	1,900,775	50	950,388
September 2022	1,618,775	70	1,133,143
December 2022	1,477,400	80	1,181,920
March 2023	1,305,900	100	1,305,900
Other Sugar (at least 70 percent)			914,130
Refined Sugar (at most 30 percent)			391,770

STRV = short tons, raw value.
Source: U.S. Department of Commerce *ACCESS* repository.

The cumulative imports from Mexico between October 2022 and April 2023 of 713,000 STRV is the largest during this period since 2017/18 (table 5) and implies that 57 percent of the expected total imports from Mexico have entered. This pace to date volume is larger than last year and the 5-year average by 69,000 (11 percent) and 122,000 (21 percent), respectively. While the pace was relatively slow in October and November, it picked up in December, January, and May (figure 6).

⁵ Equal to 767,520 metric tons (MT) actual weight. The conversion is provided for consistency with the units used in the Mexico Outlook section.

⁶ Equal to 294,497 MT actual weight.

Table 5: U.S. sugar imports by type, 2017/18–2022/23

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23 est.	5-year average	Over-the-year change		
To-date: October to April			1,000 short tons, raw value (STRV)						STRV	Percent
Mexico	660	547	692	411	644	713	591	69	11	
WTO raw sugar TRQ	856	742	796	932	769	810	819	42	5	
WTO refined sugar TRQ	153	166	334	173	192	193	204	1	1	
FTA sugar TRQ	81	100	130	120	134	157	113	22	17	
Re-export program	170	256	245	115	198	49	197	-149	-75	
High-duty sugar	9	46	64	125	177	165	84	-12	-7	
Total	1,929	1,857	2,262	1,877	2,113	2,086	2,007	-26	-1	
Fiscal year: October to September			1,000 short tons, raw value (STRV)						STRV	Percent
Mexico	1,223	1,000	1,376	968	1,379	1,241	1,189	-138	-10	
WTO raw sugar TRQ	1,272	1,144	1,468	1,296	1,096	1,275	1,272	179	16	
WTO refined sugar TRQ	190	207	408	217	237	241	248	4	2	
FTA sugar TRQ	202	190	276	236	246	213	223	-32	-13	
Re-export program	326	438	432	292	298	250	382	-48	-16	
High-duty sugar	64	91	206	212	390	225	117	-165	-42	
Total	3,277	3,070	4,165	3,221	3,646	3,446	3,395	-200	-5	
Share of to-date to fiscal year total			Percent						Percent	
Mexico	54	55	50	42	47	57	45	11		
WTO raw sugar TRQ	67	65	54	72	70	64	60	-7		
WTO refined sugar TRQ	81	80	82	80	81	80	74	-1		
FTA sugar TRQ	40	53	47	51	55	73	44	19		
Re-export program	52	59	57	39	66	20	47	-47		
High-duty sugar	14	50	31	59	45	73	37	28		
Total	59	60	54	58	58	61	53	3		

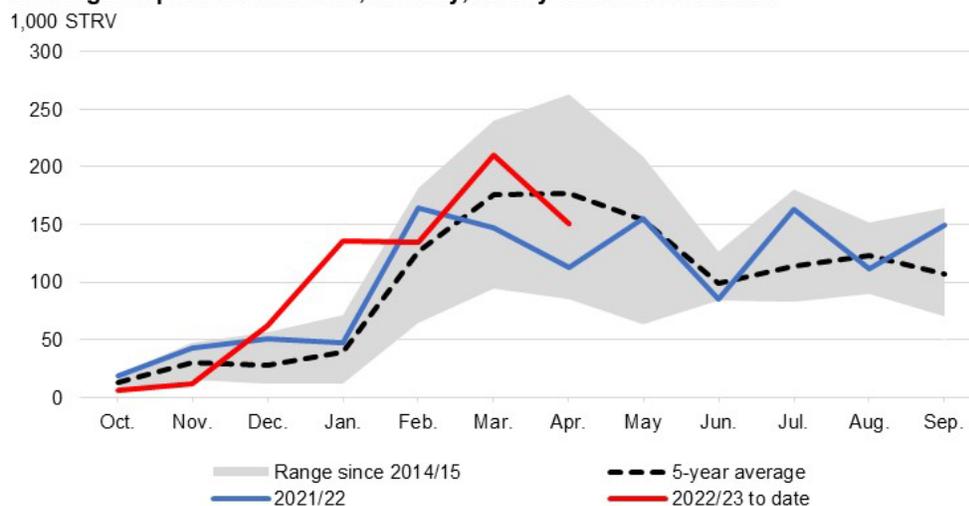
WTO = World Trade Organization; TRQ = tariff-rate quota; FTA = free trade agreement; est. = estimated.

Note: Using the "Total" row as example, the share is interpreted as follows: the cumulative imports of 3.511 million STRV from October to March represent 50 percent of the total fiscal year imports.

Source: USDA, Foreign Agricultural Service.

Figure 6

U.S. sugar imports from Mexico, monthly, fiscal year 2014/15–2022/23



STRV = short tons, raw value.

Source: USDA, Foreign Agricultural Service.

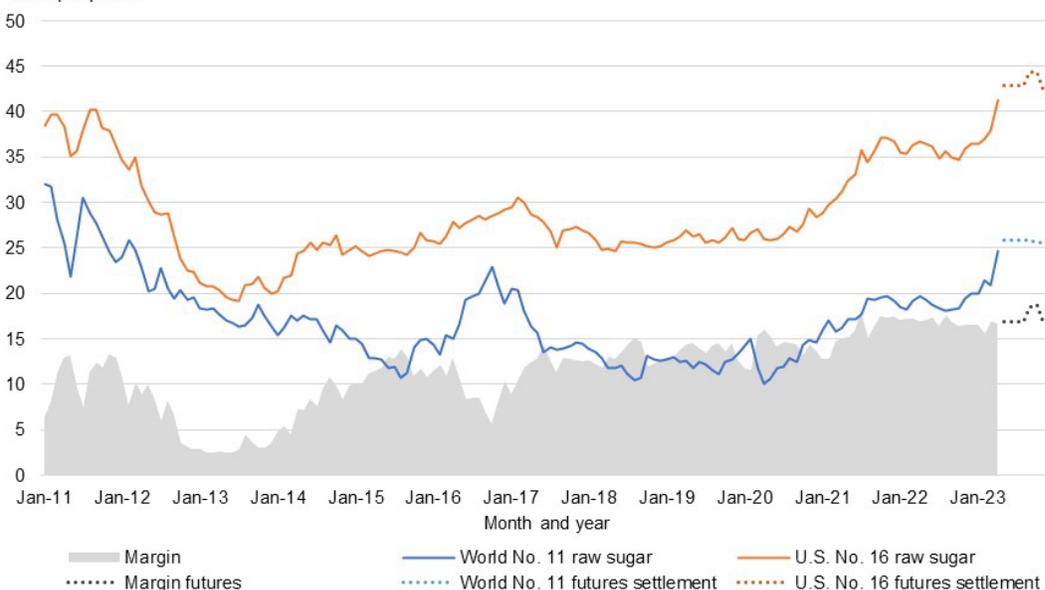
U.S. and World Sugar Prices Extend Rally

U.S. raw sugar No. 16 prices continue to rally, with nearby July averaging 41.27 cents per pound in April and 42.87 cents in the first 2 weeks of May (figure 7). September 2023 through July 2024 futures have consistently been in the 40–43 cents per pound range for the first part of May. The uptick in the No. 16 raw prices continue to be mostly supported by the rally in the world No. 11 raw cane sugar prices amid tight global supplies and concerns about El Niño. Production concerns abound in several major producing countries such as Thailand (due to drought and competition from high-priced cassava) and Brazil (due to rain-delayed harvest of an anticipated bumper Brazilian crop). In April, the No.11 world raw averaged 24.63 cents per pound, an increase of 3.67 cents from March, and the highest since the first quarter in 2012 (24.86). Through the second week of May, futures for July 2023 to March 2024 averaged around 25–26 cents, while May and July 2024 hovered between 22–23 cents.

Figure 7

U.S. and world raw monthly average sugar prices, January 2011 to December 2023

Cents per pound



Note: No. 11 and No. 16 contract futures settlement prices on 5/15/2023 out to December 2023.

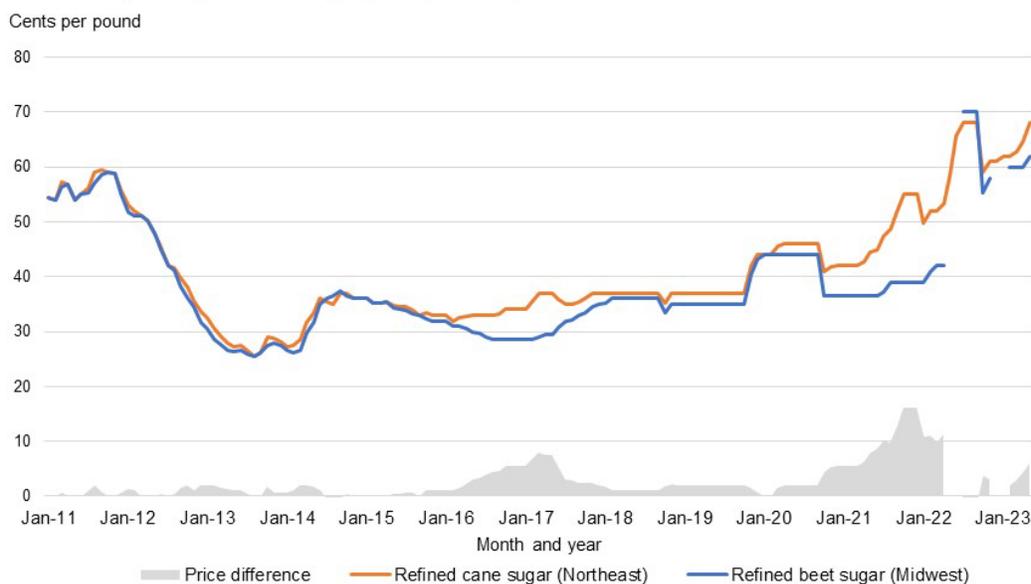
Source: USDA, Economic Research Service; Intercontinental Exchange, Inc.

U.S. refined cane sugar prices have also been steadily climbing (figure 8). After averaging 65.25 cents per pound in April, the Sosland May 3 *Sweetener Report* raised the 2022/23 spot price for the Northeast refined cane sugar (from 66 to 68 cents) and the nominal price for Midwest refined beet sugar (from 60 to 62 cents). The calendar year 2024 offer price for refined

cane sugar also appreciated from 60 to 61 cents per pound, around 12 cents higher (25 percent) than the same time last year. While the 2024 offer price for refined beet sugar stayed within the 56 to 58 cents-per-pound range, these levels are about 33 percent higher than last year.

The current market conditions, including high world sugar prices for both raw and refined sugar, reduced forecast of exportable global supplies, well-sold positions of domestic refined beet and cane sugar, influx of high-tier imports, and uncertainty in Mexico’s fulfillment of its export quota, coalesce in rendering an environment for sugar prices to be sustained at such historically high levels.

Figure 8
U.S. monthly average refined sugar prices, January 2011 to December 2023



Note: Refined beet sugar was unquoted by Sosland due to lack of spot supplies, thus there are breaks in the refined beet sugar price data (May, June, and December 2022; January 2023)
 Sources: USDA, Economic Research Service; Sosland Sweetener Report.

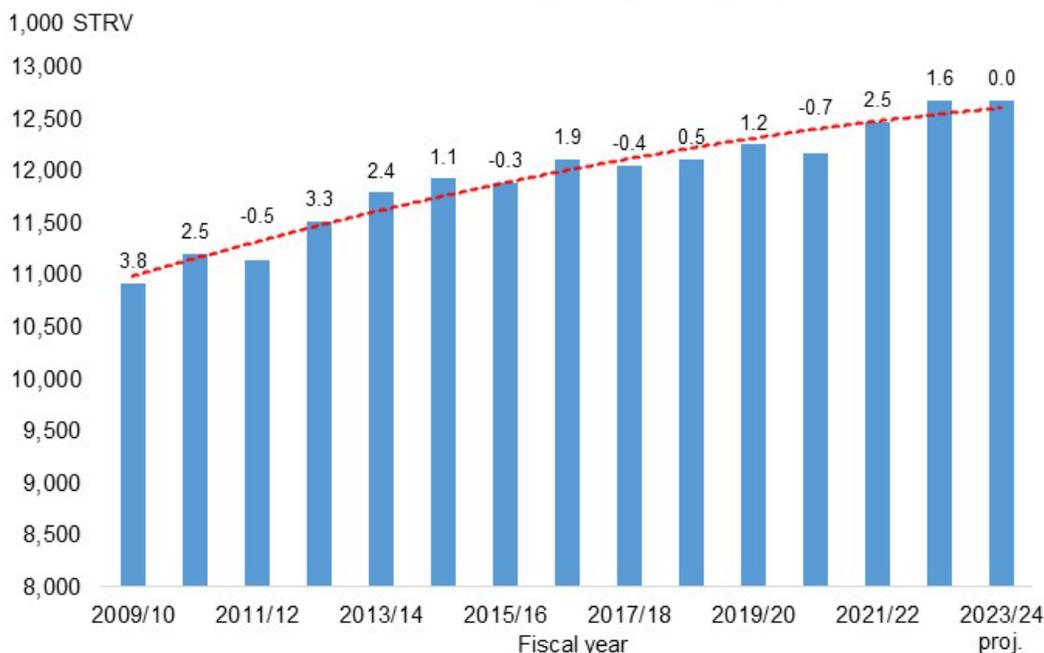
Sugar Deliveries in 2022/23 Raised and Carried Over to 2023/24

The 2022/23 forecast of sugar delivered for human consumption is increased by 75,000 STRV from last month to 12.675 million STRV on strong pace for the first half of the fiscal year. If realized, this reflects a 205,000-STRV increase (1.6 percent) from 2021/22’s 12.470 million,

reflecting a second consecutive year of increase (figure 9). With the rest of the deliveries' components unchanged, total sugar delivery is at 12.780 million STRV for both 2022/23 and 2023/24. The 12.675 million STRV is carried over to 2023/24 given the uncertainty if the annual growth can be sustained for 3 straight years.

Food and beverage deliveries through the first half of fiscal year 2022/23 are 6.252 million STRV, indicating that 49.3 percent of the estimated 12.675 million STRV have already been delivered (table 6). This pace is under last year's 49.5 percent but above the 5-year (49.2 percent) and 10-year average (48.5 percent). This volume to date surpasses last year's record-high 6.091 million STRV by 74,000 STRV (1 percent) (table 7). This is largely driven by the strong showing in the second fiscal year quarter—the slowest quarter historically—particularly from cane refiners and non-reporters (figure 10). Conversely, beet sugar deliveries, which are constrained by limited supplies as reflected in below-average levels of beet sugar inventory, continue to track the 5-year average.

Figure 9
U.S. sugar deliveries for food and beverage use, fiscal year, 2009/10–2023/24



STRV = short tons, raw value; proj. = projected.
 Note: Labels are annual growth rates (percent).
 Source: USDA, Farm Service Agency.

Table 6: Pace of U.S. food and beverage deliveries, Oct.–Mar., 2010/11–2022/23

	Oct.–Mar. 1,000 short tons, raw value	Fiscal year total	Percent of total
2010/11	5,383	11,193	48.1
2011/12	5,345	11,141	48.0
2012/13	5,526	11,511	48.0
2013/14	5,612	11,786	47.6
2014/15	5,652	11,921	47.4
2015/16	5,779	11,881	48.6
2016/20	5,900	12,102	48.8
2017/18	5,934	12,048	49.3
2018/19	5,944	12,106	49.1
2019/20	6,091	12,250	49.7
2020/21	5,856	12,161	48.2
2021/22	6,178	12,470	49.5
2022/23 est.	6,252	12,675	49.3
5-year average	6,001	12,207	49.2
10-year average	5,764	11,891	48.5

est. = estimated.

Source: USDA, Farm Service Agency.

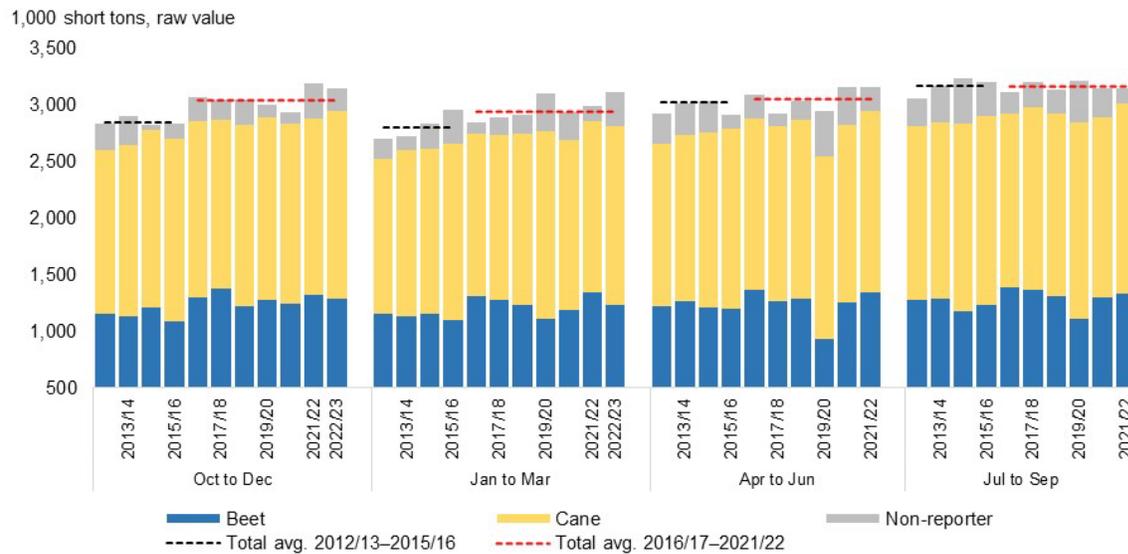
Table 7: Food and beverage deliveries, October–March, 2017/18–2022/23

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23 est.	Annual change	
	1,000 short tons, raw value (STRV)						1,000 STRV	Percent
Beet sugar processors	2,645	2,455	2,382	2,424	2,655	2,510	-145	-5
Cane sugar refiners	2,946	3,105	3,268	3,096	3,073	3,246	173	6
Total reporters	5,591	5,560	5,650	5,520	5,728	5,756	28	0
Non-reporter (direct consumption)	343	384	441	336	450	495	46	10
Total	5,934	5,944	6,091	5,856	6,178	6,252	74	1
	Percent share in total						5-year average	
Beet sugar processors	45	41	39	41	43	40	42	
Cane sugar refiners	50	52	54	53	50	52	52	
Non-reporter (direct consumption)	6	6	7	6	7	8	7	
Total	100	100	100	100	100	100	100	

est. = estimated.

Source: USDA, Farm Service Agency.

Figure 10
U.S. sugar deliveries for food and beverage use, quarterly, 2012/13–2022/23



avg. = average.
 Source: USDA, Farm Service Agency.

The strong cane sugar deliveries are corroborated by the similarly elevated pace in cane refiners' melt⁷ (figure 11). Melt is considered a good indicator of deliveries because cane refiners typically melt raw cane sugar when there is a contemporaneous customer delivery to be fulfilled. Refiners generally prefer to produce and store refined sugar during the month of scheduled delivery to minimize logistical costs, i.e., storing and handling. In addition, the cane refiners' raw sugar inventory as of March is on the higher end of the range (figure 12), which on a year like this—characterized by high prices, unavailability of spot supplies, and uncertainty of imports from Mexico—indicate adequate raw throughput to fill unmet customers' orders.

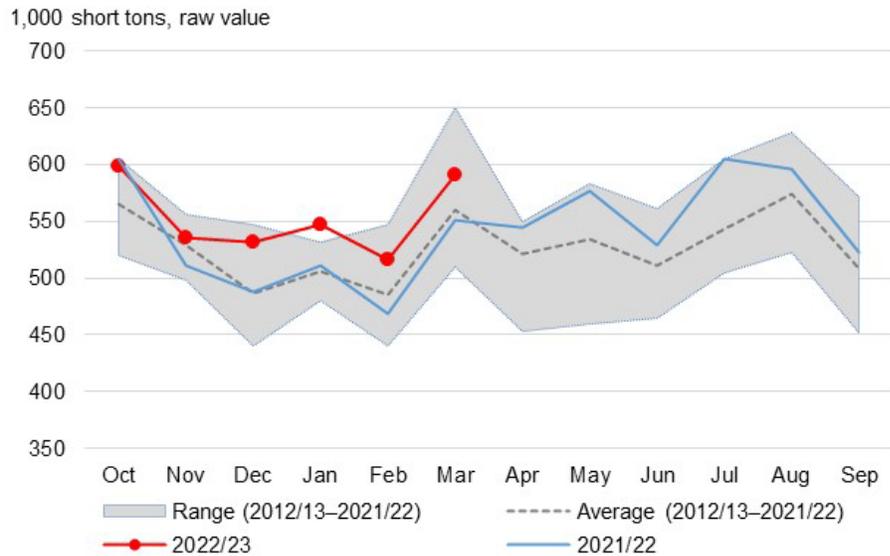
The *Sosland Sweetener Report* has been indicating that deliveries, particularly of beet sugar, have reportedly slowed starting in April due to several factors, such as slower-than-expected food manufacturers sales potentially due to inflation or customers' recession concerns. There is also a concern that the continued entry of high-tier refined sugar imports in relatively high volumes can be crowding out domestic deliveries.

Given that *SMD* data lag by 2 months, the April deliveries data will not be available until next month. However, as Sosland noted, undelivered sugar can serve as a buffer (e.g., offered in the spot market) during the busy spring and summer seasons particularly if Mexico falls short in fulfilling its export quota. The undelivered sugar can also be held for delivery in August—

⁷ Melt refers to the process of converting raw sugar to refined sugar.

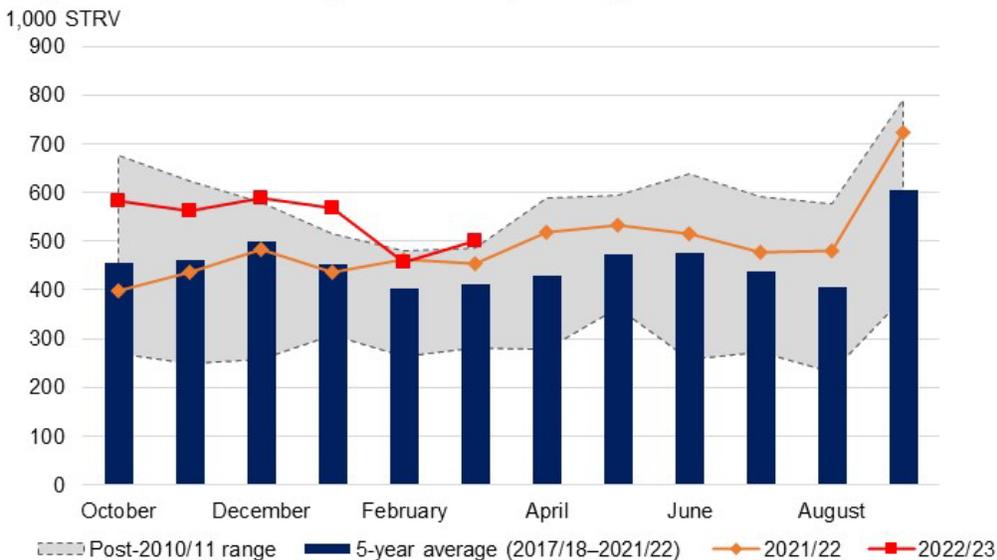
September in case the late planting of sugarbeets and/or weather event (e.g., hurricane in cane growing areas) lowers sugar supply from early season production. Thus, it is still possible that the sugar will eventually be delivered before the fiscal year concludes in September.

Figure 11
Sugarcane refiners' melt, monthly, 2012/13 to 2022/23



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

Figure 12
Sugarcane refiners' raw sugar inventories, monthly, 2010/11 to 2022/23



Note: STRV = short tons, raw value.
 Source: USDA, Farm Service Agency.

Mexico Outlook

Sugar Production in 2022/23 Lowered; Export Quota May Not Be Met

In the May 2023 *WASDE*, USDA lowered Mexico's 2022/23 sugar supply by 165,000 metric tons (MT) from last month to 6.394 million as the 175,000-MT reduction in production offset the 10,000-MT increase in imports for consumption (table 8).

Table 8: Mexican sugar: supply and use by fiscal year (October/September), May 2023

Items	2021/22	2022/23			2023/24
		April (estimate)	May (estimate)	Monthly change	May (forecast)
		1,000 metric tons, actual weight			
Beginning stocks	1,053	964	964	0	889
Production	6,185	5,560	5,385	-175	5,900
Imports	31	35	45	10	45
Imports for consumption	7	10	20	10	20
Imports for sugar-containing product exports (IMMEX) 1/	24	25	25	0	25
Total supply	7,269	6,559	6,394	-165	6,834
Disappearance					
Human consumption	4,113	4,168	4,085	-83	4,139
For sugar-containing product exports (IMMEX)	532	331	350	19	500
Other deliveries and end-of-year statistical adjustment	-16	0	0	0	0
Total	4,629	4,499	4,435	-64	4,639
Exports	1,676	1,123	1,070	-53	1,298
Exports to the United States and Puerto Rico	1,180	1,118	1,062	-56	1,298
Exports to other countries 2/	495	6	8	2	0
Total use	6,305	5,622	5,505	-117	5,937
Ending stocks	964	937	889	-48	897
Stocks-to-human consumption (percent)	23.4	22.5	21.8	-0.7	21.7
Stocks-to-use (percent)	15.3	16.7	16.2	-0.5	15.1
High-fructose corn syrup (HFCS) consumption (dry weight)	1,291	1,291	1,407	116	1,407

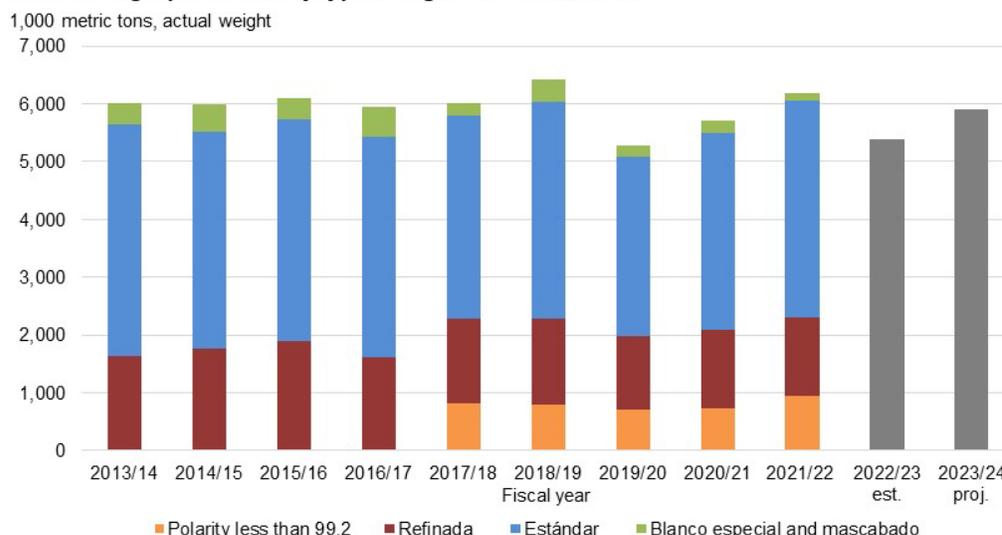
1/ IMMEX = Industria Manufacturera, Maquiladora y de Servicios de Exportación.

2/ Includes exports participating in the U.S. Re-Export Programs.

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

The 2022/23 Mexican production is lowered by 175,000 MT from last month to 5.385 million based on cumulative data through week 31 of the campaign (as of April 29) published by Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA). If realized, this would be the second lowest sugar production in the last decade behind 2019/20's 5.278 million MT and implies an 800,000-MT decrease (13 percent) from last year's 6.185 million (figure 13).

Figure 13
Mexican sugar production by type of sugar, 2013/14–2023/24



The reduced outlook for 2022/23 sugar production ultimately lowers the estimated Mexican exports to the United States from last month to 1.062 million MT after accounting for deliveries to domestic consumption and IMMEX companies, exports to other countries, and a 2.3-months worth⁸ of ending stocks. This lower export volume would be 56,000-MT below the final Mexican export quota calculated by the U.S. Department of Commerce in March (1.117 million MT). Also based on week 31 data, the production of below-99.2 polarity sugar is estimated at 767,520 MT, 15,000-MT lower than the supposed minimum 70 percent share of the total quota (782,344 MT). As such, the residual estimate for available refined sugar bound

⁸ The Government of Mexico typically sets ending stocks equal to 2.5-months worth of sugar supply. This was changed to 2.3-months worth in CONADESUCA's April 20 publication of an updated (third estimate) Mexican sugar balance. While it can appear as relatively small, the downward adjustment in ending stocks releases 77,000 MT for other uses.

for the United States (294,497 MT) is also lowered this month since the volume cannot be more than 30 percent of the final export limit (335,290 MT). Instead, some of the sugar is expected to be redirected towards IMMEX deliveries.

Sugar deliveries for the 2022/23 domestic consumption are lowered by 83,000 MT from last month to 4.085 million based on slower-than-expected pace during the first half of the fiscal year (figure 14). Conversely, high fructose corn syrup (HFCS) deliveries are increased by 116,000 MT to 1.407 million as pace through March has been stronger than the last 2 years. Substituting HFCS for sugar may be occurring, given the lower outlook for Mexican sugar production, and rising Mexican sugar prices. In April, estándar and refined sugar averaged 51.7 cents per pound and 68 cents, respectively in Mexico City (figure 15).

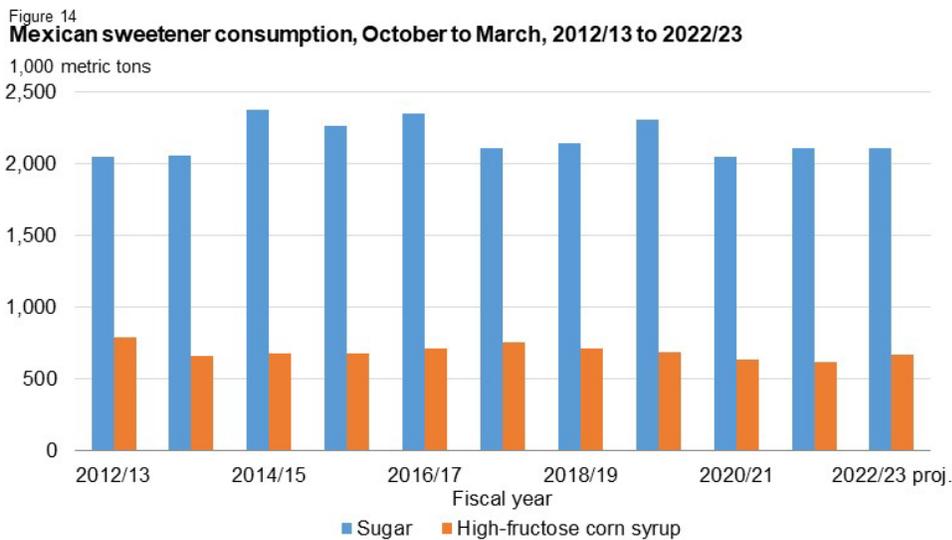
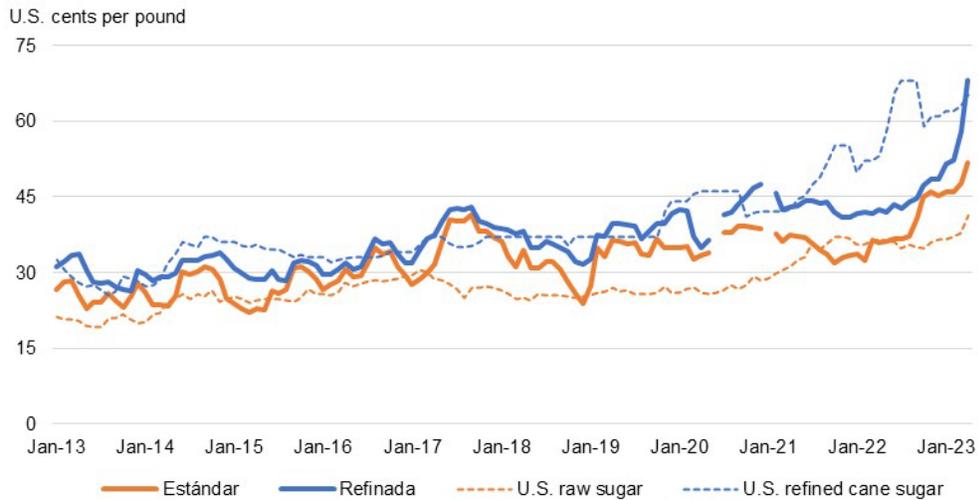


Figure 15
Mexican and U.S. sugar prices, monthly, January 2013 to April 2023



Note: The breaks in the Mexican sugar price series on June 2020 and January 2021 are due to data unavailability.
 Source: USDA, Economic Research Service calculations using data from Intercontinental Exchange, Inc. (U.S. prices), Servicio Nacional de Información e Integración de Mercados (Mexican prices), and U.S. Federal Reserve Bank (exchange rates).

Meanwhile, deliveries for IMMEX in 2022/23 are raised by 19,000 MT to 350,000. This would be close to 2019/2020’s 352,000 MT but lower than the most recent CONADESUCA’s 375,000 MT⁹ published in its April 20 publication of an updated (third estimate) of Mexican sugar balance. Despite the increase, 52 percent of the 350,000 MT have already been delivered, the highest pace since 2010/11 (figure 16). This implies that IMMEX deliveries for the remaining half of the fiscal year would average around 28,000 MT a month, which are relatively low (figure 17). The Mexican imports for IMMEX are maintained at 25,000 MT pending the availability of publicly available official data.

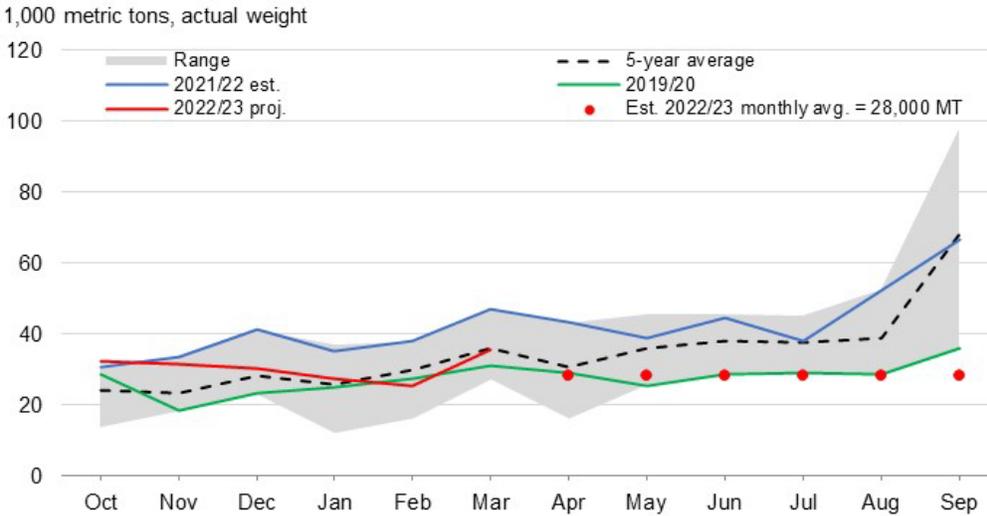
⁹ CONADESUCA’s 375,000-MT estimate of sugar deliveries for IMMEX (i.e., “Ventas a IMMEX” line in the published sugar balance) excludes imports of sugar for IMMEX. Conversely, the USDA’s 350,000-MT estimate accounts for an expected 25,000-MT of Mexican imports for IMMEX.

Figure 16
Mexican domestic IMMEX deliveries, 2010/11–2022/23



IMMEX = Industria Manufacturera, Maquiladora y de Servicios de Exportación; est. = estimated.
 Note: Labels in percent are the share of pace to date through March to the total fiscal year number.
 Source: USDA, Economic Research Service calculations using data from Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 17
Mexican domestic IMMEX deliveries, monthly, 2017/18–2022/23



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

Data Through Week 32 Supports Lower Outlook for 2022/23 Sugar Production

CONADESUCA's week 32 data, which was released just hours before the *WASDE* and thus not incorporated, implies an even lower production estimate of 5.316 million MT (table 9). Seven more mills have ended their campaigns, bringing the total to 22 out of 48. Seven out of the 15 mills that produce less than 99.2 polarity sugar closed in the following order: El Refugio, Central Motzorongo, Eldorado, Central Progreso, Central La Providencia, La Margarita, and Santa Rosalía.

Using week 32's accumulated data, the final sugarcane yield is estimated at 59.29 MT/hectare, final recovery at 10.97 percent, and final area harvested at 816,948 hectares. Consequently, the production estimate for below-99.2 polarity sugar would be even lower (757,963 MT) than that of week 31 (767,520 MT). As with prior month's comparison, the biggest difference between CONADESUCA and USDA lies in the yield expectation, with the former at 60.40 MT/hectare.

Table 9: Comparison of 2022/23 forecasts between USDA and CONADESUCA

	CONADESUCA third estimate (April 2023)	WAOB (Week 32)	Difference	Difference (percent)
Harvested area (1,000 ha)	813.831	816.948	3	0.4
Yield (MT per ha)	60.40	59.29	-1.1	-1.8
Sugarcane processed (1,000 MT)	49,155	48,436	-719	-1.5
Recovery (percent)	11.05	10.97	-0.1	-0.7
Sugar production (1,000 MT)	5,429	5,316	-114	-2.1

ha = hectare; MT = metric tons.

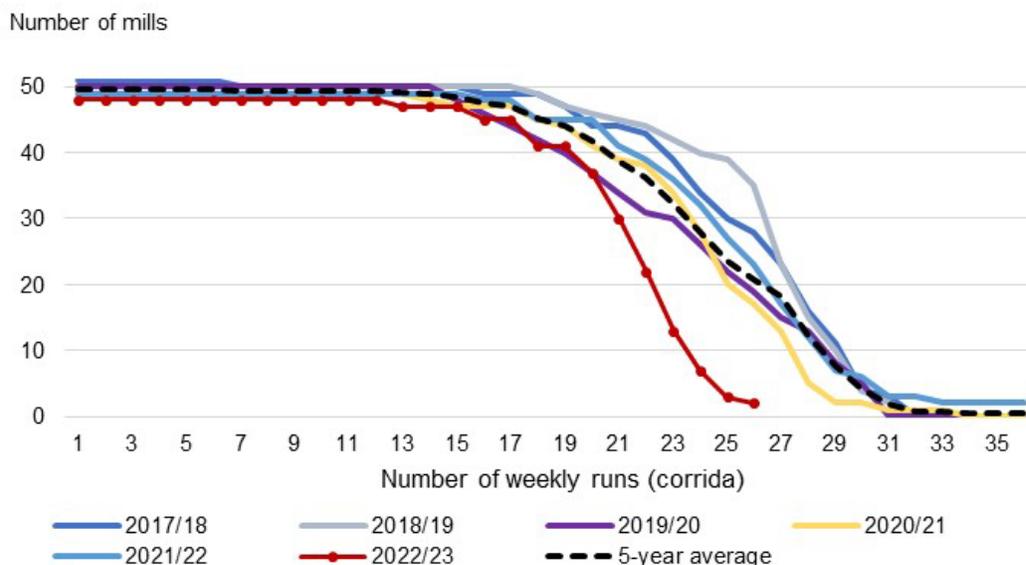
Source: USDA, *World Agricultural Outlook Board (WAOB)*; Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

As seen in figure 18, relatively more mills in 2022/23 have shorter campaigns as measured by the number of weekly runs (or *corrida*). This is partly due to reduced amount of available sugarcane throughput, with the record-low sugarcane yields offsetting the increase in harvested area. To start with, there were only 48 mills in this year's campaign, the lowest number since 2017/18. The first mill that closed this year did so only after 13 runs, also the earliest since 2017/18. While there are 37 mills in the current campaign with 20 weeks-worth of run—at par with 2019/20—there is a steeper decline in the number of mills as the number of runs increase. For instance, through week 32, there are only 2 mills that reach 26 runs

compared with the 5-year average of 21 mills.

If more mills out of the 27 remaining also shut down earlier than expected in the coming weeks, then the final 2022/23 sugar production may even be lower, thereby increasing the risk that the Mexican export quota may not be filled.

Figure 18
Number of mills corresponding to each weekly run (corrida)



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

The Outlook for 2023/24 Reflects A Return to Normal Trends

Mexico sugar production for 2023/24 is forecast at 5.9 million MT, which is consistent with the initial forecast in the April 24 USDA Foreign Agricultural Service (FAS) Mexico Sugar Annual Report. Sugarcane yield and recovery are projected to be closer to historical trend, while area harvested would be similar with 2022/23 given record-high sugar prices.

Deliveries of sugar for consumption in 2023/24 are forecast at 4.139 million MT, a 54,000-MT increase (1 percent) from 2022/23 based on expected population growth. High-fructose corn syrup deliveries are initially set at 1.407 million MT, which is carried over from 2022/23. IMMEX deliveries are projected at 500,000 MT, signaling a return to trend. Ending stocks in 2023/24 are set to a government target of 2.3 months-worth of consumption to maintain

adequate inventory before the 2023/24 Mexican sugarcane campaign earnestly begins in November.

After accounting for domestic commitments, the amount of sugar available for exports in 2023/24 are residually projected at 1.298 million MT. Even if the *WASDE* assumes that 100 percent of the exportable surplus is allocated to the U.S., the resulting U.S. stocks-to-use ratio in 2023/24 would only be at 11.3 percent. This supply-use balance exercise demonstrates that Mexico's export capability taps out at 1.298 million MT, and thus additional supplies (e.g., additional specialty sugar) must be obtained elsewhere to achieve a 13.5 percent stocks-to-use ratio in the U.S. balance sheet for 2023/24.

Special Article

U.S. Organic Sugar Sources

This article expands on the April 2021 Economic Research Service *Sugar and Sweeteners Outlook* report to determine the total organic sugar supply in the United States. Combining domestic production of organic sugar with organic sugar imports using the applicable Harmonized Tariff Schedule (HTS) codes¹⁰, the total U.S. organic sugar supply in fiscal year 2022/23 is estimated at about 281,700 metric tons raw value, up 3.5 percent from last year (table 10).

Table 10: U.S. organic sugar supply, by source, metric tons raw value, fiscal year 2015–23

Fiscal year	Domestic 1/	Imports						Total
		Specialty 2/	Mexico 3/	TRQ Raw 2/	TRQ Refined 2/	FTA 2/	Over quota (high tier) 3/	
2015	3,000	120,828	0	5,617	0	455	200	130,100
2016	3,600	125,628	0	13,130	0	3,066	392	145,816
2017	4,392	179,262	0	11,263	0	2,312	200	197,429
2018	5,648	160,002	0	6,148	0	595	424	172,818
2019	7,748	169,743	0	8,991	0	862	1,800	189,144
2020	11,493	168,059	143	22,998	55,000	0	6,393	264,086
2021	18,000	178,176	0	29,108	0	3,946	14,182	243,412
2022	18,630	199,837	183	18,570	0	2,310	32,684	272,214
2023 est.	19,347	199,613	200	25,000	0	2,500	35,000	281,660

est. = estimated; FTA = free trade agreements, TRQ = tariff-rate quota.

Source: 1/ Euromonitor; 2/ U.S. Customs and Border Protection; 3/ U.S. Department of Commerce, Bureau of the Census.

The U.S. organic sugar market expanded over the past 10 years, largely driven by the growing demand for processed organic consumer-oriented products. Organic sugar imports under the specialty sugar tariff-rate quota (TRQ) and the over-quota certified organic imports paying a high duty contributed to the increase in total supply as their combined shares rose from 66 percent in 2020 to 83 percent in 2022. The over-quota certified organic imports are the fastest growing segment, increasing by more than 400 percent during the same period. Other important supply sources include raw organic imported under the World Trade Organization raw sugar TRQ, certified organic imported through Free Trade Agreements, and domestic

¹⁰ The U.S. International Trade Commission's HTS codes for organic sugar are:

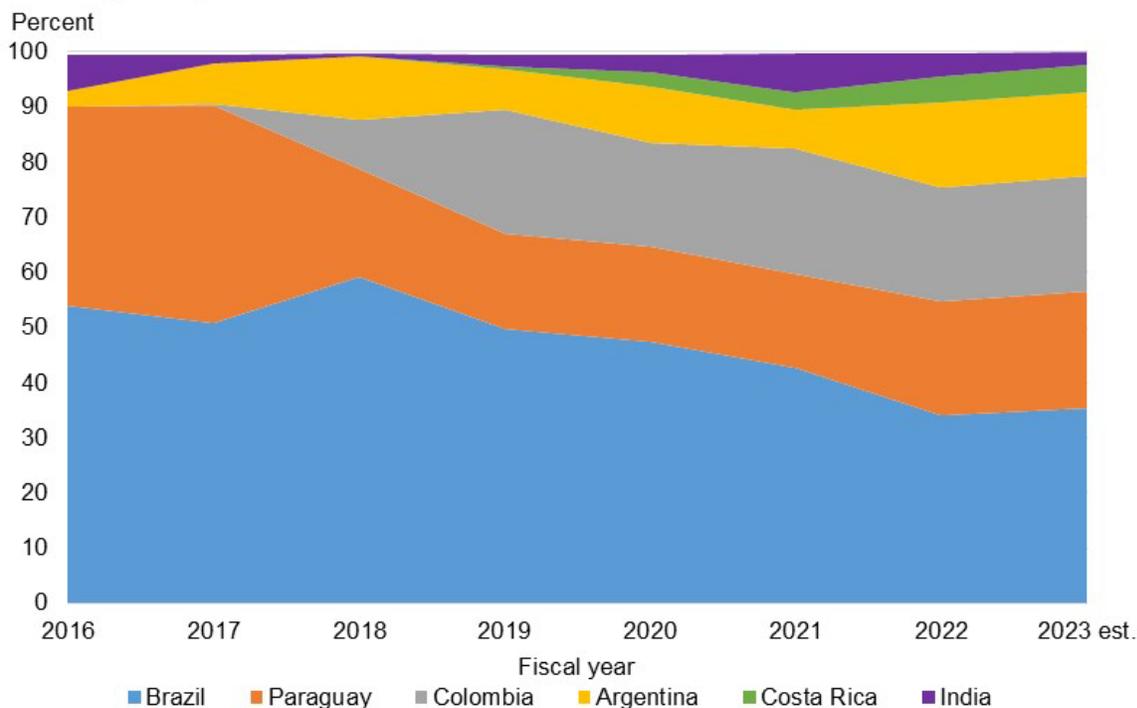
- 1701.14.10.20 Raw organic sugar, certified organic (in-quota) established on January 1, 2020;
- 1701.99.10.15 Specialty sugars, certified organic (in-quota) established on July 1, 2016; and
- 1701.99.50.15 Specialty sugars, certified organic (over-quota) established on January 1, 2020.

There is no HTS code for over-quota raw organic sugar imports paying the high duty rate.

production in Florida.

Specialty sugar TRQ imports are 99 percent certified organic.¹¹ In 2022, the top 5 suppliers of U.S. certified organic TRQ imports were Brazil (34 percent), Paraguay (21 percent), Colombia (21 percent), Argentina (15 percent), and Costa Rica (5 percent). While Brazil and Paraguay's shares declined since 2016, imports from Colombia, Argentina, and Costa Rica increased (figure 19). For example, Colombia and Argentina increased their shares from less than 1 percent and 7 percent in 2016, respectively, to 21 percent and 15 percent in 2022. Meanwhile, imports from India dropped by 77 percent during the first 7 months of FY 2023 relative to the same period last year following the end of the U.S.-India organic recognition agreement. Since July 12, 2022, all of India's organic products, including sugar, that are exported to the United States must now apply for direct certification by USDA-accredited organic certifiers.

Figure 19
U.S. import share of TRQ specialty sugars that are certified organic, by major supplying countries, fiscal year 2016–23



est. = estimated; TRQ = tariff
 Source: U.S. Customs and Border Protection.

¹¹ The specialty sugar TRQ includes certified organic (1701.99.1015) and other specialty sugars (other than certified organic). Other specialty, other than certified organic is identified by HTS codes 1701.12.1000, 1701.91.1000, 1701.99.1017, 1702.90.1000, and 2106.90.4400.

Suggested Citation

Abadam, Vidalina and Souleymane Diaby. *Sugar and Sweeteners Outlook: May 2023*, SSS-M-417, U.S. Department of Agriculture, Economic Research Service, May 18, 2023.

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