



Feed Outlook: March 2024

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Global 2023/24 corn stocks reduced

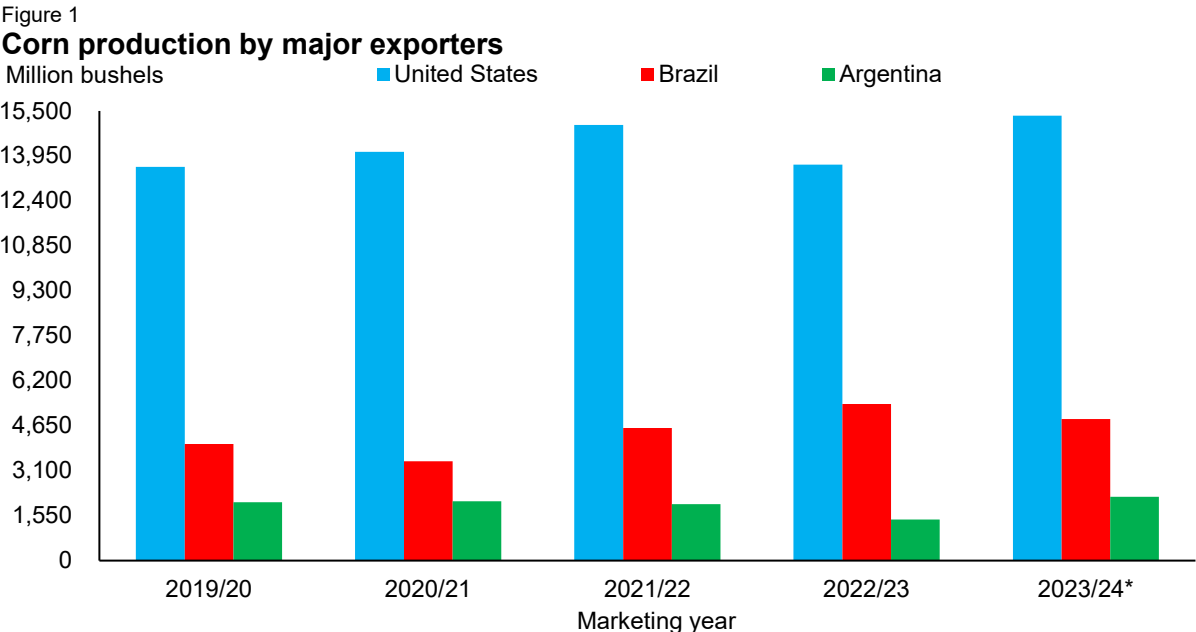
Foreign corn production is lower this month, with the largest reductions for **South Africa**, **Ukraine**, and **Mexico**. Despite lower projected output, **Ukraine** has sufficient corn supplies from accumulated stocks to export more and its success with recent exports boosts the country's grain exports. Increased 2022/23 and 2023/24 corn output, competitive prices, and a swift pace of exports bolster **Argentina's** export prospects. Corn exports by **Brazil** are down because of a continued sluggish export pace. Global barley and sorghum trade are projected slightly higher and **China's** imports of these crops are increased.

There are no changes to the 2023/24 U.S. corn outlook this month. The season-average price forecast received by U.S. farmers is lowered to \$4.75 per bushel from \$4.80, based on prices observed to date. The 2023/24 season-average barley and oats prices are also revised this month. Updated trade data provide support for adjustments to barley and oats trade forecasts. U.S. 2023/24 barley imports and exports are raised by 1 million bushels each, to 15 and 4 million bushels, respectively. Oats imports are lowered by 3 million bushels to 77 million, on prospects of lower imports from Canada.

Domestic Outlook

Movements in Feed Grains Prices

Expectations of a recovery in global corn production for 2023/24 have contributed to a reversion of U.S. corn market prices to lower levels. For context, a series of production setbacks in major corn producing—and exporting—countries over the past 5 years (see figure 2) resulted in price run-ups to levels not seen since the 2012 U.S. drought. For the 2023/24 marketing year, a record U.S. crop is complemented by healthy prospects for Argentina and Brazil—providing a year-over-year boost to the global corn supply—ultimately placing downward pressure on prices.



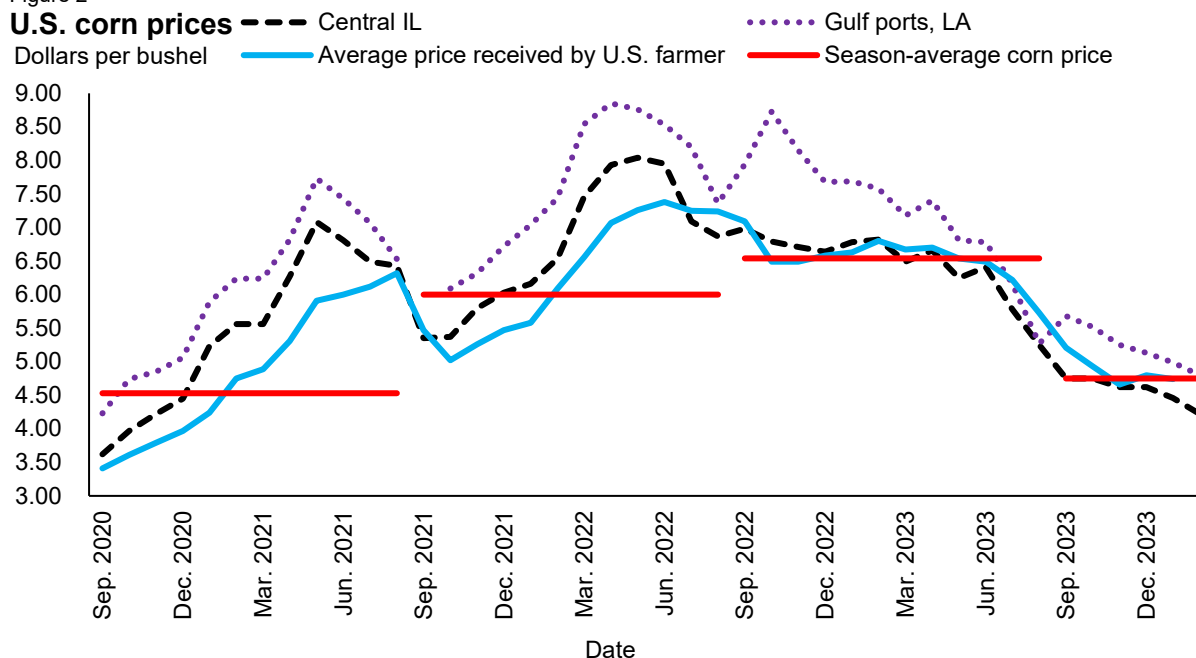
Note: Asterisk (*) denotes forecast.
Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

Over the past 5 years, U.S. corn prices peaked across principal cash markets, just shy of \$9 per bushel. However, just over a year later, prices in these same markets were 40 percent lower (on average) to start the 2023/24 marketing year. Throughout the next 6 months, U.S. corn-cash prices fell \$0.55 per bushel in Central Illinois, for example, and by \$0.88 per bushel in the Louisiana Gulf (see figure 3).

The lower cash-market prices have been transmitted to average-farm prices. The average price U.S. corn farmers received in September 2023 was \$5.21 per bushel, compared to \$4.74 per bushel in January 2024—a nearly \$0.50 per bushel reduction. These factors have contributed to

a \$0.05 per bushel reduction in the projected average corn price received by U.S. farmers in 2023/24, to \$4.75 per bushel.

Figure 2



Source: USDA, Economic Research Service using data from Feed Grains Database, March 2024.

The 2023/24 all-barley price forecast is also lowered this month. Considering reported feed and malting barley prices received by U.S. farmers to date, the 2023/24 all-barley price is lowered from \$7.50 to \$7.40 per bushel. This change also takes into account projected feed and malting barley use as a proportion of total all-barley supplies.

Oats prices have remained steady, and strong, throughout the 2023/24 marketing year. In fact, prices received by U.S. oats farmers in January are the second highest reported price behind the June 2023 price at \$4.07 per bushel. Given the reported prices to date, the 2023/24 season-average oats price forecast is raised from \$3.70 per bushel to \$3.80 per bushel.

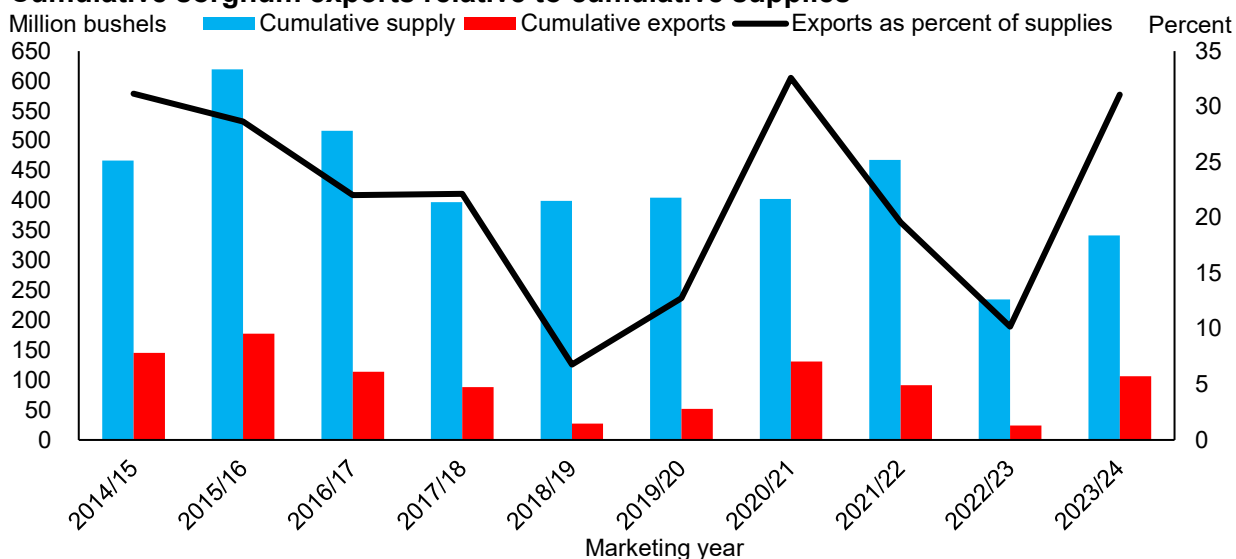
Sorghum Exports Continue

Recent trade data indicate January U.S. sorghum export volumes nearly reached 23 million bushels, bringing the 2023/24 cumulative total just above 106 million bushels. For context, this export volume is 2.8 million bushels shy of 2022/23 total exports, with 7 months of 2023/24 trade volumes unrealized. U.S. export sales data suggest U.S. sorghum exports will remain strong in the coming months. As of February 29, outstanding sorghum sales were reported to be roughly 110 percent higher than the same time last year at 56.6 million bushels.

Global demand for U.S. sorghum, particularly by China, has affected domestic sorghum use. Although U.S. sorghum production recovered in 2023/24 from a low level in 2022/23, sorghum exports have constituted a larger percentage of domestic supplies to date. Looking back even 1 year further to 2021/22, when sorghum output was 130 million bushels higher than the 2023/24 projection, sorghum exports through January accounted for 19.6 percent of cumulative supplies (beginning stocks + production + sorghum imports, through January). For 2023/24, this measure is 11.5 percentage points higher at 31 percent. Consequently, a smaller proportion of 2023/24 sorghum supplies (to date) are available for domestic use (see figure 4).

Figure 3

Cumulative sorghum exports relative to cumulative supplies



Note: Asterisk (*) denotes forecast. Cumulative supplies are represented by the aggregate of beginning stocks, production, and imports through January.

Source: USDA, Economic Research Service using data from USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates* and Foreign Agricultural Service, *Global Agricultural Trade System*.

In fact, lower domestic sorghum use is reflected in data provided by the U.S. Department of Energy, Energy Information Administration. Its January 2024 *U.S. Feedstocks consumed for production of biofuels* report indicates 857,000 bushels of sorghum were used in ethanol production in December 2023, contributing to the year-to-date total of 7.2 million bushels. Despite the larger 2023/24 crop, this is 15.4 million bushels lower than last year’s sorghum use for ethanol production during the same period—one-third of the way through the marketing year. Consequently, food, seed and industrial sorghum use is lowered by 5 million bushels this month to 30 million. This change is offset with a higher export forecast, which is raised to 245 million bushels. The season-average sorghum price forecast remains unchanged this month at \$4.85 per bushel.

International Outlook

Global Coarse Grain Output Is Projected Lower

Global coarse grain production for 2023/24 is projected down 2.7 million tons this month to 1,507.4 million tons. Reductions are projected in corn and barley output, with partly offsetting small increases in sorghum and oats. Coarse grain production in the United States is unchanged this month.

For information and a brief discussion of this month's total—as well as by country and type of grain changes in coarse grain production—see tables A1, A2, and maps A1 and A2 below. For the back-year production changes, see table A3 (directly below table A2).

Table A1 - World and U.S. coarse grain production at a glance for 2023/24, March 2024					
	Region or country	Production	Change from previous month ¹	YoY Change ²	Comments
Million tons					
Coarse grain production (total)					
↓	World	1,507.4	-2.7	+61.4	
↓	Foreign	1,104.5	-2.7	+15.0	Changes are made for a number of countries and commodities. See table A2.
	United States	402.9	No change	+46.4	See section on U.S. domestic output.
World production of coarse grains by type of grain					
CORN					
↓	World	1,230.2	-2.3	+72.7	
↓	Foreign	840.5	-2.3	+29.7	Reduced prospects for South Africa, Mexico, Ukraine, Venezuela, and Russia are partly offset by higher corn production projected for Argentina, Syria, and Iraq. See table A2.
	United States	389.7	No change	+43.0	See section on U.S. domestic output.
BARLEY					
↓	World	142.2	-0.6	-7.4	
↓	Foreign	138.2	-0.6	-7.7	Reductions for Iraq, Syria, and Mexico are partly offset by higher production prospects in Australia. See table A2.
	United States	4.0	No change	+0.2	See section on U.S. domestic output.
SORGHUM					
↑	World	59.7	+0.1	+4.4	
↑	Foreign	51.6	+0.1	+1.1	Higher output is projected for Australia. See table A2.
	United States	8.1	No change	+3.3	See section on U.S. domestic output.
OATS					
↑	World	19.4	+0.1	-5.8	
↑	Foreign	18.6	+0.1	-5.8	A small increase is projected for Turkey.
	United States	0.8	No change	Fractional	See section on U.S. domestic output.
¹ Change from previous month. ² YoY: year-over-year changes. ³ Totals may not add due to rounding.					
For changes and notes by country, see table A2.					
Source: USDA, Foreign Agricultural Service, <i>Production, Supply and Distribution</i> database.					

Table A2 - Coarse grain foreign production for 2023/24 at a glance, March 2024













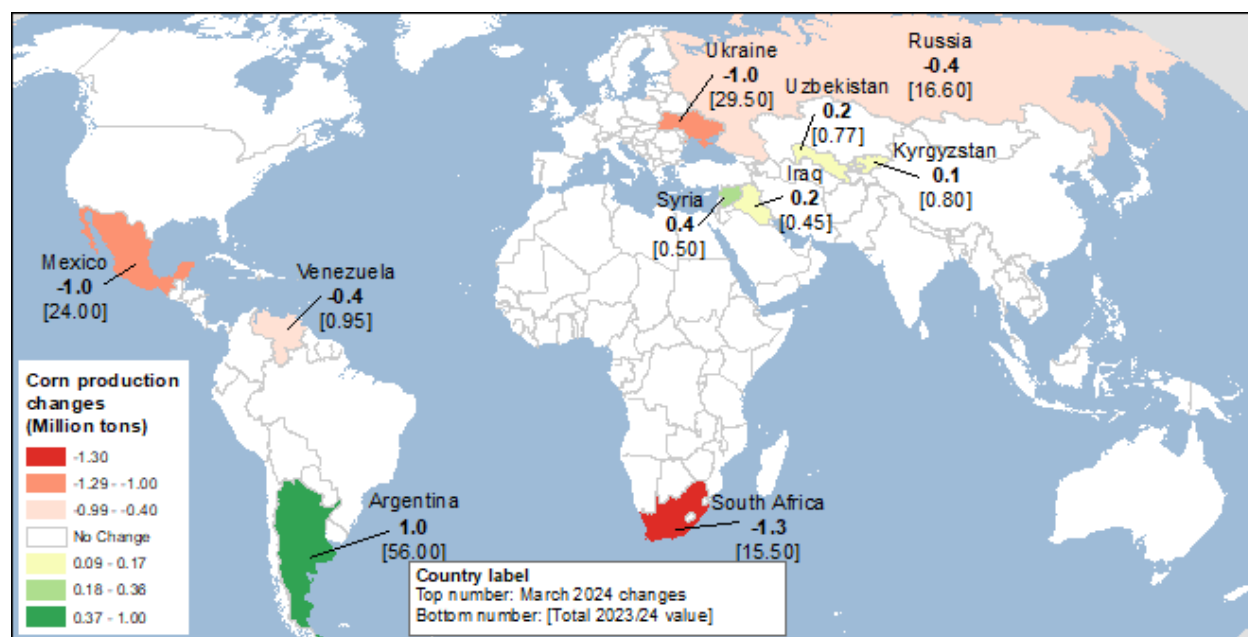
Type of crop	Crop year	Production	Change in forecast ¹	YoY ² change	Comments	
<i>Million tons</i>						
Coarse grain production by country and by type of grain						
ARGENTINA						
	Corn	Mar-Feb	56.0	+1.0	+20.0	Corn planting is complete in Argentina. Corn output for 2023/24 is projected higher this month due to an increase in reported area under the crop. For the previous crop year of 2022/23 (that ends in February 2024), corn production is also projected 1.0 million tons higher this month, to reach 36 million. Exports and domestic use assumptions indicate that corn output in Argentina was higher than previously estimated.
SOUTH AFRICA						
	Corn	May-Apr	15.5	-1.3	-1.6	Although the corn got favorable rains in the beginning of the season, the dryness since the beginning of February is expected to reduce yields. The country's Crop Estimates Committee (CEC) issued its first production forecast in line with the reduction.
MEXICO						
	Corn	Oct-Sep	24.0	-1.0	-4.1	Winter corn is irrigated in Mexico. Insufficient water supplies lowered reservoirs levels in the main producing winter corn areas (Sinaloa). While the harvest of summer corn is almost over, planting of winter corn is underway, though with substantial delays. Corn area in Mexico is projected lower for the second month in a row.
	Barley	Jul-Jun	0.8	-0.2	Slightly lower	The barley story is very similar to corn. Insufficient reservoir levels are affecting the mostly irrigated winter barley. While the harvest of the summer barley is almost over, planting of winter barley has been slow. Barley area is projected lower. Barley yield is also reduced this month.
UKRAINE						
	Corn	Oct-Sep	29.5	-1.0	+2.5	Corn harvest in Ukraine stalled at the level of 92 percent of planted area. Given low domestic prices for corn, it is unlikely that farmers will harvest much more. Consequently, harvested corn area is projected lower this month.
RUSSIA						
	Corn	Oct-Sep	16.6	-0.4	+0.8	The change in projection is based on data reported by the Federal Service for State Statistics (Rosstat).
VENEZUELA						
	Corn	Jul-Jun	1.0	-0.4	-0.1	Corn area is projected down this month as low domestic prices and persisting diesel and labor shortages reduced planting.
AUSTRALIA						
	Barley	Dec-Nov	10.8	+0.8	-3.3	Barley in Australia is a winter crop, and harvesting of winter crops is complete by now. According to the most recent report by the Bureau of Agricultural and Resource Economics and Sciences (ABARES) of the Australian Government, barley yields turned out to be higher than projected last month.
	Sorghum	Mar-Feb	2.0	+0.2	-0.6	Good rainfall in eastern Australia support higher sorghum yields. According to the most recent report by the Bureau of Agricultural and Resource Economics and Sciences (ABARES) of the Australian Government, sorghum yields are higher than projected last month.
SYRIA						
	Barley	Jul-Jun	0.5	-0.6	+0.3	Revised area and yields are based on information from the Ministry of Agriculture of Syria and on FAOSTAT ³ data.
	Corn	Jul-Jun	0.5	+0.4	Slightly lower	Revised area and yields are based on FAOSTAT ³ data that match the Statistical Yearbook of Syria.
IRAQ						
	Barley	Jul-Jun	0.2	-0.6	Slightly lower	Area is adjusted to include the Kurdish region previously not accounted for. Revised yields are lower than before and are based on data from the Central Statistics Organization of Iraq. The revision goes back to 2021.
¹ Change from previous month. Smaller changes are made for several countries, see map A for changes in corn . ² YoY: year-over-year changes. ³ FAOSTAT: a dataset disseminated by the FAO - Food and Agriculture Organization. Source: USDA, Foreign Agricultural Service, <i>Production, Supply and Distribution</i> database.						

Table A3 - Coarse grain production by country and by type of grain for 2022/23, March 2024					
Type of crop	Crop year	Production	Change in forecast ¹	YoY ² change	Comments
Million tons					
Coarse grain production by country and by type of grain					
ARGENTINA					
↑ Corn	Mar-Feb	36.0	+1.0	-13.5	Exports and domestic use assumptions indicate that corn output in Argentina was higher than previously estimated. Corn yields for 2022/23 appear to have exceeded previous projections.
CHINA					
↓ Barley	Oct-Sep	1.0	-1.0	-1.1	China's National Bureau of Statistics released final production estimates for small grains. Excessive moisture during harvest is expected to have seriously hurt yields, currently projected the lowest in 50 years.
¹ Change from previous month. Smaller revisions are made for several countries. ² YoY: year-over-year changes. Source: USDA, Foreign Agricultural Service, <i>Production, Supply and Distribution</i> database.					

See map A for the country changes in corn production this month.

Map A – Corn production changes for 2023/24, March 2024



Source: USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

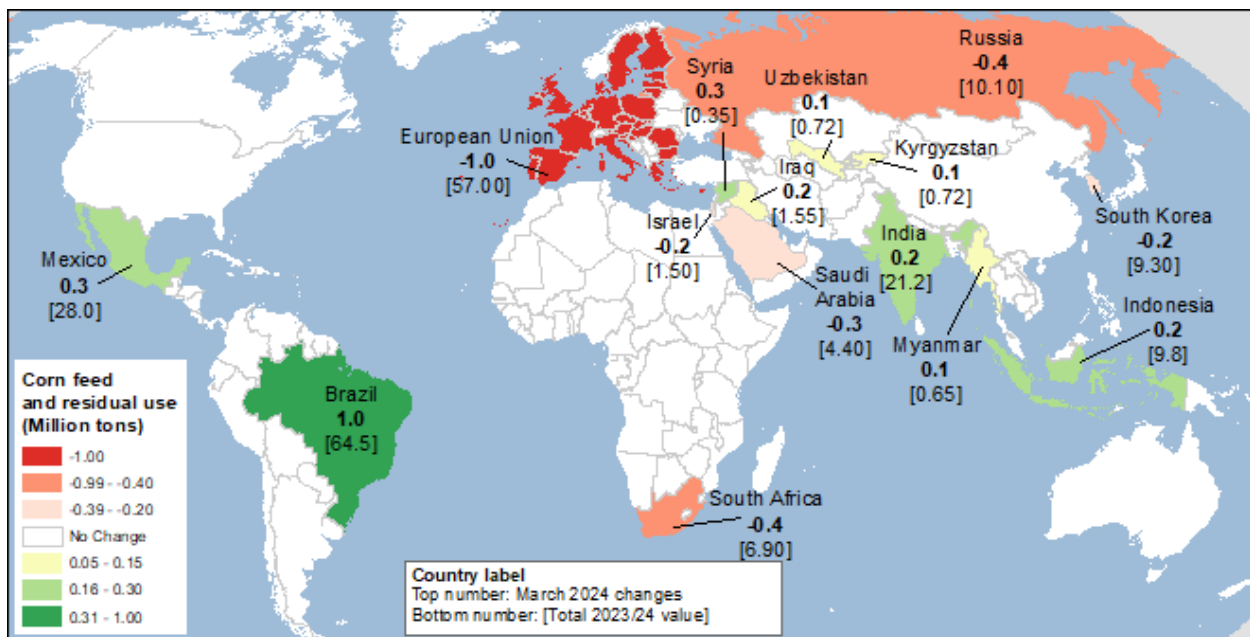
Coarse Grain Consumption Is Slightly Higher, Stocks Are Projected Lower This Month

Global coarse grain use for 2023/24 is projected to reach a record 1,492.6 million tons, up 0.9 million this month. Multiple changes to projected use this month are small and mostly offsetting. Because of strong demand for feed and ethanol in **India**, its domestic use of corn is projected to increase. **Brazil** is projected to export less corn, leaving more of the crop for use within the country. Corn use in **Mexico** and **Indonesia** is raised, based on the strong pace of imports, while the sluggish pace of **EU** corn imports makes less corn available for domestic use. The EU

wheat imports forecast is boosted to a 50-year high, and the region is expected to use more wheat for feeding. Changes in projected corn output are expected to limit use in **South Africa**, **Russia**, and **Venezuela**. Barley domestic use is projected lower for Iraq and **Syria** following a downward revision of production, and for **Saudi Arabia** based on the slow pace of imports. Higher barley and sorghum imports by **China** from Australia are projected to boost China's feed use.

See a visual display of this month's country changes in corn feed and residual use in map B below.

Map B – Corn feed and residual use changes for 2023/24, March 2024

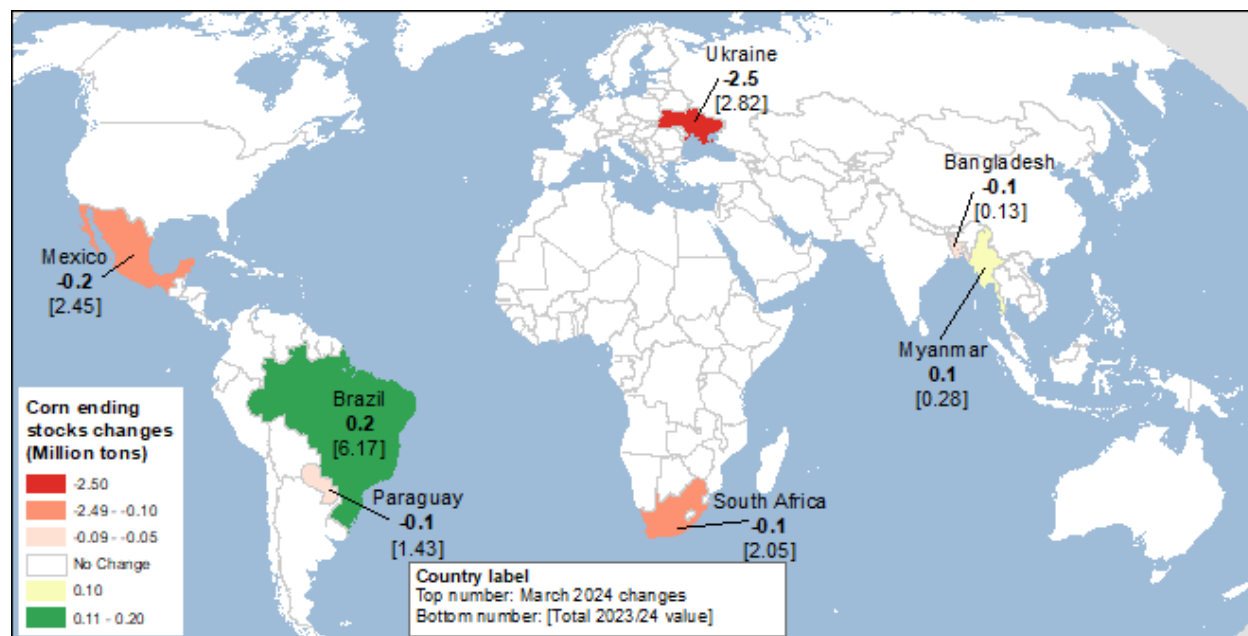


Source: USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

The projected reduction in global coarse grain supplies (lower production that is partly offset by higher beginning stocks), and a marginal increase in use, result in a drop in projected global ending stocks. World 2023/24 coarse grain ending stocks are forecast 2.3 million tons lower than the February projection, to reach 346.1 million. Individual countries' changes in stocks follow production and trade revisions, the largest change being for **Ukrainian** corn (down 2.5 million tons, as output is projected lower while exports rise). All other projected changes in stocks are partly offsetting and 0.2 million tons or lower.

See a visual display of this month's country changes in corn ending stocks in map C below.

Map C – Corn ending stocks changes for 2023/24, March 2024



Source: USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

A Shift Among Major Exporters Continues, Slightly Reducing Global Corn Trade

The March forecast for record-high world **corn** trade for the October-September international trade year 2023/24 is projected 0.5 million tons lower this month at 197.5 million, with further shifts among major corn exporters and importers, mainly in the directions previously identified in the February *World Agricultural Supply and Demand Estimates (WASDE)* report.

Corn exports by **Argentina** for the 2023/24 international October-September trade year are projected 2.0 million tons higher this month, to reach 37 million tons, based on strong reported shipments made from October through February. Argentina's corn prices are currently very competitive, resulting from a weakened currency and increased supplies. The corn local marketing year of 2022/23 in Argentina ends in February 2024, almost in the middle of the international 2023/24 trade year. Corn exports for the 2022/23 local March-February marketing year are projected 1.0 million tons higher this month. The swift pace of exports in the recent 2 months also indicated that production of corn in the previous year of 2022/23 was underestimated and resulted in an upward revision of Argentina's 2022/23 corn output this month (see the production section in table A3 above). For the 2023/24 March-February local marketing year, corn exports by Argentina are also projected 1.0 million tons higher, boosted by larger projected 2023/24 corn output (see the production section in table A2 above).

Ukraine's brisk pace of corn exports continued in February and in the beginning of March. Despite lower projected corn output (see the production section, table A2), Ukraine has sufficient corn supplies and has been using corn stocks—accumulated since the beginning of the Russian war—for exports. The export route incorporating the key Ukrainian ports (Odesa and Chornomorsk) and running close to the Black Sea shore, mainly in neighboring countries' territorial waters, has proven to be a success. The route has allowed Ukraine to ship large amounts of corn via the Black Sea, and reportedly via the Red Sea to China, delivering grain all over the world. Currently, Ukraine is the most price-competitive corn exporter in the world, though there is some indication that its prices are firming up. Corn exports by Ukraine are projected 1.5 million tons higher this month to reach 24.5 million.

The pace of corn exports for **Brazil** has been lagging behind last month's forecast, as Brazil is becoming less price-competitive at the tail-end of its 2022/23 marketing year (March 2023-February 2024) that just ended in February. Based on the preliminary trade data, corn exports for the 2022/23 local March-February marketing year are projected 1.7 million tons lower this month. For the 2023/24 October-September international trade year (that includes most of the second half of the 2022/23 local year), Brazil's exports are reduced 3.0 million tons to 52.0 million, which assumes several more months of lower pace. While down sharply from the previous forecast, Brazil is now projected to be the world's second-largest corn exporter after the United States.

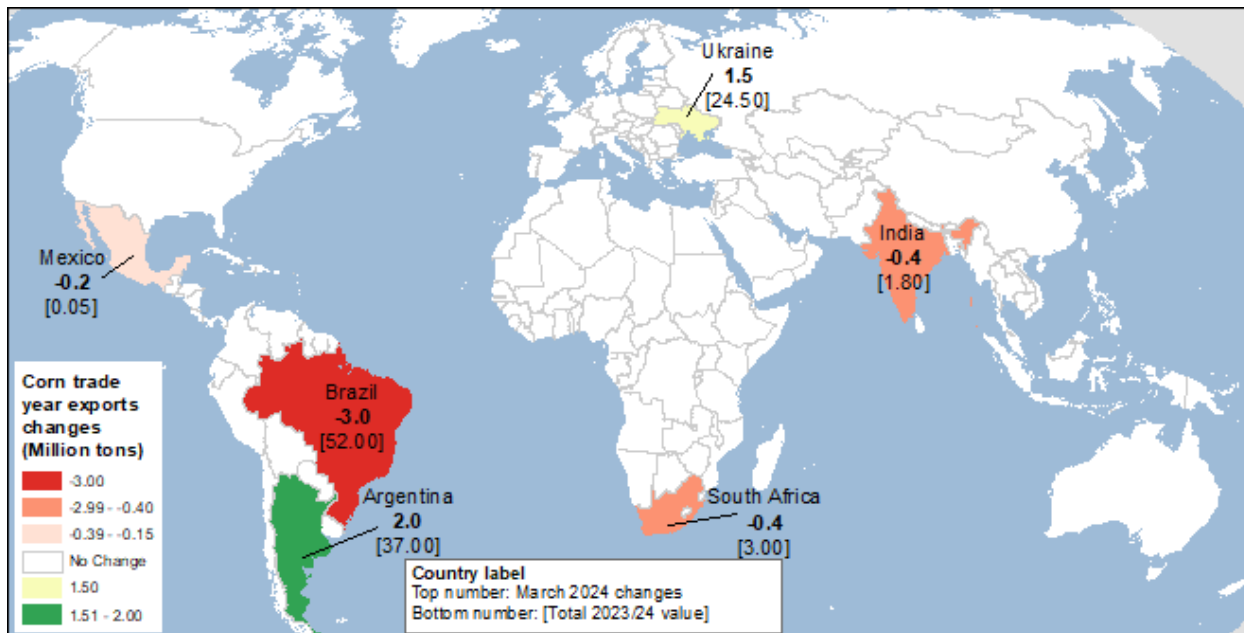
Exports of corn by **India** are also projected to be smaller this month, as India responds to greater domestic demand for feed and ethanol, and high domestic and declining global corn prices combine to make India's corn less competitive. With lower projected corn output, exports by **South Africa** are reduced this month.

Smaller changes in corn exports are made for several other countries this month. See map D below for the by country changes in corn exports this month.

This month, corn imports are projected lower for the **European Union**. The price of corn (from Ukraine) has dropped by relatively less than that of wheat, such that the European Union has responded with reduced imports of corn and increased imports of wheat—to the highest in over 50 years—to replace corn in feed rations. Corn imports are also projected lower for **Saudi Arabia, Algeria**, and several other countries, based on the pace of trade. In **Mexico**, corn imports are increased to reach a record-high of 20.6 million tons. A reduction in corn output that is now projected to be the lowest level in 10 years is expected to boost demand for imported corn. With lower projected corn output, imports by **Venezuela** are increased this month.

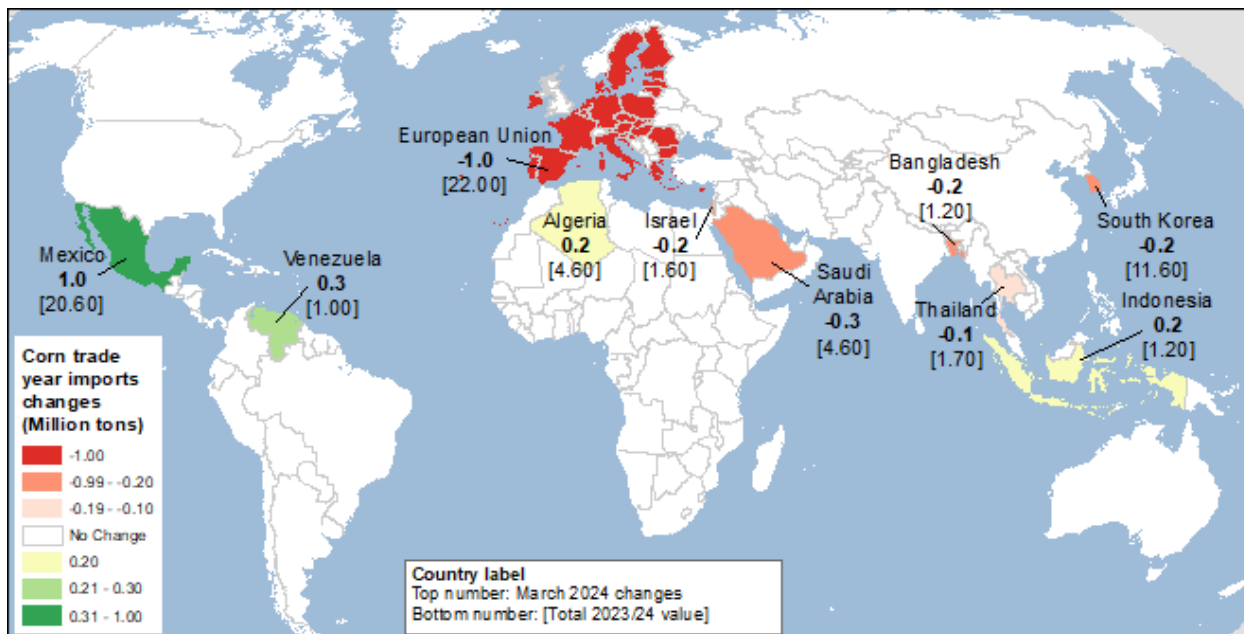
A number changes in corn imports are made for several other countries this month. See map E below for the country changes in corn imports.

Map D – Corn trade-year exports changes for 2023/24, March 2024



Source: USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

Map E – Corn trade-year imports changes for 2023/24, March 2024



Source: USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

Global **barley** trade for the international October-September year is projected 0.5 higher this month, with several shifts in barley imports and exports. Projections for **China's** barley imports continue to increase, up 0.3 million tons to 8.7 million this month, the second-highest level on

record. China's pace of barley imports has been fairly strong, especially after the prohibitively high tariffs on barley imports from Australia—a de facto ban—were lifted in October 2023. Barley imports are also increased for **Morocco**, where current pasture conditions are poor because of a lengthy drought, and for **Mexico** where barley production is projected lower. Based on the pace of recent purchases, barley imports are projected lower for **Saudi Arabia**.

Barley exports are increased for **Australia** and reduced for **Canada**, based on trade data reflecting their exports to China.

Sorghum trade is projected 0.1 million tons higher this month, with higher **U.S** and lower **Argentine** exports. These two changes reflect the dynamics and pace of **China's** sorghum imports that are projected 0.1 million tons higher to reach 7.8 million tons.

Oats trade is projected 0.1 million tons lower this month, with reduced exports by **Canada** and lower **U.S** imports.

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