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Sugar and Sweeteners Outlook: June 2023

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U.S. Supply Lower in 2022/23 and 2023/24; Mexican 2022/23 Production Down

In the June *2023 World Agricultural Supply and Demand Estimates* (*WASDE*) report, the U.S. sugar supply in 2022/23 is reduced by 51,000 short tons, raw value (STRV) from last month to 14.498 million, as lower imports from Mexico offset the increase in high-tier imports and beet sugar production. With total use unchanged at 12.815 million STRV, ending stocks are lowered by the same amount and the resulting stocks-to-use ratio is 13.13 percent, down from last month's 13.53 percent.

The 2023/24 sugar supply is projected down by 91,000 STRV from last month to 14.168 million STRV as the reduction in beginning stocks and production offset the increase in imports from Mexico. With total use unchanged at 12.815 million STRV, the 2023/24 ending stocks are likewise lowered by 91,000 to 1.353 million, and the stocks-to-use ratio is down from 11.26 percent to 10.65 percent.

Mexico's sugar production in 2022/23 is reduced by 155,000 metric tons (MT) from last month to 5.230 million, as the harvest campaign nears the end. Half of the reduction is estimated to translate to lower exports to the United States (plus a small reduction in ending stocks), while the other half to lower deliveries to the *Industria Manufacturera, Maquiladora y de Servicios de Exportación* (IMMEX) program.

Approved by USDA's World Agricultural Outlook Board

U.S. Outlook Summary

U.S. Sugar Supply in 2022/23 and 2023/24 Reduced

In the June 2023 *WASDE* report, the U.S. sugar supply in 2022/23 is reduced by 51,000 STRV from last month to 14.498 million, as lower imports from Mexico offset the combined 40,000-STRV increase in high-tier imports and beet sugar production (table 1). Imports from Mexico are lowered by 91,000 STRV to 1.150 million–below the March U.S. Needs of 1.306 million STRV–as sugarcane yield and sucrose recovery continue to decline near the end of the Mexican campaign. High-tier imports are up by 25,000 to 250,000 STRV, based on pace to date. Beet sugar production is increased by 15,000 STRV to 5.171 million, mostly on higher sucrose recovery. With use unchanged at 12.815 million STRV, ending stocks are lowered by the same amount and the resulting stocks-to-use ratio is 13.13 percent, down from last month's 13.53 percent.

The 2023/24 sugar supply is projected down by 91,000 STRV from last month to 14.168 million STRV, as the reduction in beginning stocks and production of both beet and cane sugar offset the increase in imports from Mexico. Beet sugar production is lowered by 11,500 STRV to 4.950 million, largely on higher shrink projected by processors, while cane sugar production is down by 87,000 STRV, based on Florida and Texas processors' projections. Imports from Mexico are up by 58,000 STRV, as the expected reduction in the sugar deliveries to the IMMEX program are projected to be exported to the United States instead. Prior to the release of the June *WASDE*, the additional Specialty Sugar TRQ had not yet been announced, and thus was excluded in the forecast of imports from Mexico. Last year, the additional Specialty Sugar TRQ was set at 220,462 STRV (or 200,000 MT, raw value). With total use staying at 12.815 million STRV, the 2023/24 ending stocks are likewise lowered by 91,000 to 1.353 million, and the stocks-to-use ratio is down from 11.26 percent to 10.65 percent.

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

Items	2021/22	2022/23			2023/24		
	Final	May (estimate)	June (estimate)	Monthly change	May (forecast)	May (forecast)	Monthly change
	1,000 short tons raw value						
Beginning stocks	1,705	1,820	1,820	0	1,734	1,683	-51
Total production	9,157	9,283	9,298	15	9,225	9,127	-99
Beet sugar	5,155	5,155	5,171	15	4,961	4,950	-11
Cane sugar	4,002	4,127	4,127	0	4,264	4,177	-87
Florida	1,934	2,015	2,015	0	2,065	2,034	-31
Louisiana	1,944	2,034	2,034	0	2,092	2,092	0
Texas	124	78	78	0	107	51	-56
Total imports	3,646	3,446	3,380	-66	3,300	3,358	58
Tariff-rate quota imports	1,579	1,730	1,730	0	1,413	1,413	0
Other program imports	298	250	250	0	250	250	0
Non-program imports	1,769	1,466	1,400	-66	1,637	1,696	58
Mexico	1,379	1,241	1,150	-91	1,517	1,576	58
High-duty	390	225	250	25	120	120	0
Total supply	14,508	14,549	14,498	-51	14,259	14,168	-91
Total exports	29	35	35	0	35	35	0
Miscellaneous	81	0	0	0	0	0	0
Total deliveries	12,578	12,780	12,780	0	12,780	12,780	0
Domestic food and beverage use	12,470	12,675	12,675	0	12,675	12,675	0
To sugar-containing products re-export program	80	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	12,688	12,815	12,815	0	12,815	12,815	0
Ending stocks	1,820	1,734	1,683	-51	1,444	1,353	-91
Private	1,820	1,734	1,683	-51	1,444	1,353	-91
Commodity Credit Corporation	0	0	0	0	0	0	0
Stocks-to-use ratio (percent)	14.3	13.5	13.1	-0.4	11.3	10.6	-0.7

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

Beet Sugar Production Up in 2022/23; Down in 2023/24

Crop year beet sugar production in 2022/23 is increased by 15,000 STRV from last month to 5.035 million, mostly on higher sucrose recovery (table 2). Using actual data through April from the USDA, Farm Service Agency *Sweetener Market Data* (*SMD*) report, sucrose recovery from sliced beets is increased to 15.44 percent from last month's 15.38 percent (figure 1). In addition, based on processors' reporting to *SMD*, minor downward adjustments were applied to sugarbeet shrink (slightly increasing production) and sugar produced from molasses (slightly decreasing production). With no adjustments to August–September 2023 production (633,000 STRV) nor to sugar from imported beets (39,000 STRV), the 2022/23 fiscal year beet sugar production also increased by 15,000 STRV from last month to 5.171 million.

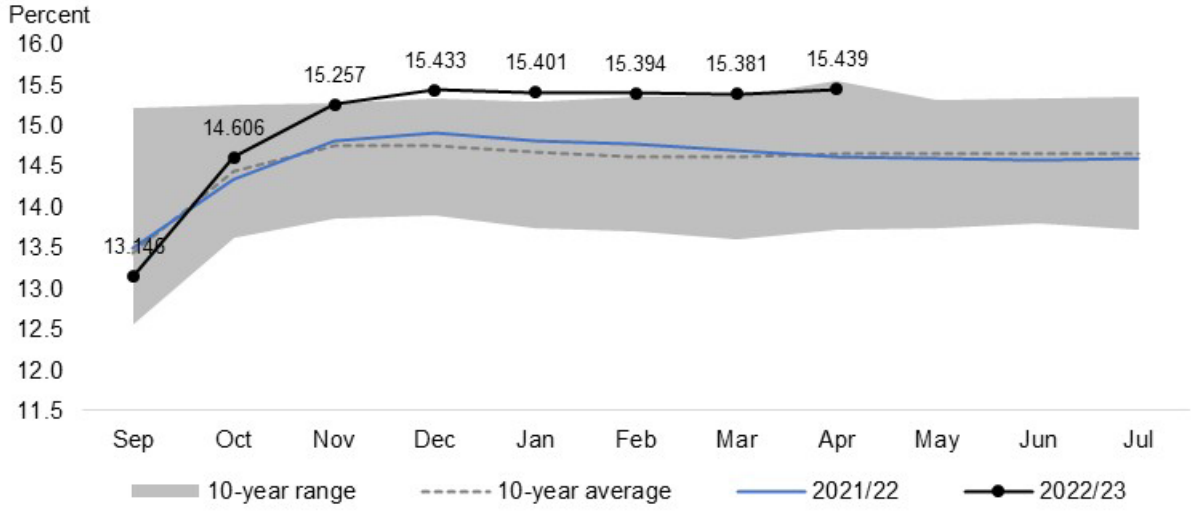
In 2023/24, crop year sugar production is reduced by 11,000 STRV from last month to 4.915 million, based on a higher shrink projected by processors (6.83 percent), offsetting the slight increase in sucrose recovery. With no changes in the other variables, the 2023/24 fiscal year production is also reduced by the same amount to 4.950 million STRV. If realized, this reduction would be 221,000-STRV lower than 2022/23 (or 4 percent) and the lowest since 2019/20.

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

	2022/23 May	2022/23 June	Monthly change	2023/24 May	2023/24 June	Monthly change
Sugarbeet production (1,000 short tons) 1/	32,574	32,574	0	33,348	33,348	0
Sugarbeet shrink (percent)	6.99	6.98	-0.01	6.34	6.83	0.49
Sugarbeet sliced (1,000 short tons)	30,296	30,300	4	31,235	31,070	-164
Sugar extraction rate from slice (percent)	15.38	15.44	0.06	14.62	14.66	0.04
Sugar from beets sliced (1,000 STRV) 2/	4,660	4,678	18	4,566	4,555	-11
Sugar from molasses (1,000 STRV) 2/	360	357	-3	360	360	0
Crop year sugar production (1,000 STRV) 2/	5,020	5,035	15	4,926	4,915	-11
Aug.–Sep. sugar production (1,000 STRV)	537	537	0	633	633	0
Aug.–Sep. sugar production of subsequent crop (1,000 STRV)	633	633	0	633	633	0
Sugar from imported beets (1,000 STRV) 3/	39	39	0	35	35	0
Fiscal year sugar production (1,000 STRV)	5,155	5,171	15	4,961	4,950	-11

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.

Figure 1
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.

There have been media reports that similar to last year, beet processors in the Red River Valley[1] planted additional acres (potentially as high as 20,000) to offset potential yield reduction, due to the spring planting delays. After a delayed start due to unusually heavy April snows and cold temperatures, planting finally caught up and is completed in all States except Montana. The additional acres will be accounted for by NASS on its June 30 *Acreage* report, which will provide the initial estimate of 2023/24 area planted and projected area harvested.

Some beet processors have expressed concern to USDA about the dry conditions in several non-irrigated beet growing areas (such as in Michigan) during this time when young beet plants need moisture to grow. However, it has also been noted that the lack of rains has yet to reach critical levels.

Forecast for 2023/24 Cane Sugar Production Reduced

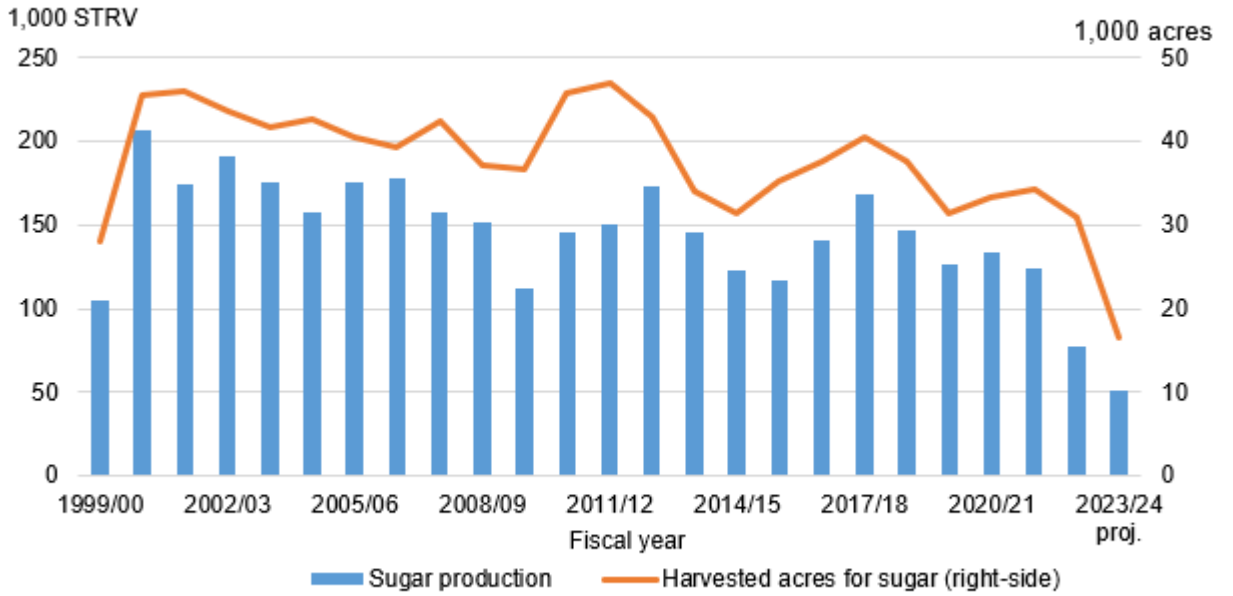
The cane sugar production forecast for fiscal year 2023/24 is reduced by 87,000 STRV from last month to 4.177 million, based on Florida and Texas processors' initial projections in the *SMD* that were more conservative than the May *WASDE*. There are no changes to Louisiana projections. If realized, this production level would still be 50,000-STRV higher (1 percent) than 2022/23's 4.127 million forecast–unchanged from last month–and would be a new record, overtaking 2020/21's 4.142 million STRV by 35,000 STRV (1 percent).

The Florida processors' 2023/24 production forecast of 2.034 million STRV, while lower than the May *WASDE*'s 2.065 million, is 1 percent larger than 2022/23's 2.015 million and reflects a return to a production level for the State that is typically above 2 million.

The Texas processor forecast its 2023/24 at 51,000 STRV, which if realized would be 34 percent lower than last year's 78,000 STRV and the lowest since fiscal year 1992 (figure 2). The historic low production is mainly driven by the processor's lower forecast of harvested acreage for sugar, which at 16,442 acres, would be only half of last year's 30,900 acres. The Rio Grande Valley, which relies mainly on irrigation, not rainfall, to produce sugarcane is being forced to reduce acreage because Mexico is reportedly not releasing water to the region. According to the Texas Commission on Environmental Quality, Mexico is in arrears on its water deliveries to the U.S. under the 1944 Water Treaty.

[1] The Red River Valley region refers to beet sugar growing areas in Minnesota and North Dakota.

Figure 2
Texas cane sugar production and harvested acres for sugar, by fiscal year, 1999/00–2023/24



STRV = short tons, raw value; proj. = projected.
Source: USDA, National Agricultural Statistics Service; USDA, Farm Service Agency.

Sugar Imports Down in 2022/23

Total sugar imports in 2022/23 are lowered by 66,000 STRV from last month to 3.380 million, as the 25,000-STRV increase in high-tier imports to 250,000 is offset by lower imports from Mexico (figure 3). Imports from Mexico are lowered by 91,000 STRV to 1.150 million–156,000-STRV below (12 percent) the final export limit of 1.306 million STRV–amid the continued decline in Mexico's sugarcane yield and sucrose recovery as the campaign nears completion (table 3). More information is provided in the Mexico Outlook section.

USDA also reduced the expected Mexican production of less than 99.2 polarity sugar ("Other Sugar") to 623,245 STRV (or 728,231[2] metric tons, actual weight, or MT), which would be 46,312-STRV lower (5 percent) than the allotted 70 percent share (914,130 STRV) of the final export limit.

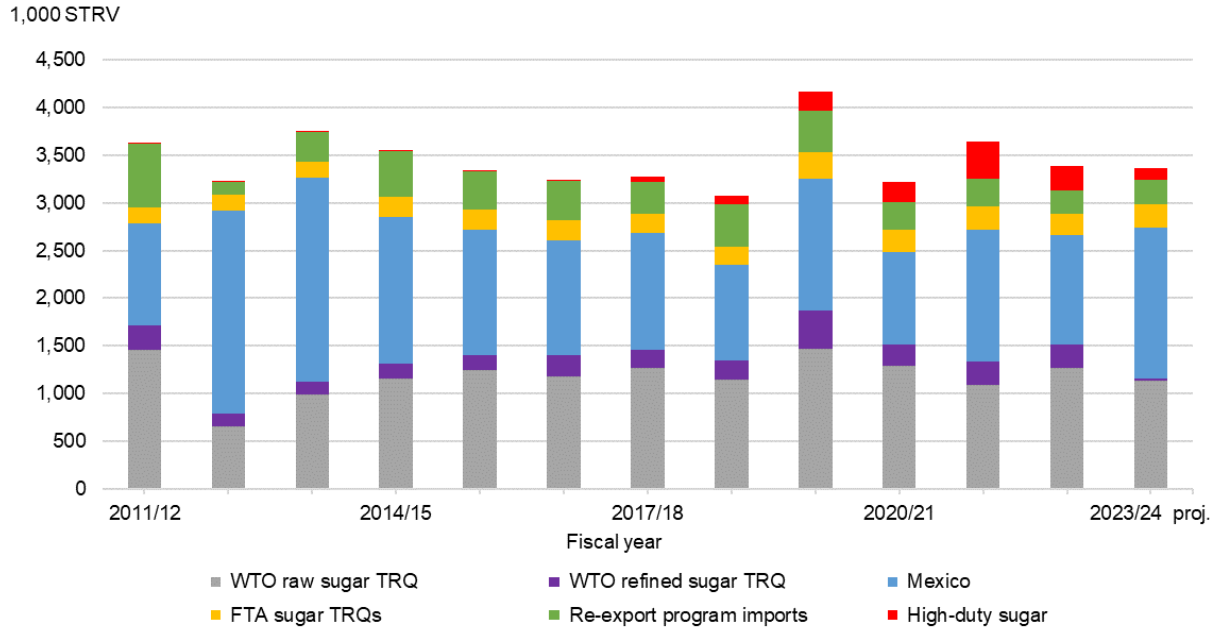
[2] The conversion from STRV to metric tons (MT), actual weight is provided in the text for consistency since the latter unit is used in the Mexico Outlook section.

Table 3. 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.

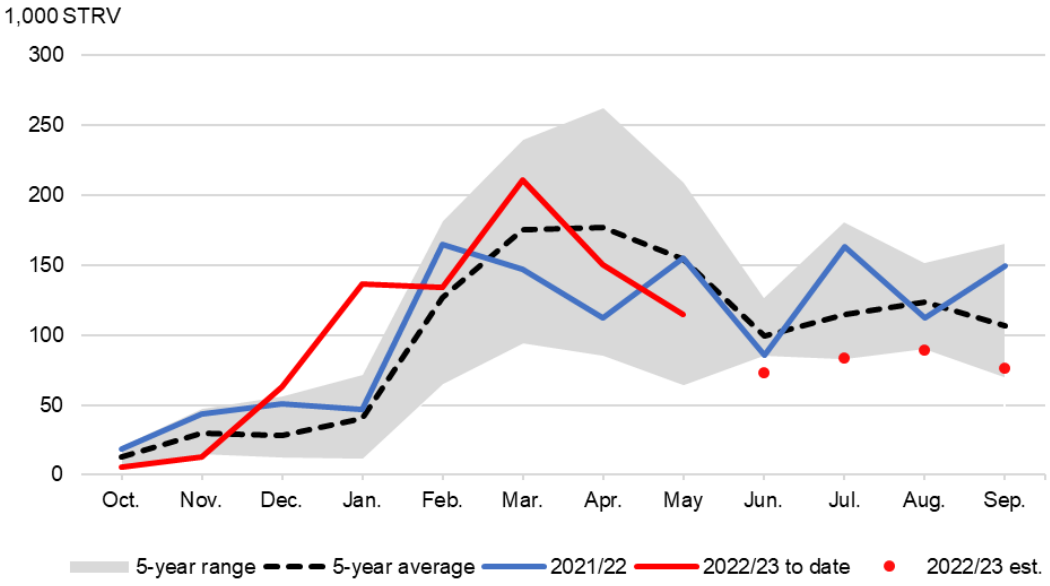
Figure 3
U.S. sugar imports by type, 2011/12–2023/24



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

The cumulative level of sugar imports from Mexico between October 2022 and May 2023 of 828,000 STRV is the second largest since 2017/18. The pace was relatively strong in the first part of the fiscal year—particularly in December, January, and March (figure 4)—such that 72 percent of the 1.150 million 2022/23 estimated imports from Mexico have already entered through May, the fastest pace over the same period since 2017/18. Imports from Mexico for the remaining 4 months need only to be at the 5-year low range to meet the newly reduced estimate of 1.150 million STRV.

Figure 4
U.S. sugar imports from Mexico, monthly, fiscal year 2017/18–2022/23



STRV = short tons, raw value; est. = estimate.
Source: USDA, Foreign Agricultural Service.

Sugar Imports in 2023/24 Raised

The 2023/24 forecast for total sugar imports is raised by 58,000 STRV from last month to 3.358 million, solely on larger imports from Mexico. The increase in imports is the residual result of USDA's reduction in the 2023/24 IMMEX deliveries by the same amount. The assumption is that this amount (subtracted from IMMEX) will be diverted to the export market, all of which are forecast to be bound for the U.S. market under the terms of the suspension agreements. As a result, the 2023/24 U.S. imports from Mexico are raised by the same amount to 1.576 million STRV. Note, however, it is likely that the forecast of Mexican export quota may be lowered when USDA announces a 2023/24 additional Specialty Sugar TRQ. Prior to the release of the June *WASDE*, the additional Specialty Sugar TRQ had not yet been announced, and thus was excluded in the forecast of imports from Mexico. In 2022/23, the additional specialty sugar quota was set at 220,462 STRV (or 200,000 MT, raw value).

U.S. Sugar Prices Remain Historically High

U.S. raw cane sugar prices (Number 16) continue to rally, with May averaging 42.56 cents per pound, up from last month's 41.27 cents, and a record since January 2011. As of June 12, while

September 2023 through September 2024 futures have retreated below 42 cents, prices remain on the high side. The uptick in U.S. futures continues to be mostly supported by the rally in the world raw cane sugar futures (Number 11), amid tight global supplies and concerns about El Niño in major producing countries. In May, world sugar futures increased to 25.75 cents per pound from last month's 24.63, the highest since the first quarter in 2012 (24.86). As of June 12, world futures for July and October 2023 settled above 25 cents per pound, while the out months through July 2024 hovered between 22.95–24.98 cents.

Average U.S. 2022/23 spot prices for Midwest refined beet sugar and Northeast refined cane sugar both increased in May from 60 to 62 cents and from 66 to 68 cents per pound, respectively. While it did not change its price data, Sosland indicated on its June 7 report that there are indications spot prices have since softened somewhat. This softening is likely due to the reported slowdown in deliveries of contracted supplies that can now potentially be available in the spot market. In addition, there are reports that high-tier tariff refined imports are available at competitive prices, thus can also contribute to easing supply tightness. However, prices continue to be supported by concerns about lower-than-expected early beet sugar production, Mexico's inability to fulfill its export 2022/23 quota, and the possibility of exporting U.S.–produced sugar to Mexico given the current record high Mexican sugar prices. The calendar year 2024 offer price for refined cane sugar remains at 61 cents per pound (11 cents higher or 22 percent than the same time last year) and between 56–58 cents per pound for refined beet sugar (16–18 cents higher or 40–45 percent).

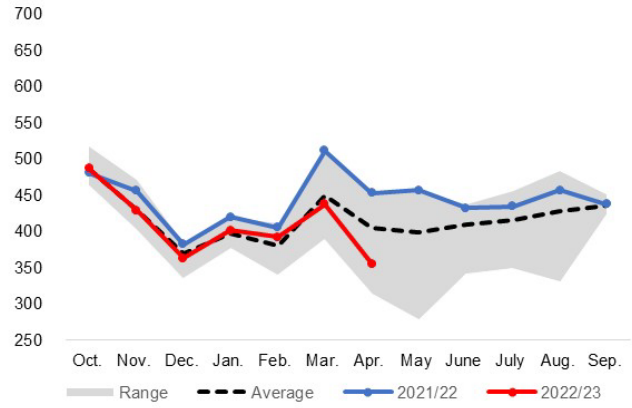
Sugar Deliveries Unchanged in 2022/23 and 2023/24

Sugar deliveries for food and beverage use in 2022/23 and 2023/24 are both unchanged at 12.675 million STRV. If realized for 2022/23, this level reflects a 205,000-STRV increase (1.6 percent) from 2021/22's 12.470 million, reflecting a second consecutive year of increase (figure 5). The 12.675 million STRV is carried over to 2023/24 because of the uncertainty on whether the annual growth can be sustained for 3 straight years amid purported recent signs of a delivery slowdown, particularly of beet sugar.

Beet sugar deliveries in April were 356,000 STRV–a noticeable drop considering that the monthly pace in the first 6 months has been on par with the 5-year average (figure 6a). Cumulative beet sugar deliveries through April totaled 2.866 million STRV, 242,000-STRV (8 percent) lower than the same period last year. In contrast, the 551,000-STRV of cane sugar

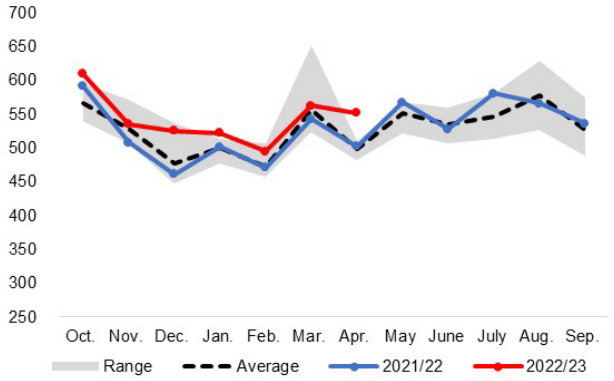
deliveries in April are the largest since 1992 (figure 6b), largely offsetting the decline in beet sugar deliveries. Through the first 7 months of fiscal year 2022/23, cane sugar deliveries totaled 3.797 million STRV, 223,000-STRV larger (6 percent) than last year (table 4) and the largest since 1991/92 over the same period.

Figure 6a
Beet sugar deliveries, monthly, 2017/18 to 2022/23



Source: USDA, Farm Service Agency.

Figure 6b
Cane sugar deliveries, monthly, 2017/18 to 2022/23



Source: USDA, Farm Service Agency.

Table 4: Food and beverage deliveries, October–April, 2017/18–2022/23

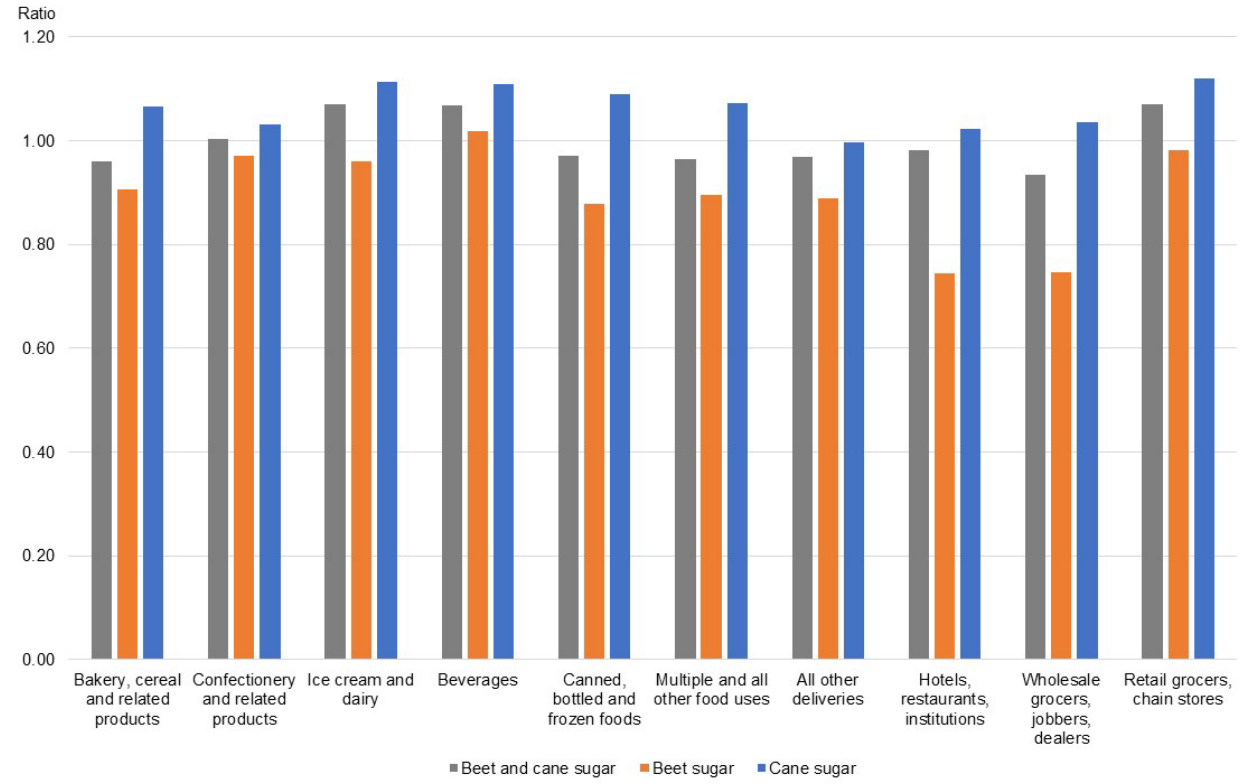
	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23 est.	Annual change	
	1,000 short tons, raw value (STRV)						1,000 STRV	Percent
Beet sugar processors	3,060	2,886	2,696	2,836	3,108	2,866	-242	-8
Cane sugar refiners	3,426	3,611	3,765	3,605	3,575	3,797	223	6
Total reporters	6,486	6,497	6,460	6,441	6,683	6,663	-20	0
Non-reporter (direct consumption)	374	504	700	480	551	632	81	15
Total	6,860	7,001	7,161	6,921	7,234	7,295	61	1
			Percent share in total				5-year average	
Beet sugar processors	45	41	38	41	43	39	41	
Cane sugar refiners	50	52	53	52	49	52	51	
Non-reporter (direct consumption)	5	7	10	7	8	9	7	
Total	100	100	100	100	100	100	100	

est. = estimated.
Source: USDA, Farm Service Agency.

Cane sugar deliveries' compensation for the slower pace of beet sugar deliveries is evident across food product categories. As seen in figure 7, the ratio between the first 7 months of cane sugar deliveries in 2022/23 to the same period in 2021/22 is greater than one for all groups except "All other deliveries" (albeit this group's ratio hovers closely to one). The categories with the largest cane ratio–both at 1.11–are "Ice cream and dairy" and "Beverages", indicating that cumulative cane sugar deliveries for both are 11 percent higher than last year. In contrast, the corresponding ratios for beet sugar deliveries are less than one except for "Beverages". The categories with the lowest beet cane ratio–both at 0.75–are "Hotels, restaurants, institutions"

and “Wholesale grocers, jobbers, dealers”, indicating that cumulative beet sugar deliveries for both are 25 percent lower than last year.

Figure 7
Ratio of cumulative sugar deliveries in 2022/23 to 2021/22, October–April, by product categories



Source: USDA, Economic Research Service calculations of USDA, Farm Service Agency *Sweetener Market Data*.

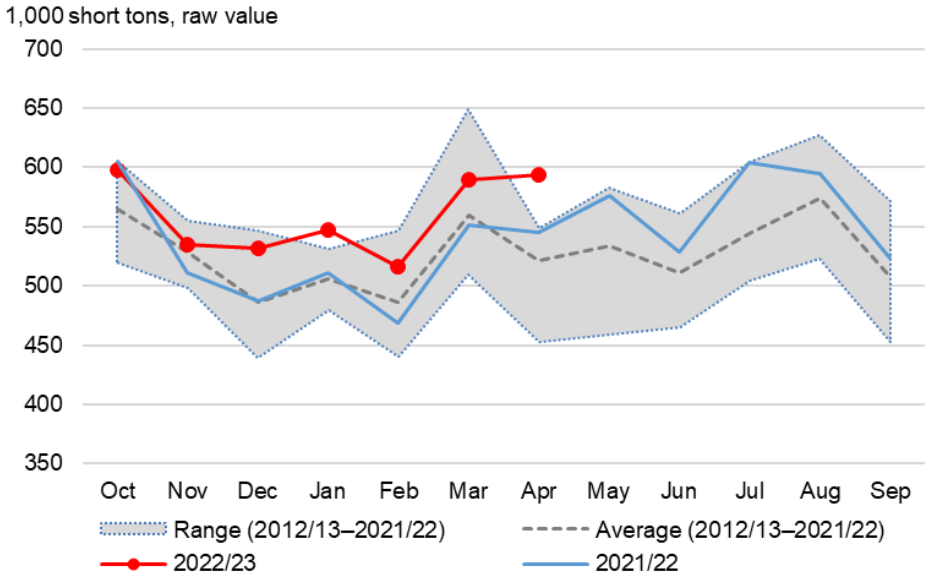
The record high cane sugar deliveries in April were supported by an equally strong cane refiners melt volume at 594,000 STRV, which would also be a new high for the month since 1991/92 (figure 8). Melt is considered a good indicator of deliveries because cane refiners typically melt raw cane sugar when 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).

Reportedly, starting in the second quarter of 2023, some cane refiners have been building refined inventory in anticipation of demand later in the year. This increase has been supported by the *SMD* data that shows steady increases in refined sugar inventory, reaching 440,000 STRV in April–just below the high-end of the range (455,000-STRV) (figure 9). At the same time, such strong pacing has reduced the refiners’ raw cane sugar inventory to 436,000 STRV in April, the lowest level since October (figure 10). If raw cane sugar supplies remain adequate,

this year's melt can be reasonably estimated to reach a record 6.7 million STRV, which would account for more than half of the 2022/23 food use estimate of 12.675 million STRV.

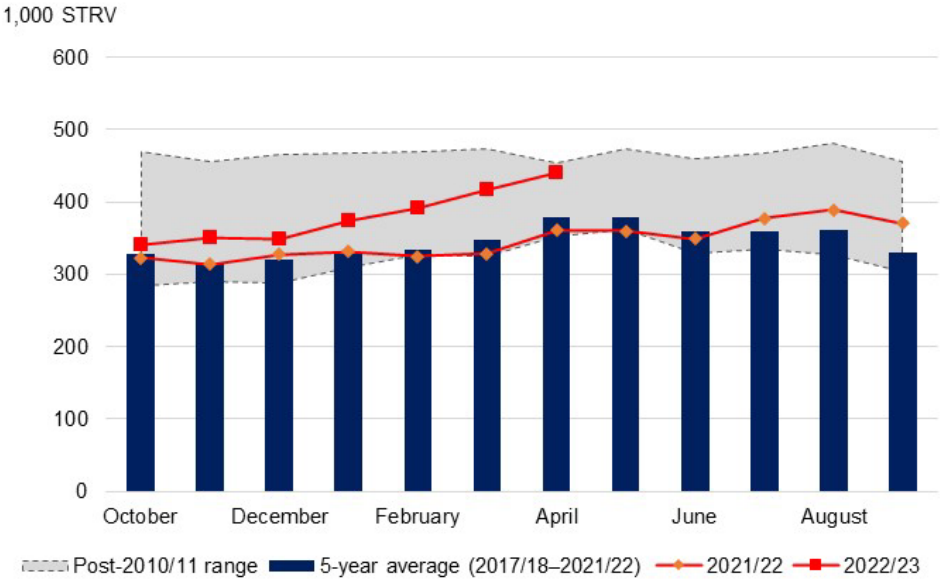
On the other hand, USDA has received industry feedback that the food use estimate might be on the high side given an observed slowdown in processors' delivery of contracted sugar since April amid slower-than-expected food manufacturers sales, potentially due to inflation or customers' recession concerns. On a positive note, undelivered sugar can serve as a buffer (e.g., offered in the spot market) during the busy spring and summer seasons, particularly since Mexico will likely fall short of fulfilling its export quota. The undelivered sugar can also be held for delivery in August–September in case of lower-than-expected early sugar production due to weather events (e.g., lack of rain in beet growing areas; hurricane in cane growing areas). Thus, it is still possible that the sugar will eventually be delivered before the fiscal year concludes in September.

Figure 8
Sugarcane refiners' melt, monthly, 2012/13 to 2022/23



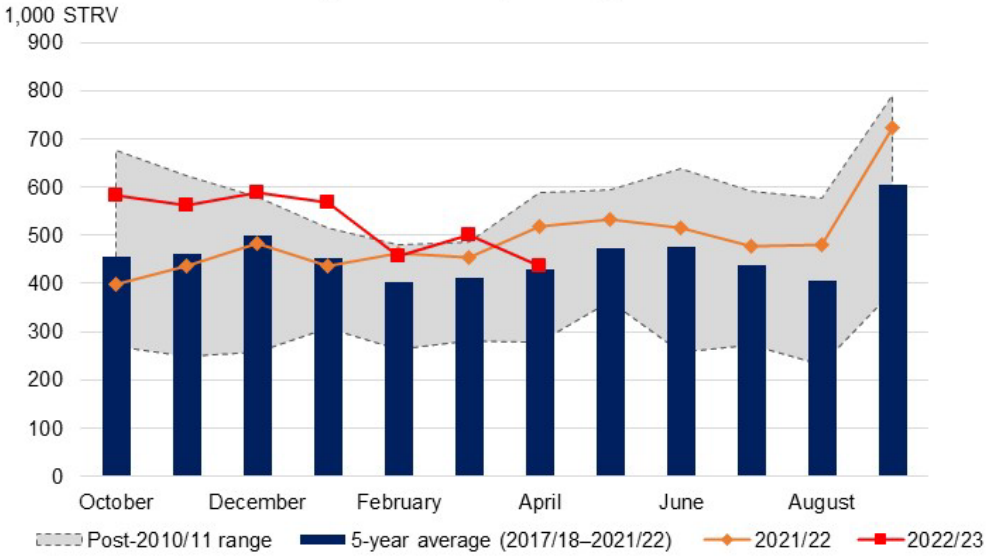
Melt = quantity of raw sugar processed.
Source: USDA, Farm Service Agency.

Figure 9
Sugarcane refiners' refined sugar inventories, monthly, 2010/11 to 2022/23



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

Figure 10
Sugarcane refiners' raw sugar inventories, monthly, 2010/11 to 2022/23



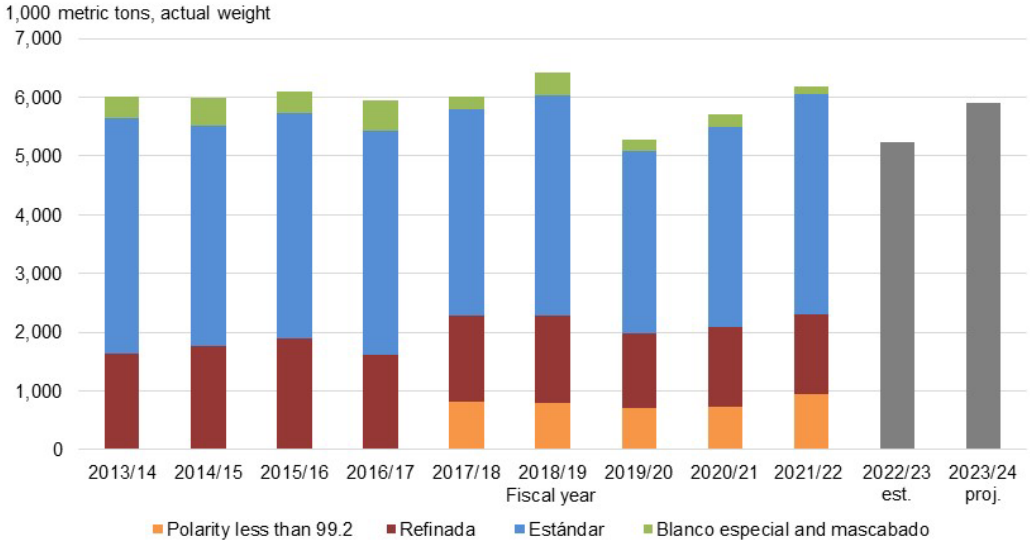
Note: STRV = short tons, raw value.
Source: USDA, Farm Service Agency.

Mexico Outlook

Sugar Production in 2022/23 Further Lowered

In the June 2023 *WASDE* report, USDA lowered the 2022/23 Mexican sugar production by 155,000 metric tons (MT) to 5.230 million (table 4). This reduction would be the second lowest sugar production in the last decade, behind 2019/20's 5.278 million MT, and implies an 955,000-MT decrease (15 percent) from last year's 6.185 million (figure 11). From Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA), cumulative data through week 37 (week ending on June 10), which were released after the *WASDE* report, only 2 out of the 48 mills remain in the campaign–El Molino and San Rafael de Pucté.

Figure 11
Mexican sugar production by type of sugar, 2013/14–2023/24



est. = estimated; proj. = projected.
Notes: Sugar with polarity less than 99.2 is produced starting in 2017/18 after the terms of the suspension agreements were revised. Breakdown by type is not yet available for 2022/23 and 2023/24.
Source: USDA, *World Agricultural Outlook Board, World Agricultural Supply and Demand Estimates* (*WASDE*); Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

While cumulative harvested area through week 37 (805,077 hectares) has breached the 800,000-hectare mark, area will likely be lower that the CONADESUCA's April estimate of 813,831 hectares. Sugarcane yield continues to deteriorate as the harvest campaign nears the end. Cumulative yield is 59.04 MT per hectare, about 3.85 MT per hectare lower than the prior record low of 62.89 in 2019/20 (figure 12). In fact, weekly yields during this year's

campaign have been consistently lower than those in 2019/20. While cumulative sucrose recovery of 10.98 percent is higher than 2019/20, the recovery remains below average (figure 13). Both variables reflect the negative effects on this year's campaign by several factors: lower rainfall during the critical growing season, the delayed start of mills due to unfavorable late rains that prevented the timely harvest of sugarcane and its transportation to mills, and less-than-ideal input application (e.g., fertilizer) due to high input prices.

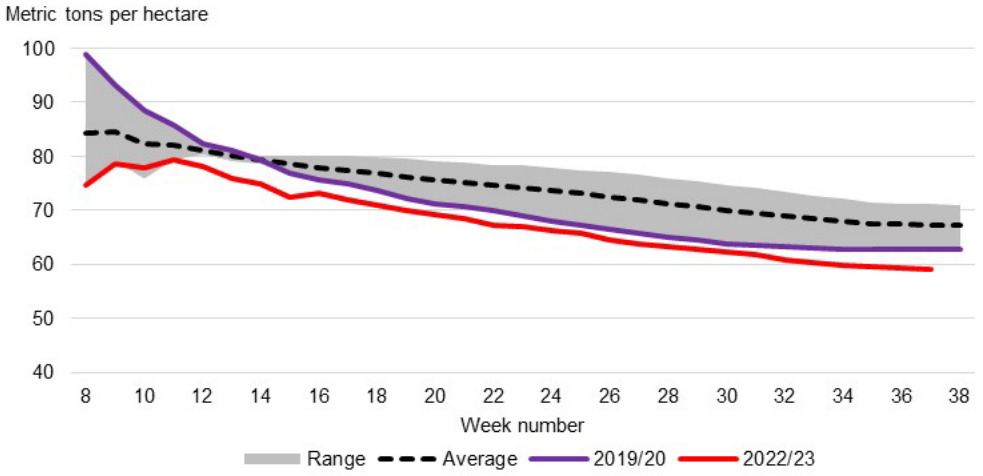
The production of less than 99.2 polarity sugar ("Other Sugar") through week 37 amounted to 728,680 MT, which would likely be the final number given that all the 15 mills that produce this type of sugar are done. As such, this amount would be 53,664-MT lower (7 percent) than the allotted 70 percent share (782,344 MT) of the final Mexican export quota calculated by the U.S. Department of Commerce (DOC) in March (1.117 million MT).

Table 5: Mexican sugar: supply and use by fiscal year (October/September), June 2023

Items	2021/22	2022/23			2023/24		
		May (estimate)	June (estimate)	Monthly change	May (forecast)	June (forecast)	Monthly change
		1,000 metric tons, actual weight					
Beginning stocks	1,053	964	964	0	889	880	-10
Production	6,185	5,385	5,230	-155	5,900	5,900	0
Imports	31	45	45	0	45	45	0
Imports for consumption	7	20	20	0	20	20	0
Imports for sugar-containing product exports (IMMEX) 1/	24	25	25	0	25	25	0
Total supply	7,269	6,394	6,239	-155	6,834	6,825	-10
Disappearance							
Human consumption	4,113	4,085	4,085	0	4,139	4,139	0
For sugar-containing product exports (IMMEX)	532	350	273	-78	500	450	-50
Other deliveries and end-of-year statistical adjustment	-16	0	0	0	0	0	0
Total	4,629	4,435	4,357	-78	4,639	4,589	-50
Exports	1,676	1,070	1,002	-68	1,298	1,348	50
Exports to the United States and Puerto Rico	1,180	1,062	984	-78	1,298	1,348	50
Exports to other countries 2/	495	8	18	10	0	0	0
Total use	6,305	5,505	5,360	-145	5,937	5,937	0
Ending stocks	964	889	880	-10	897	887	-10
Stocks-to-human consumption (percent)	23.4	21.8	21.5	0	21.7	21.4	0
Stocks-to-use (percent)	15.3	16.2	16.4	0	15.1	14.9	0
High-fructose corn syrup (HFCS) consumption (dry weight)	1,291	1,407	1,407	0	1,407	1,407	0

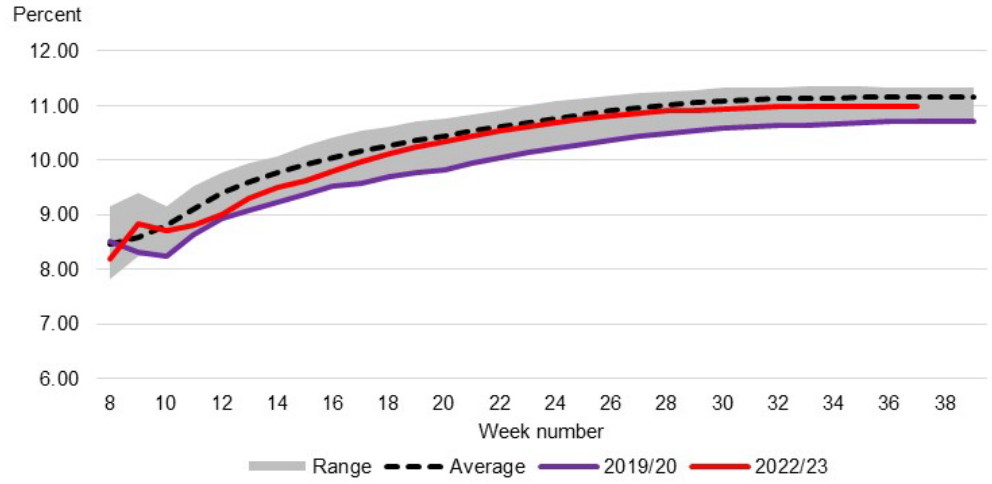
1/ IMMEX = Industria Manufacturera, Maquiladora y de Servicios de Exportación.
2/ Includes exports participating in the U.S. re-export programs.
Source: USDA, World Agricultural Outlook Board; Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 12
Mexican weekly sugarcane yields, 2017/18–2022/23



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

Figure 13
Mexican weekly recovery rate, 2017/18–2022/23



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

Lower 2022/23 Sugar Production Translates to Lower Exports to the United States, IMMEX Deliveries, and Ending Stocks

With no changes to sugar imports into Mexico, the 2022/23 total sugar supply is lowered by the 155,000-MT reduction in production from last month to 6.239 million. Half of the supply reduction is reflected in the reduction of total exports to the United States under quota to

984,096 MT, which is 134,000-MT below (12 percent) the U.S. Needs of 1.118 million MT as set by the DOC.

The other half of the supply reduction is expected to lower deliveries to the IMMEX re-export program to 272,500 MT, of which 247,500 is expected from domestic production and 25,000 from imports[3]. If realized, this would be the lowest level of IMMEX deliveries since 2010/11 (figure 14). The 2022/23 Mexican imports for IMMEX are unchanged at 25,000 MT, which was mostly based on imports reported for 2021/22 of 23,961 MT. There have been anecdotal reports that imports into Mexico–even potentially from the United States–would increase to fulfill obligations such as IMMEX contracts, particularly since internal sugar prices in Mexico have reached new record levels (figure 15).

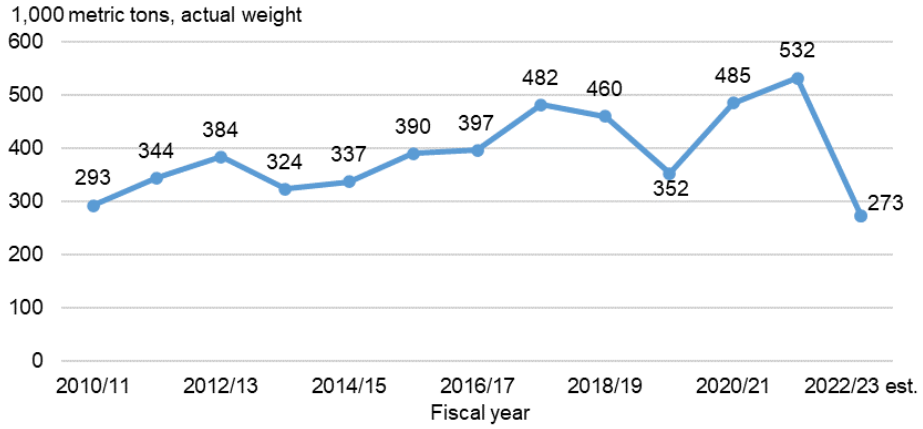
So far, data from Trade Data Monitor shows that Mexico reported imports through March at 10,867 MT, while the aggregation of other countries' reported exports to Mexico is at 25,772 MT. The USDA, FSA *Sweetener Market Data* report likewise shows U.S. exports of reporting companies through April at 13,000 short tons, raw value (or 15,000 MT), which is in line with the trend since 2019/20.

With the above changes to exports and IMMEX deliveries–and domestic sugar deliveries unchanged at 4.085 million MT–the reduced outlook for sugar production ultimately lowers the 2022/23 ending stocks by 10,000 MT from last month to 890,000. This reduction is equivalent to a 2.3-months' worth[4] of total domestic deliveries.

[3] USDA includes sugar imports into Mexico in its 2022/23 IMMEX deliveries estimate of 272,500 MT. On the other hand, CONADESUCA's estimate of sugar deliveries for IMMEX (i.e., "Ventas a IMMEX" line in its monthly sugar balance report) excludes sugar imports for IMMEX.

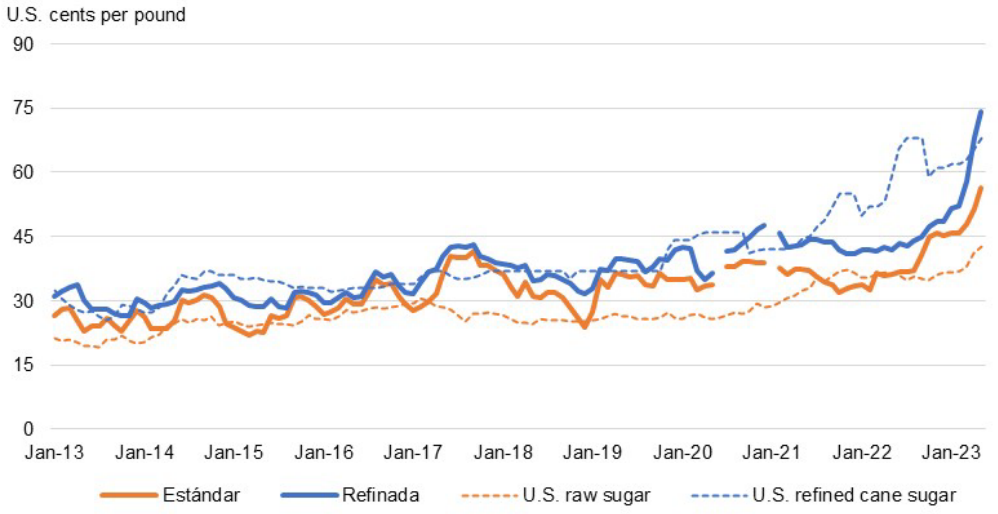
[4] The Government of Mexico typically sets ending stocks equal to 2.5-months' worth of total deliveries (domestic market and IMMEX). This was changed to 2.3-months' worth in CONADESUCA's April 20 publication of an updated (third estimate) Mexican sugar balance.

Figure 14
Mexican domestic IMMEX deliveries, 2010/11–2022/23



IMMEX = Industria Manufacturera, Maquiladora y de Servicios de Exportación; est. = estimated.
Note: USDA includes Mexican imports for IMMEX into its IMMEX deliveries data. In contrast, CONADESUCA excludes imports of sugar for IMMEX in the "Ventas a IMMEX" line on its monthly sugar balance publication.
Source: USDA, Economic Research Service calculations using data from Mexico's National Committee for the Sustainable Development of Sugarcane (CONADESUCA).

Figure 15
Mexican and U.S. sugar prices, monthly, January 2013 to May 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).

Outlook for 2023/24 Mostly Unchanged

Mexico sugar production for 2023/24 is forecast at 5.9 million MT, unchanged from last month. This number 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 trends, while area harvested would be similar with 2022/23 given record-high sugar prices.

The major changes to the 2023/24 supply-use balance sheet are the lower beginning stocks, courtesy of the adjustments made to 2022/23, and the 50,000-MT reduction in deliveries for IMMEX to 450,000 MT. This forecast is relatively close to average IMMEX deliveries between 2017/18 and 2021/22. With no changes to the other line items, total exports are residually increased by 50,000 MT to 1.348 million, all of which are forecast to be destined to the United States under the suspension agreements. Note that this volume will likely be reduced once USDA announces the additional specialty sugar. In 2022/23, it was set at 200,000 MT, raw value (or 220,462 STRV). The 2023/24 ending stocks, also forecast to be 2.3-months' worth of total domestic deliveries, are residually calculated at 887,000 MT, 10,000 lower than last month.

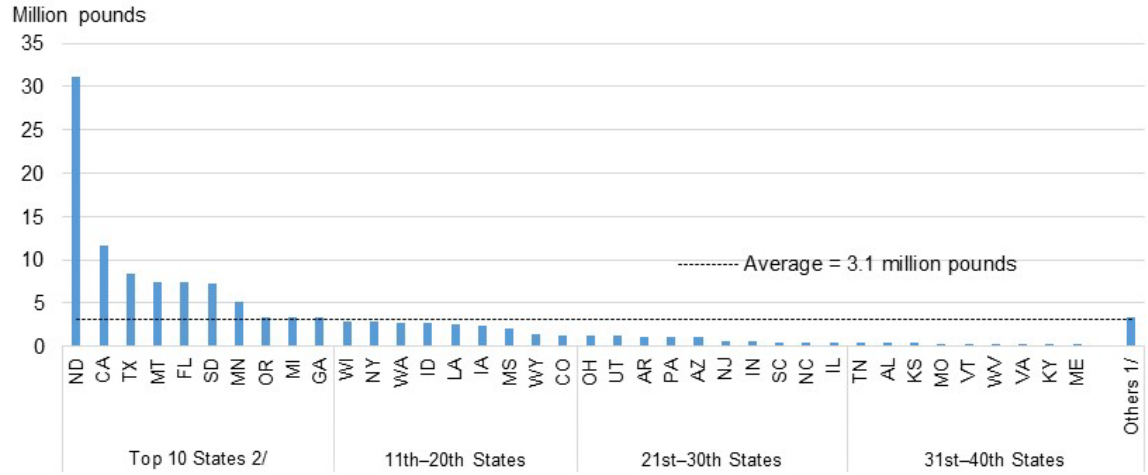
Special Article: U.S. Honey Market

U.S. Honey Production Overview

The United States is among the top honey-producing countries according to the database of the Food and Agriculture Organization (FAO) of the United Nations. In the latest FAO database, in 2021 the U.S. ranked ninth behind China, Turkey, Iran, Argentina, Ukraine, India, Russia, and Mexico. Honey production can be found in nearly every State.

Using the most recent 2022 USDA, National Agricultural Statistics Service (NASS) *Honey* report published on March 17, the top 10 States with the largest honey production are North Dakota, California, Texas, Montana, Florida, South Dakota, Minnesota, Oregon, Michigan, and Georgia (figure 16). These States, each of which produced more than the national average of 3.1 million pounds, comprised 71 percent of the 2022 U.S. production of 125.331 million pounds. North Dakota–the lead State which produced 31 million pounds of honey in 2022–contributed 25 percent.

Figure 16
Honey production in calendar year 2022, by State and for the United States



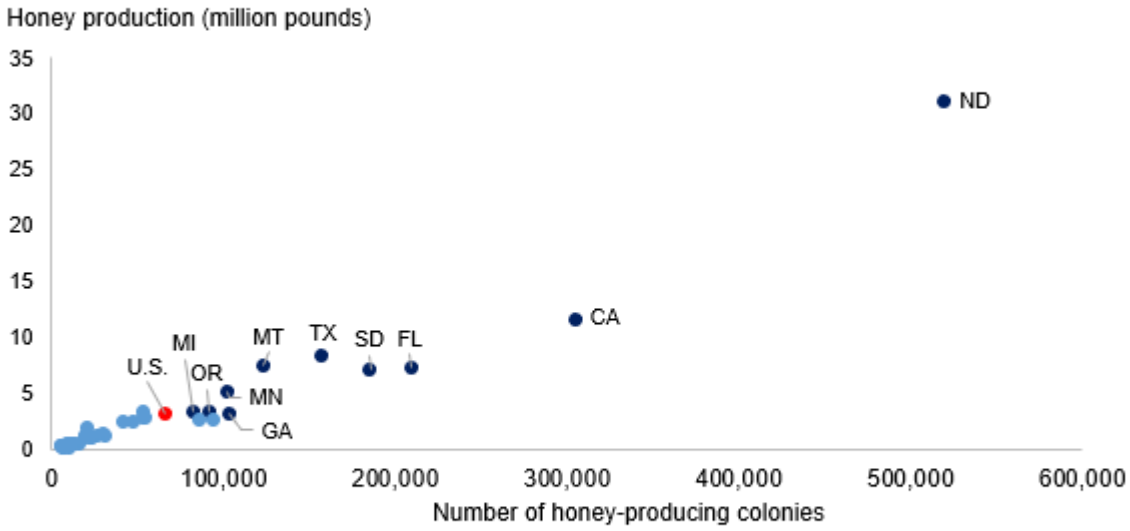
1/ Due to NASS' confidentiality rules, data in some States cannot be published and instead, combined in the "Other States" category. In 2021, data for Hawaii was published but was included in the "Other States" category in 2022.
2/ The States are ranked in descending order according to their 2022 honey production.
Source: USDA, National Agricultural Statistics Service.

Two factors that affect a given State's honey production–the number of honey-producing bee colonies and yield per colony. Managed honeybees produce honey by collecting nectar and pollen from flowers and storing the honey on frames inside of hives. The major-producing

States tend to have the largest honey-producing colonies (figure 17). North Dakota takes the lead with 520,000 colonies, followed by California with 305,000. The remaining top 8 States have colonies above the national average of 67,000.

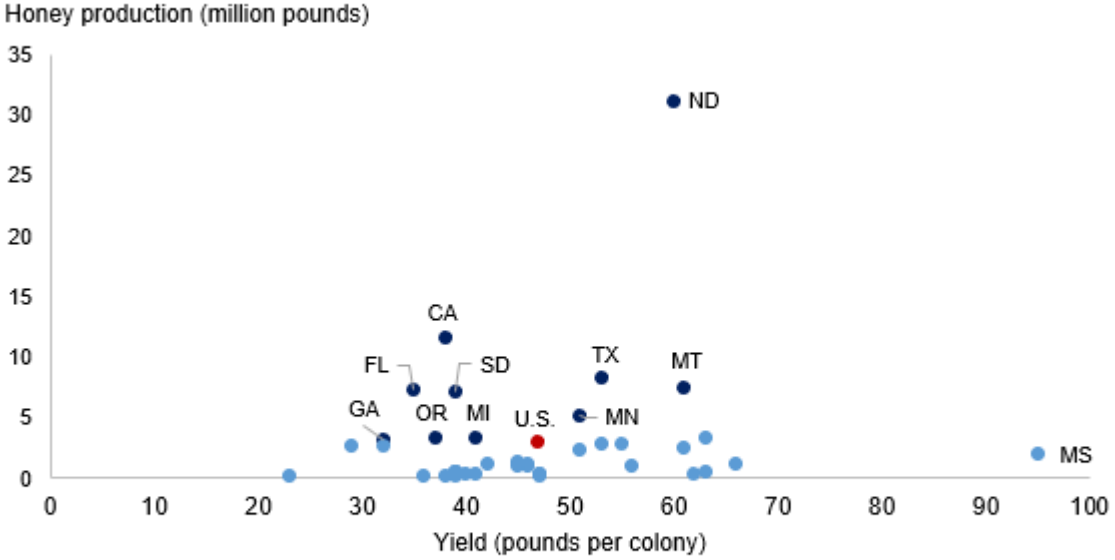
Conversely, the correlation between honey production and colony yield tends to be less straightforward (figure 18). The yields of the top honey producers tend to be on par with the rest of the States. Only 4 of the top 10–North Dakota, Texas, Montana, and Minnesota–have yields greater than the national average of 47 pounds per colony. Mississippi, which was the twentieth largest honey producer in 2022, had the highest yield of 95 pounds per colony.

Figure 17
Correlation of honey production and number of honey-producing colonies in calendar year 2022, by State



U.S. = United States; CA = California; FL = Florida; GA = Georgia; MI = Michigan, MN = Minnesota, MT = Montana; ND = North Dakota; OR = Oregon; SD = South Dakota; TX = Texas.
Note: The red dot represents the national average of 67,000 colonies and 3.1 million pounds of honey production. Dots with darker blue color represent the top 10 honey-producing States in 2022.
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Figure 18
Correlation of honey production and yield per colony, by State



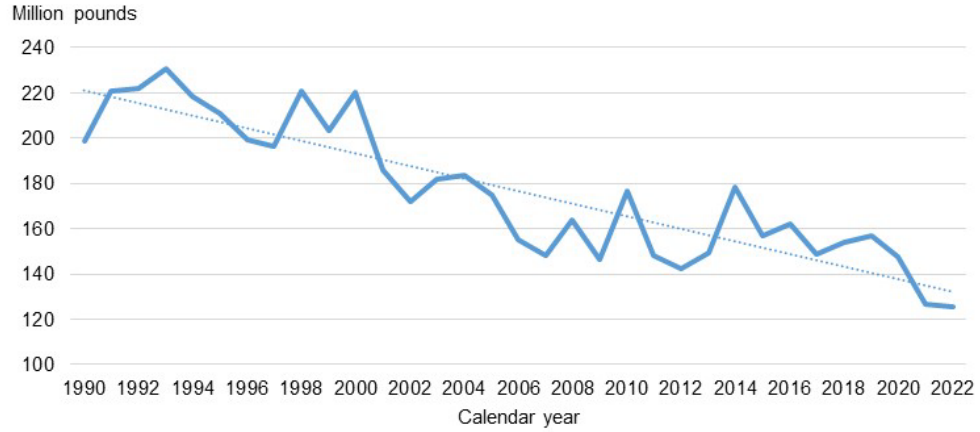
U.S. = United States; CA = California; FL = Florida; GA = Georgia; MI = Michigan, MN = Minnesota, MS = Mississippi; MT = Montana; ND = North Dakota; OR = Oregon; SD = South Dakota; TX = Texas.
Note: The red dot represents the national average for yield of 47 pounds per colony and for honey production of 3.1 million pounds. Dots with darker blue color represent the top 10 honey-producing States in 2022.
Source: USDA, Economic Research Service's calculations using data from USDA, National Agricultural Statistics Service.

U.S. Honey Production Declines for 3 Consecutive Years

Despite being one of the world's major producers, the United States' honey production has been on the declining trend (figure 19). The 125.3–million pounds of production in 2022 is 1.4 million lower (or 1 percent) than last year's 126.7 million. This would represent a third consecutive year of decline and reflect production levels in the past 2 years that are lower compared with the long-term trend.

The largest reduction in terms of quantity over the year is driven by the top 10 and lowest 10 producers who saw their production declined by 2.7 million tons and by 1.8 million tons, respectively (table 6). Among 2022's top 10 producers, increases in North Dakota, California, Texas, and Montana were offset by losses in South Dakota (down 5 million pounds or 41 percent), Minnesota (1.9 million pounds; 27 percent) and Michigan (1.7 million pounds; 34 percent) (figure 20). The production losses countered the combined 3.1 million-ton increases in the "11th to 30th producers" and "Other States" categories.

Figure 19
U.S honey production, 1990–2022



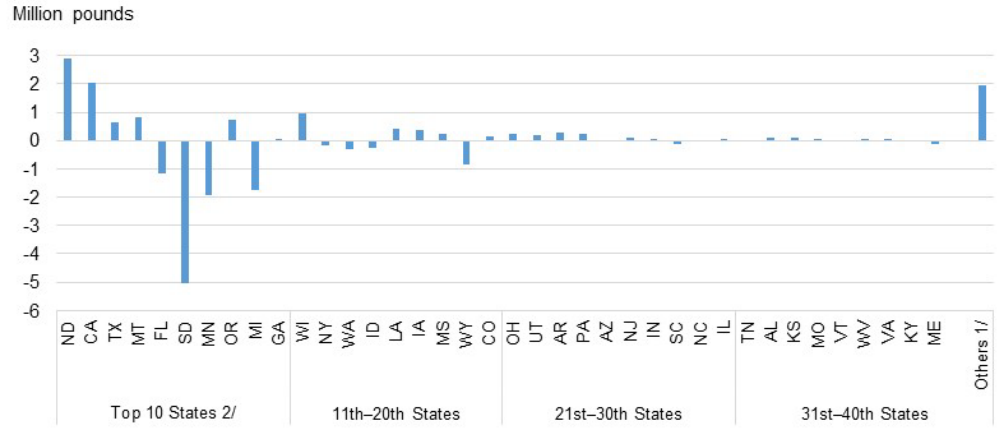
Note: The dotted line represents a linear trend line that shows the general pattern or direction of the data.
Source: USDA, National Agricultural Statistics Service.

Table 6: Over-the-year change in honey production, honey-producing colonies, and yield between 2021 and 2022.

	Production		Colonies		Yield	
	Pounds	Percent	Number	Percent	Pounds per colony	Percent
Top 10 States 1/	-2,690,000	-3	-30,000	-2	-2	-4
11th–20th States	180,000	1	-7,000	-1	2	3
21th–30th States	919,000	12	-1,000	0	4	10
31st–40th States	-1,789,000	-39	-17,000	-20	0	0
Other States 2/	1,967,000	146	25,000	89	14	30
United States	-1,413,000	-1	-30,000	-1	0	0

1/ The States are ranked in descending order according to their 2022 honey production.
2/ Due to NASS' confidentiality rules, data in some States cannot be published and instead, combined in the "Other States" category. In 2021, data for Hawaii was published but was included with the "Other States" category in 2022.
Source: Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Figure 20
Over-the-year change in honey production between 2021 and 2022, by State

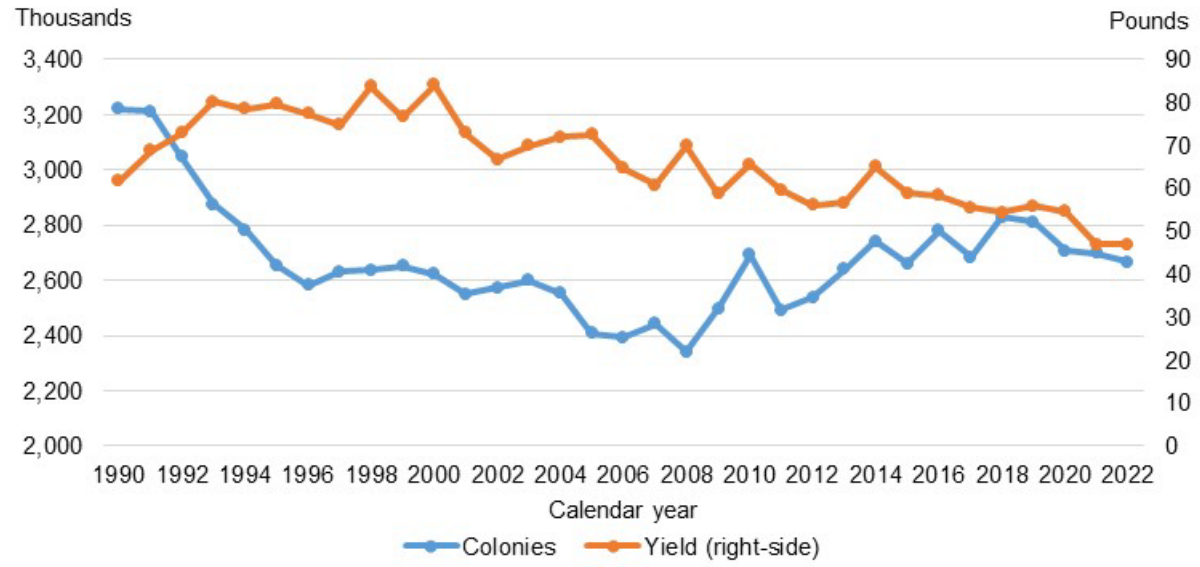


1/ Due to NASS' confidentiality rules, data in some States cannot be published and instead, combined in the "Other States" category. In 2021, data for Hawaii was published but was included in the "Other States" category in 2022.
2/ The States are ranked in descending order according to their 2022 honey production.
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Production Decline Is Driven by Fewer Colonies and Record-Low Colony Yield

The lower U.S. honey production in 2022 is due to a 30,000-reduction (1 percent) in the number of honey-producing colonies and an unchanged yield per colony of 47 pounds (figure 21). The number of colonies improved after reaching the lowest level in 2008 (2.3 million). However, after peaking at 2.8 million post-2018, the number of colonies have declined for 4 consecutive years, a trend not seen since 1993–96. Between 2018–2022, the U.S. lost a total of 161 million colonies (6 percent).

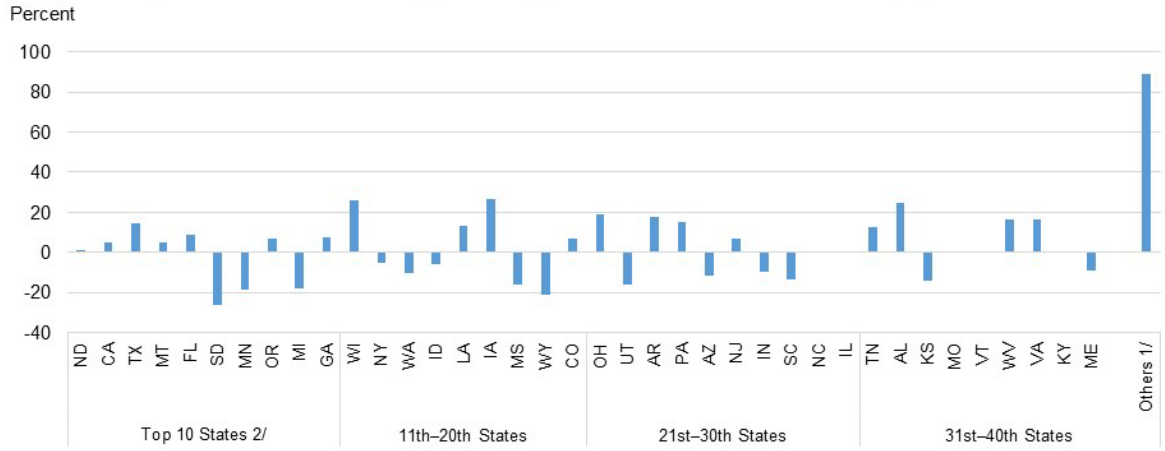
Figure 21
U.S. honey-producing colonies and yield per colony, 1990–2022



Source: USDA, National Agricultural Statistics Service.

The number of colonies in 2022 is lower across the States' groupings except for the "Other States" category (table 1, column 4). While data for States in this category are confidential, a potential explanation for the larger number of colonies is the Hawaii's inclusion in 2022. A closer look at the State-level shows that South Dakota, Minnesota, and Michigan–major producers with the largest over-the-year honey production losses, experienced the largest losses in colonies of 18–26 percent (figure 22).

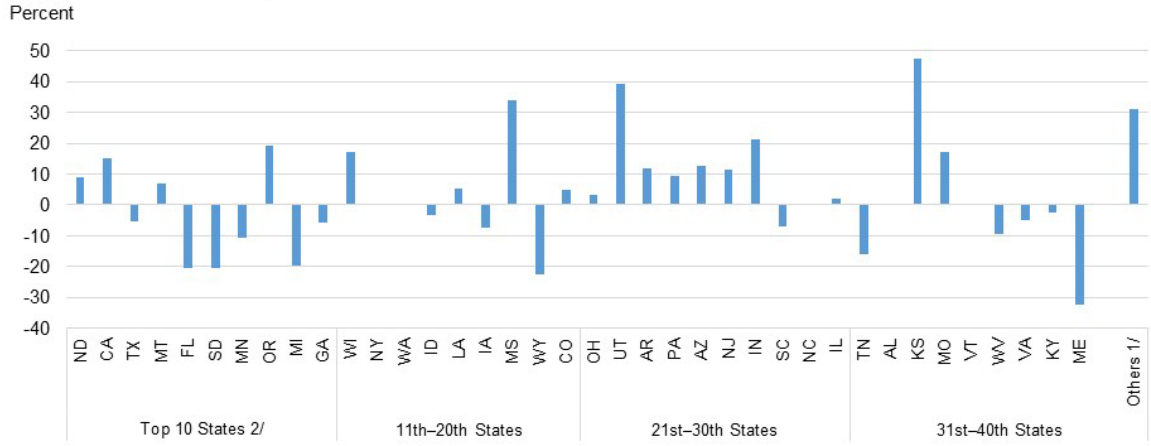
Figure 22
Percent change in the number of honey-producing colonies between 2021 and 2022, by State



1/ Due to NASS' confidentiality rules, data in some States cannot be published and instead, combined in the "Other States" category. In 2021, data for Hawaii was published but was included in the "Other States" category in 2022.
2/ The States are ranked in descending order according to their 2022 honey production.
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Although the yield per colony in 2022 at 47 pounds is unchanged from last year, it is the lowest since 1990. While there were years when yield recovered, a declining trend is evident. As with the number of colonies, the yield improvement in some States is offset by the yield decrease in others which include 6 of the top 10 States (figure 23). Major States are among those with the largest over-the-year declines–Florida (down 21 percent from 2021), South Dakota (20 percent), Minnesota (11 percent), and Michigan (20 percent).

Figure 23
Percent change in colony yield between 2021 to 2022, by State



1/ Due to NASS' confidentiality rules, data in some States cannot be published and instead, combined in the "Other States" category. In 2021, data for Hawaii was published but was included in the "Other States" category in 2022.
2/ The States are ranked in descending order according to their 2022 honey production.
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

The condition of honey-producing colonies and yield are related to honeybee health. Honeybee health, in turn, can be affected by several environmental stressors as discussed in the next section.

Environmental Stressors Affect Honeybee Health

A number of environmental stressors can affect honeybee health, including parasites and pests, pathogens, poor nutrition, and sublethal exposure to pesticides (USDA, Agricultural Research Service [ARS], 2022). These factors tend to overlap and interact with one another, further complicating honeybee health. Researchers also suspect that changing climate conditions will add to the existing stresses on honeybee health (Durant, 2022).

For beekeepers, Varroa mite is a major problem causing colony losses today (USDA ARS, 2022, Ambrose et al., 2017). Varroa mite is an external parasite that directly attacks honeybees and may also indirectly damage honeybees by transmitting pathogenic viruses. Beekeepers also face Colony Collapse Disorder (CCD), also defined as a dead colony, which happens when most worker bees disappear while leaving behind the live queen and immature bees (USDA ARS, 2022). The reported cases of CCD have declined substantially over the last few years; however, no scientific cause for CCD has been proven yet.

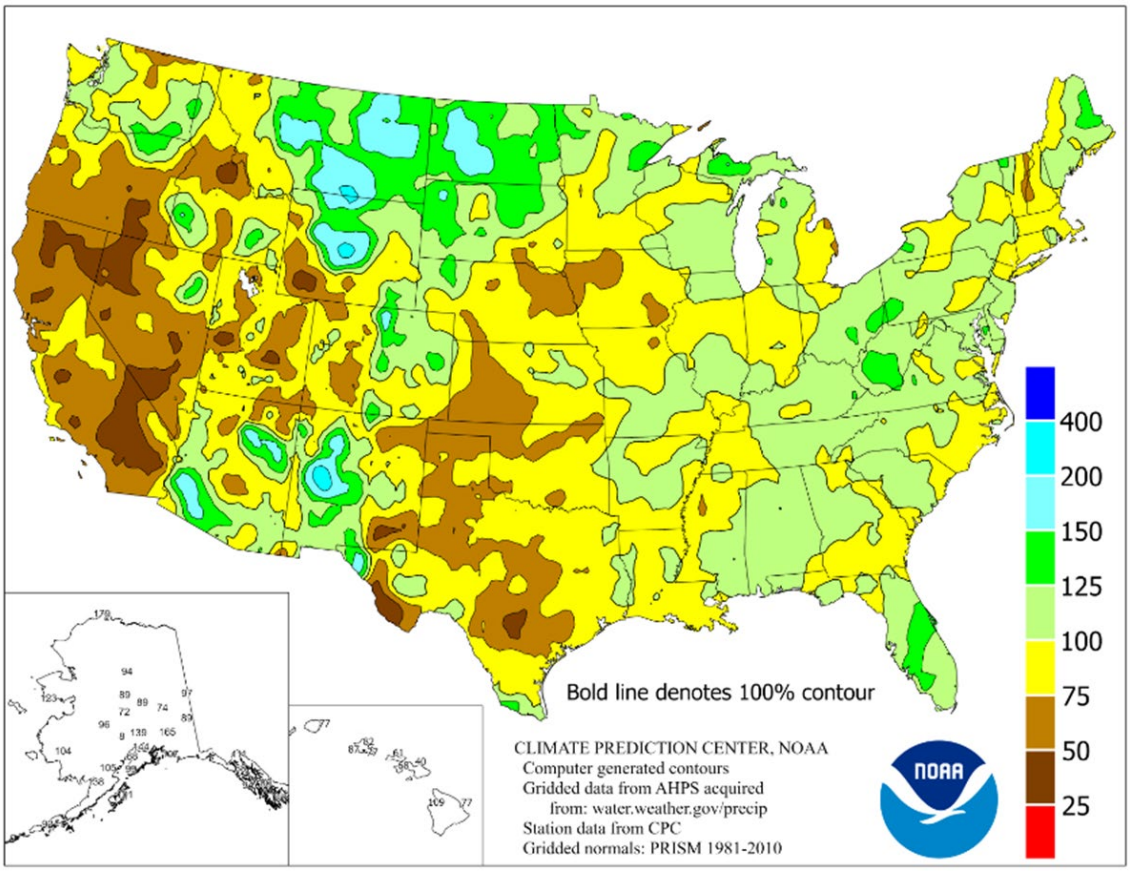
To protect bee colonies from pesticide misuse, the U.S. Environmental Protection Agency has established regulations on pesticide application. In the report published by USDA Office of the Chief Scientist (OCS) (2022), one priority of improving pollinator health is to identify and enhance Integrated Pest Management (IPM) options and Best Management Practices (BMPs). Although IPM and BMPs method have been developed, the report indicated that more research is needed to understand what deters growers and beekeepers from adopting such practices, and to mitigate the effects of environmental stressors on pollinators.

Stressors Include Extreme Weather

Since honeybees rely on nectar and pollen gathered for their diet, the lack of diverse forage plants from monocrop environment and urbanization can weaken their health. Nectar supplies are especially important for colonies to survive through winters and droughts. Droughts in the past few years, including in 2022, have decreased floral nectar and other bee forage, which led to beekeepers using sugar supplements to keep the managed colonies alive (Durant, 2022).

The National Oceanic and Atmospheric Administration's (NOAA) map of percent of normal precipitation between January–December reflects abnormal rain and drought conditions over 2022 (figure 24). The western United States was in drought conditions for most of the 2022 summer, contributing to the decrease in floral resources on which commercial honeybees typically forage. Hurricanes and heavy rains affected southern States. In Florida, Hurricane Ian drowned many hives in late 2022, and the surviving colonies were left with a lack of food as the hurricane destroyed the forage (Weir, 2022). Although the number of colonies in Florida may have recovered, the colony yield in the State took a hit.

Figure 24
Percent of normal precipitation in U.S. States, January–December 2022



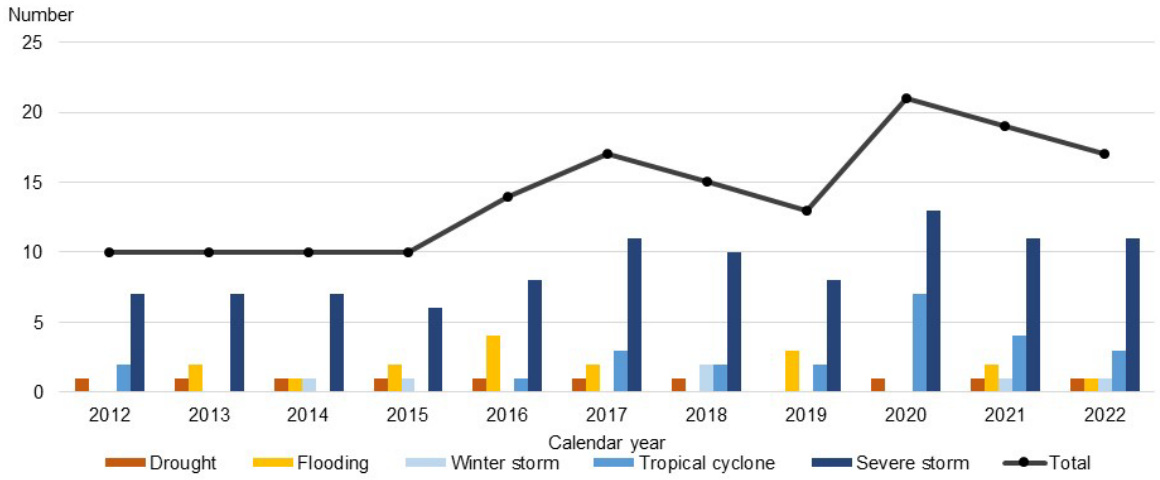
Source: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

Figure 25 includes selected recent weather and climate disasters where overall damages/costs reached or exceeded $1 billion (including Consumer Price Index adjustment to 2023), which shows an increase in tropical cyclones and severe storms in the past few years.

A variety of cover crops, such as legumes and wildflowers, can serve as abundant and diverse sources of nectar and pollen for pollinators. These cover crops offer suitable nesting sites for

ground-nesting bees and provide protective cover for other pollinator species (Williams et al., 2015), contributing to successful pollinator reproduction and population persistence. Certain cover crops, particularly those with dense vegetation or standing residue, can serve as shelter for pollinators during adverse weather conditions or overwintering periods (Blaauw & Isaacs, 2014). These protective coverings create microclimates that offer refuge and increase the survival rates of pollinators, ensuring their availability for subsequent pollination activities.

Figure 25
Number of billion-dollar weather and climate disasters by year, 2012–22



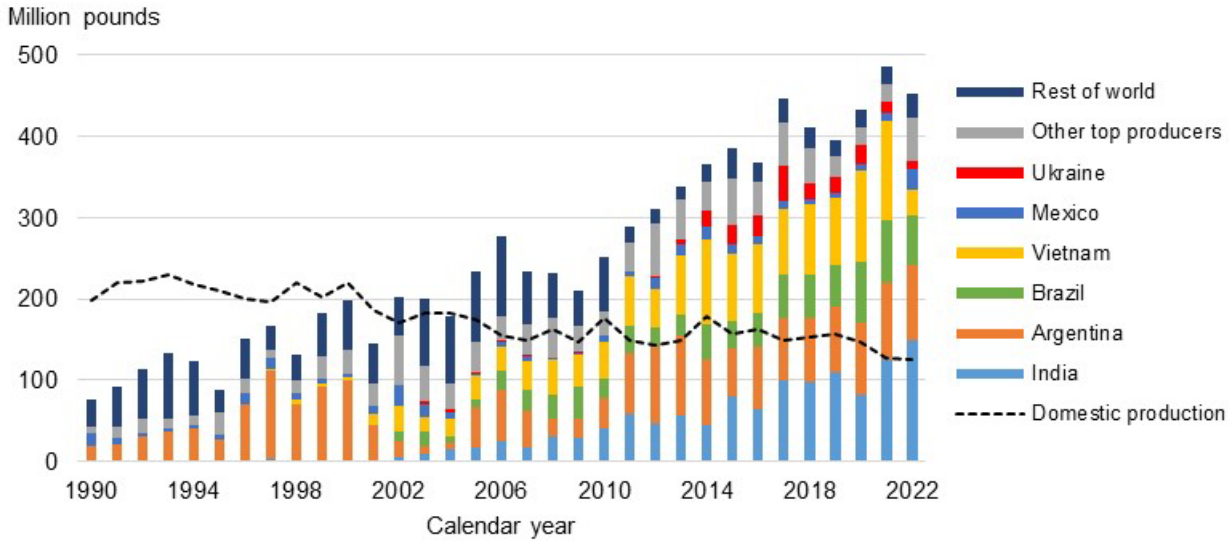
Note: This chart excludes freeze and wildfire from the list of billion-dollar weather and climate disasters for the purpose of this article.
Source: National Oceanic and Atmospheric Administration, National Centers for Environmental Information, *Billion-Dollar Weather and Climate Disasters*.

United States Is World's Largest Honey Importer

Imported honey has increasingly contributed for most of the U.S. honey supply (sum of beginning stocks, production, and imports). Since 2002, imports have been larger than domestic honey production and peaked at 619 million pounds in 2021, about 74 percent of domestic supply (figure 26). According to the Food and Agriculture Organization (FAO) of the United Nations database, the United States is the world's largest importer of honey, accounting for 29 percent of global imports in 2021.

Using the recent 5-year average (2018–22), the largest suppliers to the U.S. in descending order are India, Vietnam, Argentina, Brazil, and Ukraine. The combined imports from India, Argentina, and Brazil alone have consistently surpassed domestic production since 2014. The amount of honey imported from India closely matched domestic production in 2021 and surpassed it by 23 million tons in 2022.

Figure 26
U.S. honey imports, by major foreign sources, and domestic production, 1990–2022



Source: USDA, Economic Research Service calculations using data from USDA, National Agricultral Statistics Service.

U.S. Honey Imports Are Down in 2022

U.S. honey imports in 2022 declined by 34 million pounds (7 percent) from last year to 452 million. However, the share of honey obtained from foreign countries increased to 75 percent because of the over-the-year reduction in domestic production and beginning stocks.

The reduction in 2022 was mainly driven by the lower imports from Vietnam, which is down 92 million pounds (74 percent) to 32 million from last year's 123 million. Reduced imports from the other top international suppliers–namely Brazil (16 million pounds), Ukraine (3 million), and Argentina (2 million)–contribute to offsetting the increase in other countries.

A probable contributor for the reduced imports from Vietnam, Brazil, and Argentina is the final determinations by the U.S. Department of Commerce (DOC) and the U.S. International Trade Commission (ITC) on April 7, 2022, and May 2023, respectively. Both agencies determined that the U.S. honey industry was materially injured due to the imports of raw honey from these countries being sold in the United States at less than the fair market value. Thus, on June 10, DOC issued the anti-dumping AD orders and duties.[5] Except for an entity in Brazil, exporters and/or producers in Vietnam relatively received the largest duties. As documented in the USDA, Economic Research Service *Sugar and Sweeteners Outlook* June 2021 Special Article, the AD

[5] The notice is available from the Federal Register, Volume 87, Number 112, pages 35501–35504.

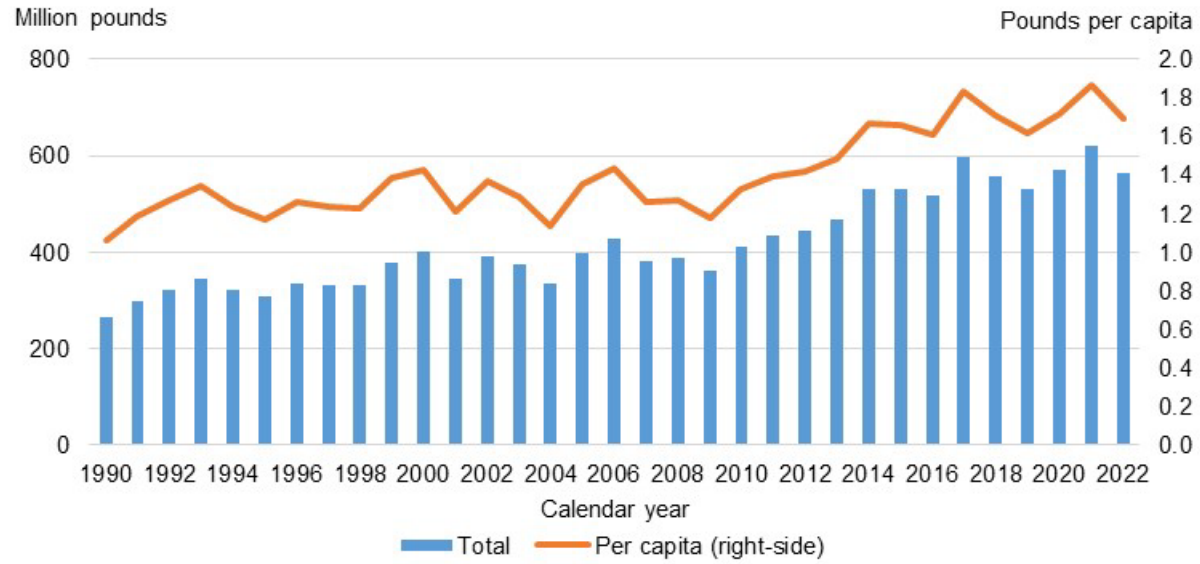
investigation started after certain U.S. producers filed the AD petitions with the ITC on April 21, 2021, against these foreign suppliers.

Imports from Ukraine are down for the second year in a row since 2021, likely due to the continuing conflict with Russia.

Domestic Consumption In 2022 Is Also Lower

Implied domestic consumption–calculated as total supplies less exports and ending stocks–have steadily increased since the 1990s and peaked at 619 million pounds in 2021 (figure 27). This is partly due to the growing U.S. population, but also to increasing per capita demand for honey and honey-sweetened products, which also peaked in 2021 at 1.9 pounds. The upward trend has been attributed to consumers' perception of honey as a healthy sweetener alternative.

Figure 27
U.S. honey consumption, 1990–2022



Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Given the over-the-year decline in imports, as well as in domestic production and carry-in stocks, domestic consumption in 2022 declined by 54 million pounds (9 percent) to 565 million. Per capita consumption in 2022 also went down 9 percent to 1.7 pounds. However, one limitation of the implied domestic use calculation is that it may underestimate the actual demand in certain situations, such as when the prohibitive anti-dumping duty rates have likely discouraged imports from the major international suppliers. An alternative gauge of high U.S.

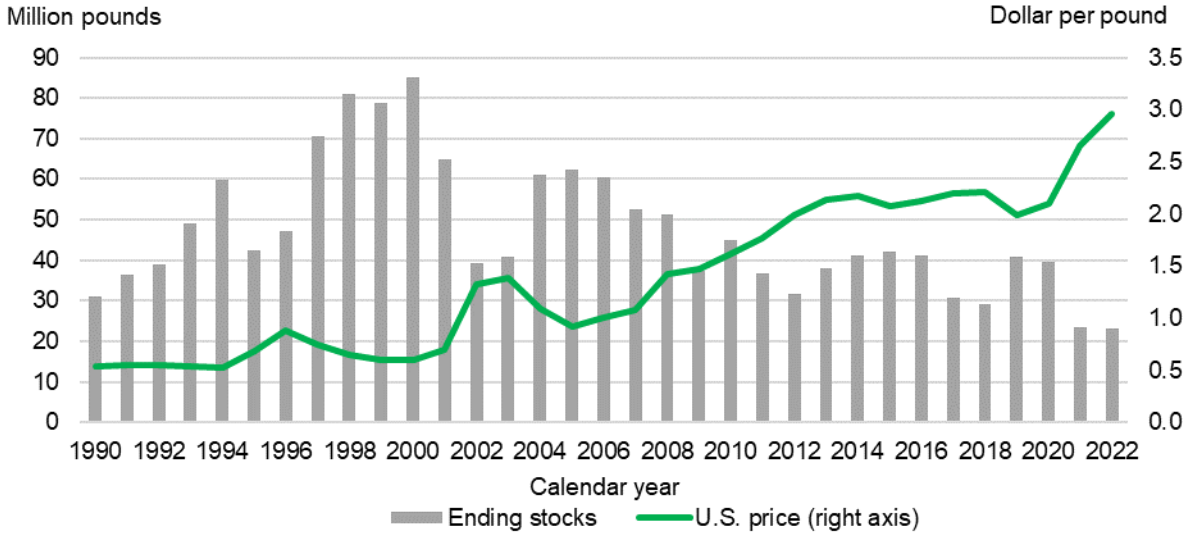
honey demand is the upward trend in honey prices.

Limited Honey Supplies Created Upward Pressure on Prices

Generally, high prices reflect strong demand particularly when supplies are limited. This negative correlation is evident in the substantial increase in the U.S. national average honey price over the past 32 years amid the declining trend in ending stocks (supply less domestic consumption and exports), a variable that reflects adequacy (figure 28). In 2022, ending stocks were 23 million pounds, 223,000 lower than last year (1 percent) and all-time low since 1990.

As published by NASS, the U.S. national average honey price is about 50 cents per pound before 1995, and initially rose above $1.00 per pound in 2002. The price climbed above $1.50 in 2010, and 3 years later was more than $2.00. Prices stayed below $2.25 between 2013 and 2018 and declined to just under $2.00 in 2019. Since then, prices increased for 3 consecutive years and reached $3.00 in 2022, a record-high since 1990. This is about 3 times larger than the 2018 Farm Bill's national average loan rate for honey of 69 cents per pound.

Figure 28
Correlation between U.S national average honey price and ending stocks, 1990–2022



Source: USDA, National Agricultural Statistics Service.

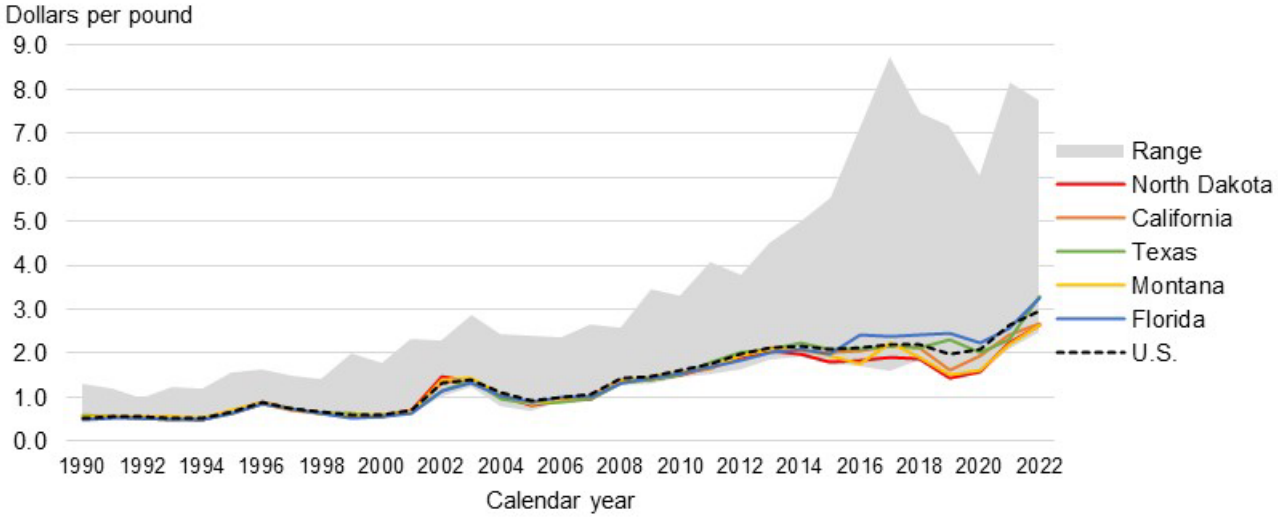
Geographic differences in transportation costs, quality, production levels, and taste preferences also contribute to price differences across the States. Prices among the States tend to have less variability before 2008. Afterwards, States' prices tend to vary more, with the difference

between the State with the lowest and highest price reaching as high as $7.00 per pound in 2017. While the price difference has declined from this peak, it remains above $5.00 in 2022.

In general, honey prices tend to be lower in the large producing States. As seen figure 29, prices in the top 5 producing States are closer to the lower range and below the U.S. national average price in most years. Using 2022 data, prices in the smaller-producing States in the “21st to 30th” and “31st to 40th” groups tend to be higher than the national average and the larger producing States.

There is a high possibility that honey prices remain elevated if U.S. demand continues to be strong, but supply remains limited in the event the anti-dumping duties continually discourage imports and domestic production does not increase in time to fill the gap. Currently, there are Federal programs aimed at providing financial assistance to domestic honeybee producers in times of disasters (Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish or ELAP) and promoting conservation practices (Conservation Reserve Program or CRP) to support pollinator species including honeybees.

Figure 29
Honey prices in top 5 producing States and the United States, 1990–2022



Note: The States are ranked in descending order according to their 2022 honey production.
Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

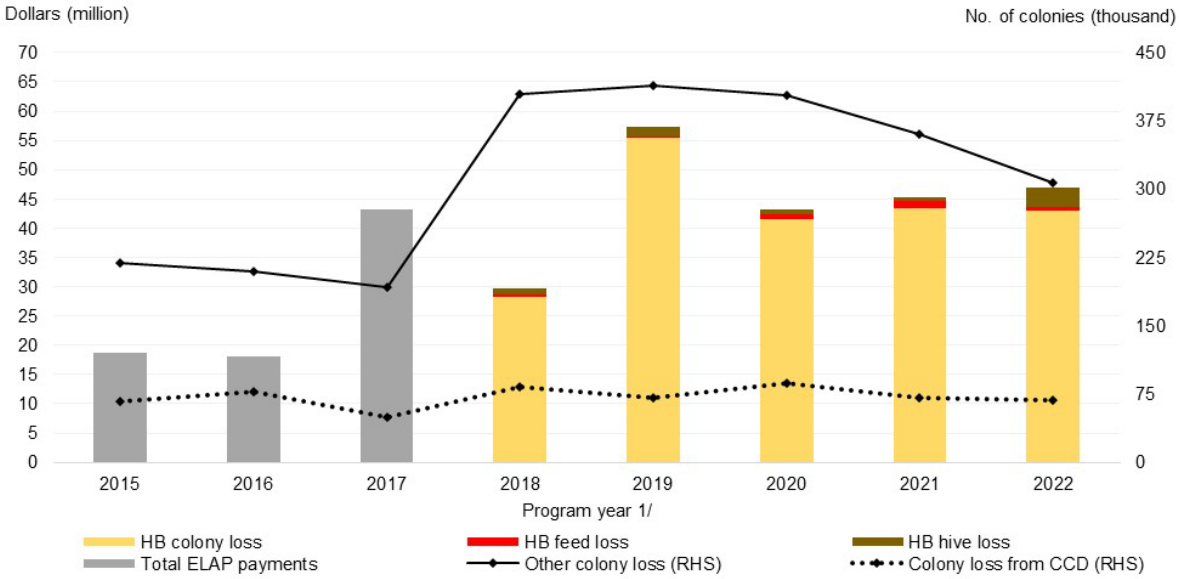
Emergency Assistance Averaged $45 Million Between 2020–22

The USDA, Farm Service Agency (FSA) administers the Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish (ELAP) program, which provides financial assistance to eligible honeybee producers who incurred colony, hive, and feed losses as a direct result of a qualified adverse weather or loss condition. This can include, but is not limited to, Colony Collapse Disorder (colony loss only), earthquake, winter storm (colony loss only), excessive wind, flood, hurricane, lightning, tornado, volcanic eruption, and wildfire.

ELAP was initially authorized in the 2008 Farm Bill and received permanent authorization status as part of the 2014 Farm Bill. ELAP funding was capped at $50 million per year under the 2008 Farm Bill and at $20 million under the 2014 Farm Bill. The 2018 Farm Bill removed the funding cap, effective starting with the 2017 program year. ELAP payments ranged from $16 million to $20 million during 2012 to 2016 and have increased substantially in recent years.

Payments under ELAP for honeybee losses totaled $30 million in 2018 and rose to $57 million in 2019 (figure 30). Between 2020 to 2022, payments averaged $45 million annually. Over the last 5 years, 95 percent of the assistance was for colony losses, followed by hive losses (3 percent), and feed losses (1 percent). Payments spiked in 2019 coinciding with a 2-year period characterized by an increased number of colony losses caused by extreme weather events, pests, and diseases. These losses have since declined but the 300,000 colonies lost in 2022 remained 55 percent higher than in 2017. Meanwhile, losses related to colony collapse disorder—the sudden die-off of honeybee colonies—have been relatively stable since 2015, averaging about 72,000 colonies, but persist as a challenge to U.S. honeybee producers.

Figure 30
ELAP payments in total (2015–2017) and to honeybee producers (2018–2022), and honeybee colony losses



CCD = colony collapse disorder; ELAP = Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish Program; HB = honeybee; RHS = right-hand side Y-axis.
Notes: Breakdown of payments from FSA is not available prior to 2018. Colony loss data from NASS, which is on a calendar year basis, is not available prior to 2015.
1/ Prior to 2019, the ELAP program year was based on a fiscal year (October 1 to September 31). As part of the 2018 Farm Bill, enacted on December 20, 2018, reporting of program expenditures was changed to calendar year (January 1 to December 31) for 2020 and subsequent years for consistency with the other disaster assistance programs.
Source: USDA, Farm Service Agency (FSA) for ELAP payments; USDA, National Agricultural Statistics Service (NASS) for colony loss.

CP42 Acres on CRP Land Averaged 521,000 Monthly in Last 5 Years

USDA, FSA also administers the Conservation Reserve Program (CRP), which implements long-term rental contracts with growers to voluntarily remove land from agricultural production, and to plant species that will improve environmental health and quality. Within the CRP, the Pollinator Habitat Initiative (CP42) focuses on restoring and managing native grasslands to support pollinators. Its primary goal is to create thriving nesting, breeding, and foraging habitats for diverse pollinators, including bees, butterflies, birds, and other essential species. Through the provision of abundant and diverse forage resources and shelter, CP42 promotes the proliferation of native flora and fauna, fosters biodiversity, and supports the vital ecosystem services provided by pollinators.

Native grasslands established through CP42 serve as critical habitats for various pollinator species. These habitats offer suitable nesting sites, ample food sources, and protective cover, ensuring the viability and reproductive success of pollinators. By bolstering pollinator populations, CP42 contributes to the resilience end equilibrium of ecosystems, as well as the continued pollination of agricultural crops and native plants. CP42's focus on nurturing native

grasslands guarantees the availability of suitable habitats and resources necessary for pollinators to thrive, thereby promoting the overall wellbeing of ecosystems.

The establishment of native grasslands within CP42 fosters biodiversity by supporting a diverse range of pollinator species. These habitats encourage the coexistence and interdependence of numerous plant, insect, bird, and mammal species, engendering resilient ecosystems that are better equipped to withstand disturbances and adapt to changing environmental conditions. CP42's emphasis on pollinator conservation directly benefits farmers by ensuring the availability of pollination services for their crops, assisting in securing the success and sustainability of agricultural systems by fostering robust pollinator populations.

Between May 2018 and September 2020, CP42 acreage averaged approximately 507,000 monthly (figure 31). Installed acres increased by more than 7 percent in October 2020, and averaged 539,000 acres monthly for the following 2 years before decreasing by 3.75 percent in October 2022 and averaging 514,000 acres monthly through March 2023. Altogether, over the last 5 years, acres of CP42 installed on CRP land averaged approximately 521,000 acres monthly.

Figure 31
Monthly average of acreage installed under the USDA Conservation Reserve Program, Pollinator Habitat Initiative, May 2018–March 2023

CRP = Conservation Reserve Program; CP42=Pollinator Habitat Initiative.
Note: The chart shows Practice CP42 Pollinator Habitat installed on CRP by acreage, cumulative, from May 2018 through March 2023. This does not include approximately 40,000 acres from signup 39 before CP42 was implemented.
Source: USDA, Farm Service Agency.

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