



# Feed Outlook: February 2024

Aaron M. Ates, coordinator

Olga Liefert

## In this report:

[Domestic Outlook](#)

[International Outlook](#)

## 2023/24 Global Coarse Grain Production Is Reduced

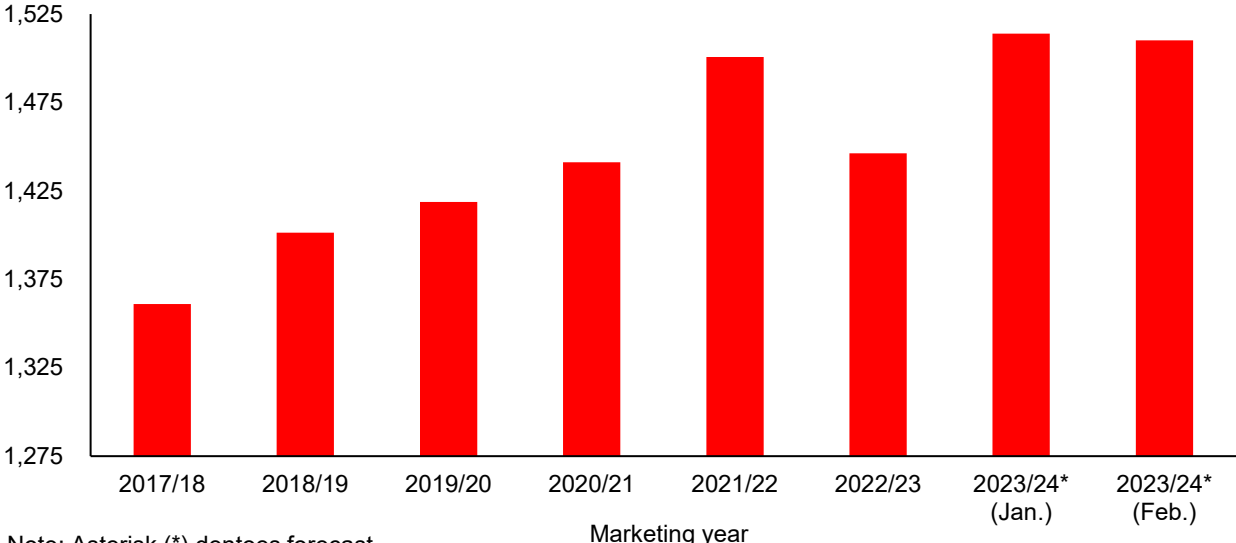
The 2023/24 U.S. coarse grains supply is slightly lower this month at 442.6 million metric tons. Reduced trade between the United States and Canada, particularly U.S. oat imports, results in an overall reduction in coarse grains supply. Adjustments reflecting lower corn and sorghum food, seed, and industrial use are partly offset by increased sorghum export expectations. Nevertheless, reductions in total U.S. coarse grain use outweigh supply losses, lifting ending stocks.

Foreign corn production is lower this month, led by Brazil. A reduction for Brazil reflects lower expectations for the second-crop (safrinha) planting. Brazil's exports are reduced. Ukraine's success with a new export route supports a boost to the country's grain exports. Increased 2022/23 corn output, competitive prices, and a rapid pace of exports bolster Argentina's export prospects. Global barley trade is projected slightly higher and China's barley imports are increased. Projected U.S. corn exports for 2023/24 are left unchanged this month, while sorghum exports are projected higher.

Figure 1

**Global coarse grain production**

Million metric tons



Note: Asterisk (\*) denotes forecast.

Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

# Domestic Outlook

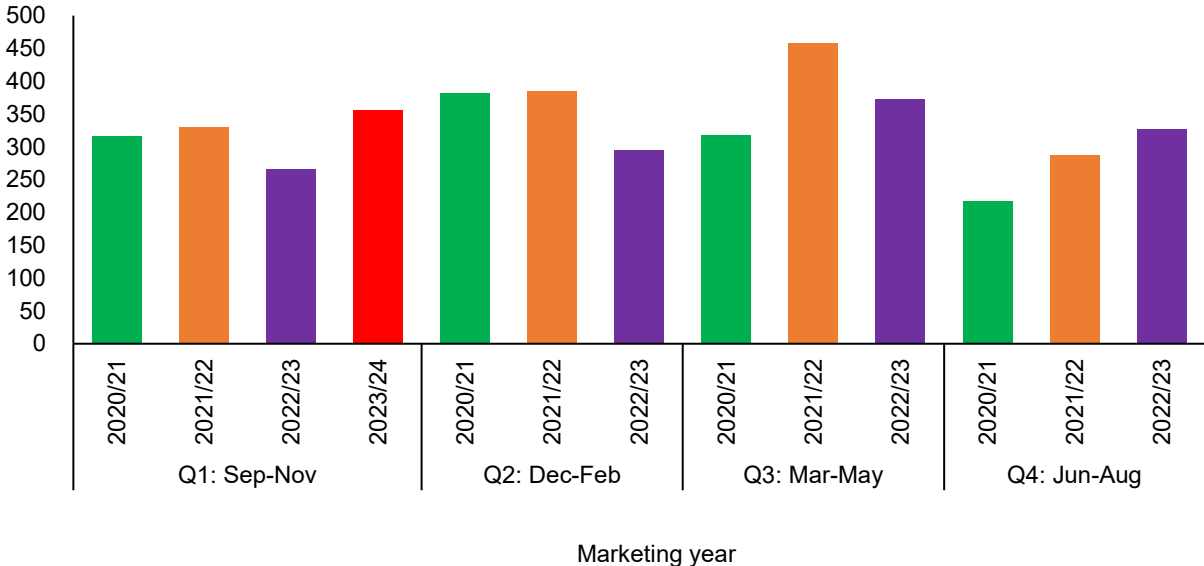
## 2023/24 U.S. Corn Use Is Adjusted Down

Although U.S. corn supplies for 2023/24 are unchanged this month, domestic use is projected 10 million bushels lower. This reduction can be attributed to lower food, seed, and industrial (FSI) corn use—based on indicated glucose and dextrose usage to date—bringing the 2023/24 corn FSI forecast down to 6.78 billion bushels. Because there are no other changes to U.S. corn use, ending stocks are raised to 2.17 billion bushels. The season-average price received by corn farmers is unchanged at \$4.80 per bushel.

## Ethanol Update

Data provided by the U.S. Department of Energy’s Energy Information Administration (EIA) indicates that the United States produced more than 3.9 billion gallons of ethanol in the first quarter of 2023/24 (September-November). For reference, this output is 4 percent larger than the same time last year. This is supported by steady domestic ethanol consumption and foreign demand for U.S. ethanol. In fact, through the first quarter of 2023/24, U.S. exports of fuel ethanol exceed last year’s first quarter volume by nearly 34 percent (see figure 2).

Figure 2  
**Quarterly U.S. exports of fuel ethanol**  
 Million gallons



Source: USDA, Economic Research Service using data from U.S. Department of Energy, Energy Information Administration, *Fuel Ethanol (Renewable) Exports by Destination*.

U.S. ethanol shipments to Canada have steadily increased in recent years. In fact, first quarter ethanol exports to Canada exceed last year's volume by 30 percent. Despite this increase, 2023/24 U.S. ethanol exports to Canada account for a slightly smaller percentage of total first quarter exports relative to last year. Other countries (such as Colombia, India, and the United Kingdom) have captured a larger share of U.S. ethanol exports. Indicators of future export volumes suggest that a strong export pace might persist through the second quarter—further supporting a strong outlook for U.S. ethanol production.

The outlook for U.S. ethanol production, combined with favorable profit margins and implied conversion ratios, support corn use in ethanol production. In December, corn for fuel ethanol use was the highest in the 2023/24 marketing year thus far, at 481.7 million bushels. This brings the 2023/24 cumulative corn use for ethanol and by-products to be 120 million bushels ahead of last year's total. With a record corn crop estimated for 2023/24 and strong foreign demand for U.S. sorghum, some sorghum for fuel ethanol use may be displaced by corn.

First quarter U.S. sorghum exports totaled nearly 44 million bushels. In December, this number was nearly eclipsed with exports nearly reaching 40 million bushels. The majority of U.S. sorghum is shipped to China, to which the U.S. shipped 35 million bushels in December. Consequently, U.S. sorghum use for ethanol fuel production has been affected. First quarter sorghum for fuel ethanol use is reported at 6.4 million bushels by the EIA. For perspective, this is slightly higher than the September 2023 sorghum use for fuel ethanol production alone. Considering these factors, the 2023/24 U.S. sorghum export forecast is raised 10 million bushels this month to 240 million bushels. This change offsets a 10-million-bushel reduction in sorghum food, seed, and industrial use that now sits at 35 million bushels. The U.S. estimate for corn use for ethanol and by-products is unchanged this month at 5.375 billion bushels.

## Reduced Livestock Inventories Lower Grain Consuming Animal Units

The 2023/24 grain consuming animal units (GCAU) forecast is lowered 0.37 units this month to 100.4 units based on reduced livestock inventories. Although the 2023/24 GCAU estimate is lower than last month, it is still higher than the 2022/23 GCAU estimate of 99.7.

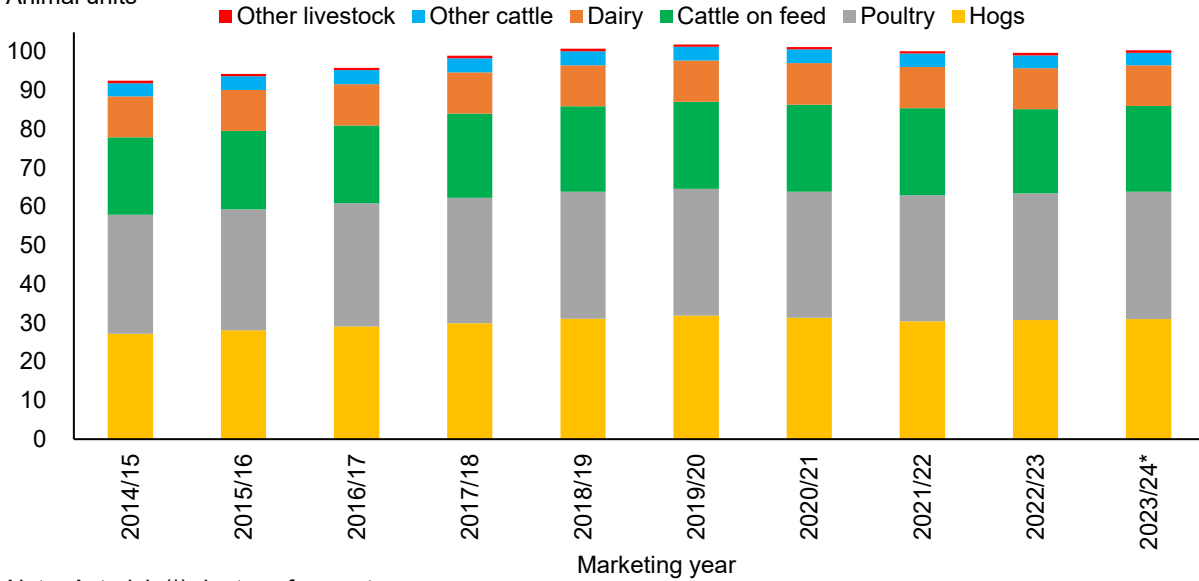
USDA, National Agricultural Statistics Service (NASS) released its bi-annual *Cattle* report on January 31, 2024. All cattle and calves in the United States totaled 87.2 million head as of January 1, 2024—2 percent below the previous year. All-cattle-on-feed inventories for all feedlots totaled 14.4 million head on January 1, 2024, a 2-percent increase over the January

2023 estimate, but below prior expectations given cattle on feed for feedlots with capacity for 1,000 head or greater. Combined with a reduction in other beef cattle inventories, reduced (total) beef cattle inventories greatly impact GCAU. Additionally, a lower dairy heifer number more than offsets a slight increase in dairy cows, further reducing GCAUs. Lastly, large reductions in the poultry sector—particularly for broilers—account for the largest portion of the decrease in this month’s GCAU estimate.

Figure 3

**Grain consuming animal units**

Animal units



Note: Asterisk (\*) denotes forecast.

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

# International Outlook

## Brazil Leads a Coarse Grain Production Decline

Global **2023/24** coarse grain production is projected down 3.8 million tons this month to 1,510.1 million. A reduced forecast production in **Brazil** (for corn), **Mexico** (for corn and sorghum), **Serbia**, and **Philippines** more than offsets an increase in **India**, **Turkey**, and some other countries. Most of the reduction is for world corn, down 3.2 million tons from the previous month. Global sorghum output is down 0.4 million tons this month, while changes in other coarse grain are slight. This month, U.S. coarse grain production is unchanged. See table A1.

For the second month in a row, corn output in **Brazil** is projected lower. Like last month, the reduction is coming from a lower projection for the area planted for corn. The 2023/24 local marketing year for corn in Brazil begins in March 2024 and runs through February 2025. The first-crop corn—about a fourth of projected total Brazilian corn output—was planted from September through December 2023. However, about 3/4 of Brazilian corn output comes from second-crop (safrinha) corn, usually planted after the soybean harvest in January-March. Corn prices continue to decline and were already on the low side when farmers were making planting decisions and buying inputs. Reductions in expected returns for corn are projected to further limit the area for the second-crop corn. Total corn area is projected to be 0.5 million hectares lower this month. The assumptions for the second-crop corn yields are unchanged. With reduced crop area, 2023/24 corn production for Brazil is projected down 3.0 million tons at 124 million and 13 million tons lower than a year ago.

Corn output in **Mexico** is reduced. The summer crop was affected by drought conditions and damage from hurricanes. Winter planted area (which is irrigated) is also lagging with low reservoir levels. Corn area is projected to be the lowest level since 2011/12. Area is also projected lower for sorghum, for which production is projected 0.5 million tons lower.

In addition to the two countries mentioned above, a number of smaller production changes are made this month for the 2023/24 crop year, across countries and crops. Changes are shown in table A1 for global, foreign, and U.S coarse grain production (by type of grain), while by country and by type of grain changes are presented in table A2. For a visual display of the changes in corn production, see map A below the tables.











This month, several revisions were made to estimates for **2022/23**. Corn output in **Argentina** for the 2022/23 crop year (that ends in February 2024) is projected 1.0 million tons higher this

month, to reach 35 million. Exports and domestic use assumptions indicate that corn output in Argentina was higher than previously estimated. The estimate for 2022/23 corn yields was raised. Serbia's corn production was revised for 4 years back, based on the publication of the Serbian Statistical office.



For the back-year production changes, see table A3 (directly below table A2).

<b>Table A1 - World and U.S. coarse grain production at a glance (2023/24), February 2024</b>					
	Region or country	Production	Change from previous month <sup>1</sup>	YoY Change <sup>2</sup>	Comments
<i>Million tons</i>					
<b>Coarse grain production (total)</b>					
↓	World	1,510.1	-3.8	+63.7	
↓	Foreign	1,107.2	-3.8	+17.3	Partly offsetting 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.
<b>World production of coarse grains by type of grain</b>					
<b>CORN</b>					
↓	World	1,232.6	-3.2	+76.6	
↓	Foreign	842.9	-3.2	+33.7	Output reductions for Brazil, Mexico, Serbia, and the Philippines are partly offset by higher production in India and Turkey. See Table A2.
	United States	389.7	No change	+43.0	See section on U.S. domestic output.
<b>BARLEY</b>					
↓	World	142.8	-0.1	-8.8	
↓	Foreign	138.8	-0.1	-9.1	A revision for Kazakhstan. See table A2.
	United States	4.0	No change	+0.2	See section on U.S. domestic output.
<b>SORGHUM</b>					
↓	World	59.6	-0.4	+4.2	
↓	Foreign	51.5	-0.4	+0.9	Lower area and output are projected for Mexico. See table A2.
	United States	8.1	No change	+3.3	See section on U.S. domestic output.
<b>OATS</b>					
↓	World	19.4	-0.1	-5.8	
↓	Foreign	18.5	-0.1	-5.8	Slightly lower output in Kazakhstan.
	United States	0.8	No change	Fractional	See section on U.S. domestic output.
<sup>1</sup> Change from previous month. <sup>2</sup> YoY: year-over-year changes. <sup>3</sup> Totals may not add due to rounding.					
<b>For changes and notes by country, see table A2.</b>					
Source: USDA, Foreign Agricultural Service, <i>Production, Supply and Distribution</i> database.					

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

Type of crop	Crop year	Production	Change in forecast <sup>1</sup>	YoY <sup>2</sup> change	Comments
<i>Million tons</i>					
<b>Coarse grain production by country and by type of grain</b>					
<b>BRAZIL</b>					
 Corn	Mar-Feb	124.0	-3.0	-13.0	Second-crop area expectations are lower than last month, primarily because of decreasing corn prices that diminish expected returns for farmers.
<b>MEXICO</b>					
 Corn	Oct-Sep	25.0	-0.5	-3.1	Corn area is projected lower. Declining corn prices and lower expected returns limit planting, while dryness and the damage from hurricanes resulted in higher-than-normal abandonment rates.
 Sorghum	Oct-Sep	4.4	-0.5	-0.5	Sorghum area is projected lower for reasons similar to those for a reduction in corn area (see above),
<b>SERBIA</b>					
 Corn	Oct-Sep	6.6	-0.4	+2.3	Corn area is revised down and yields are slightly up; corn output is projected lower based on preliminary government estimates.
<b>PHILIPPINES</b>					
 Corn	Jul-Jun	8.3	-0.1	No change	Dryness and heat stress are projected to weigh on corn yields.
<b>INDIA</b>					
 Corn	Nov-Oct	35.5	+0.5	-2.6	Corn area is revised higher again, with planting progress better than previously expected. The change is based on the updated Government estimates.
<b>TURKEY</b>					
 Corn	Sep-Aug	8.4	+0.2	+1.6	There has been higher-than-expected production in the southeastern part of Turkey. Corn yields are projected to reach a record high and the highest in the world (typical for Turkey in recent years).
<b>KAZAKHSTAN</b>					
 Barley	Jul-Jun	2.6	-0.1	-0.7	Lower output is reported by the Bureau of national statistics of Kazakhstan.
 Corn	Jul-Jun	1.2	+0.1	+0.1	Lower output is reported by the Bureau of national statistics of Kazakhstan.
 Oats	Jul-Jun	0.2	-0.1	-0.1	Lower output is reported by the Bureau of national statistics of Kazakhstan.
<sup>1</sup> Change from previous month. Smaller changes are made for several countries, see map A for changes in <b>corn</b> .					
<sup>2</sup> YoY: year-over-year changes.					
Source: USDA, Foreign Agricultural Service, <i>Production, Supply and Distribution</i> database.					

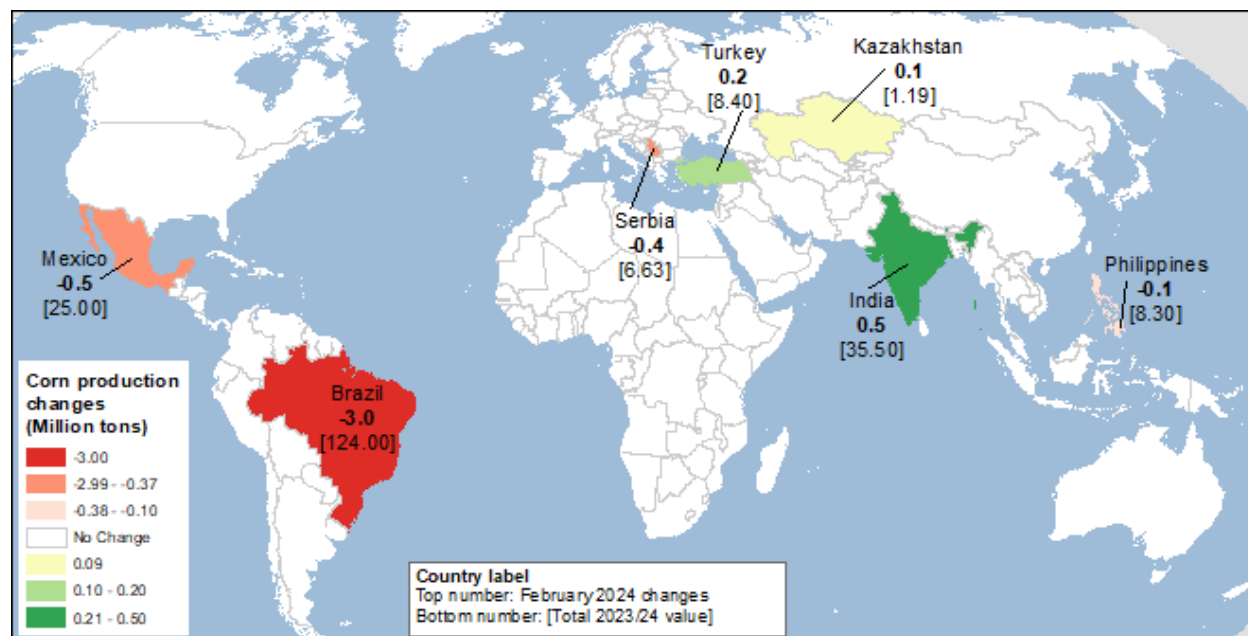
**Coarse grain production by country and by type of grain**

Type of crop	Crop year	Production	Change in forecast <sup>1</sup>	YoY <sup>2</sup> change	Comments
<i>Million tons</i>					
<b>Coarse grain production by country and by type of grain</b>					
<b>ARGENTINA</b>					
 Corn	Mar-Feb	35.0	+1.0	-14.5	Corn yields appear to have exceeded previous projections. See report.
<b>SERBIA</b>					
 Corn	Oct-Sep	4.3	-0.7	-1.7	Corn area is revised down, based on official government reports. Similar revisions are made for 2 years prior to this.
<sup>1</sup> Change from previous month. Smaller revisions are made for several countries. <sup>2</sup> 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, February 2024**



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

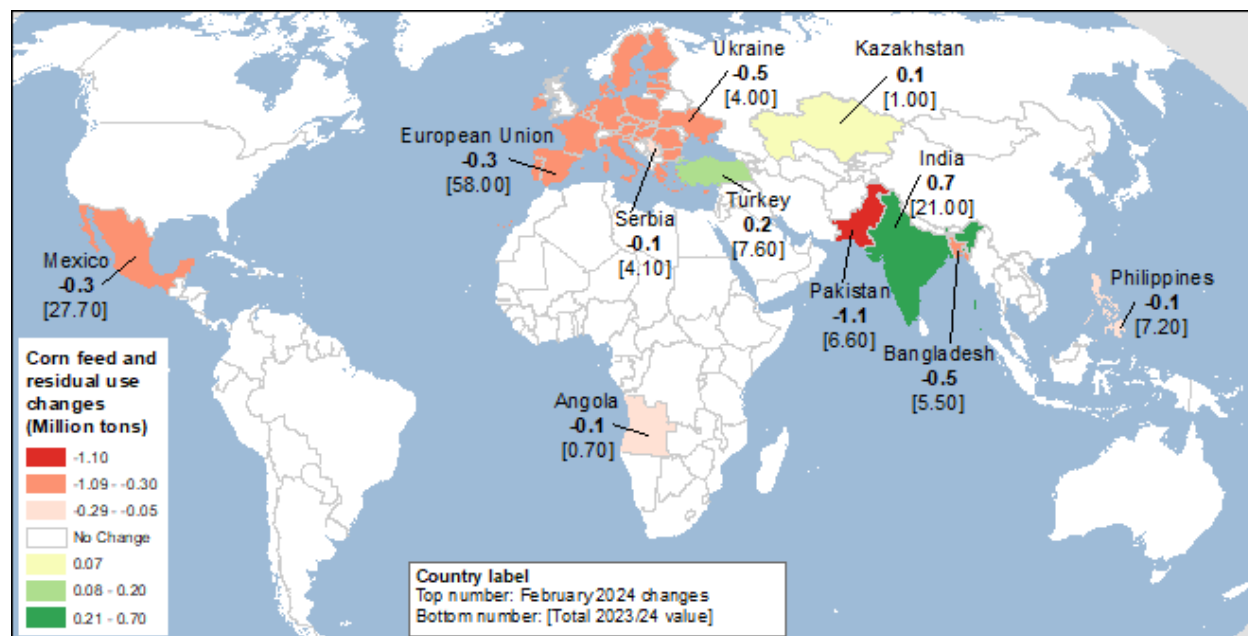
## Coarse Grain Consumption and Stocks Are Projected Lower This Month

Global coarse grain feed and residual use is projected 3.0 million tons lower this month, with a 2.0-million-ton reduction in corn, and lower sorghum and barley feed use. Corn feed use is projected lower in **Pakistan** because a new policy restricting imports of genetically modified soybeans increased the cost of compound feed, adversely affecting Pakistan’s poultry sector (see the market feature “Record Pakistan Corn Exports as GE Soybean Ban Impacts Domestic Feed Demand” in the February issue of “Grain: World Markets and Trade”, USDA, Foreign Agricultural Service). Higher corn exports are expected to limit corn feeding in **Ukraine**, while a reduction in imports lowers feeding for **Bangladesh** and the **European Union**. Changes in projected corn and sorghum output are expected to limit corn and sorghum feeding for **Mexico** but corn feeding is boosted for **India**. Higher barley exports are projected to lower feed use in **Australia**, whereas higher barley imports by China from Australia are projected to boost China’s feed use. Multiple, partly offsetting changes are made this month across countries and commodities. See a visual display of this month’s country changes in corn feed and residual use in map B below.

The projected reduction in global coarse grain production is greater than the decrease in use, resulting in a drop in projected global ending stocks. World 2023/24 coarse grain ending stocks

are forecast 3.2 million tons lower than the January projection, to reach 348.5 million. Individual countries' changes in stocks follow production and trade revisions, the largest change being for **Ukraine** corn (down 1.5 million tons) and for **Brazil** (down 1.0 million tons). All other projected changes in stocks are lower than 0.4 million tons.

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



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

## A Shift Among Major Exporters Brings Global Corn Trade Slightly Down

The February 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 197.9 million, with shifts among major corn exporters.

**Ukraine's** corn exports in January by far surpassed previous expectations and are projected 2 million tons higher at 23.0 million this month. Since the Russian military invasion, Ukraine's corn exports relative to production have been restricted, generating accumulation of stocks. Prior to the invasion, Ukraine—a very export-oriented corn producer—kept corn stocks low, at less than 1.5 million tons on average. In the years 2021/22–2023/24, the average level of annual corn stocks rose to more than 5 million tons, a direct consequence of the conflict (the destruction of port infrastructure and the problems in shipping grain out of Black Sea ports). In the absence of the Black Sea Grain Initiative that expired in July 2023, Ukraine has established a new route that boosts its ability to export. This route incorporates the key Ukrainian ports (Odesa and

Chornomorsk) and runs close to the Black Sea shore, mainly in neighboring countries' territorial waters. After the route proved to be a success, insurance and freight costs became noticeably lower making exports out of Ukraine more viable. Because of the various challenges of exporting since the invasion, Ukraine also expanded and improved its ability to export agricultural goods using the Danube River. Ukraine's corn prices are currently the most competitive in the world.

The recent pace of corn exports by **Argentina** has been swift, exceeding previous expectations. This rapid pace also indicates that production of corn in 2022/23 was previously underestimated (see the production section above). Corn exports for the 2023/24 international October-September trade year are projected 1.0 million tons higher for Argentina (to reach 35.0 million), based on strong reported shipments made from October through January, and 9.2 million tons above a year ago. Corn exports for the 2022/23 local March-February marketing year are also projected 1.0 million tons higher. Prices for Argentina corn are currently very competitive, resulting from a weakened currency. The corn export projection for **Paraguay** is up this month. Since October 2023, Paraguay has exported record amounts of corn to neighboring countries, other countries in South America, and to South Korea.

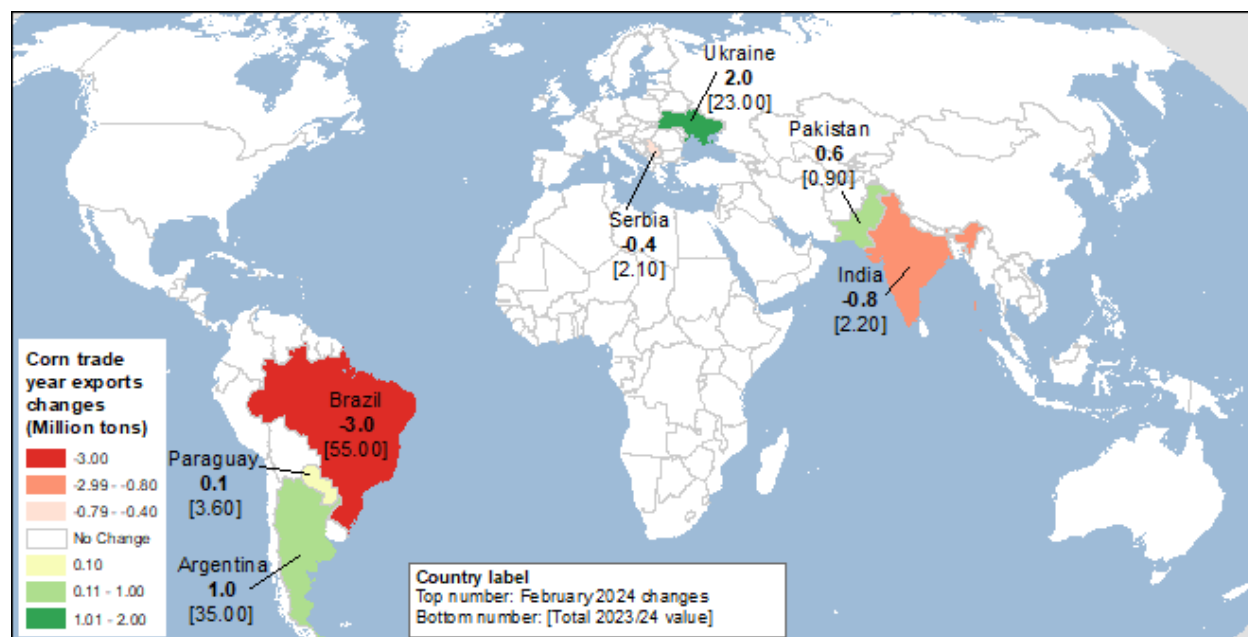
Corn exports are reduced 3.0 million tons for **Brazil** this month to 55.0 million tons, still 1.7 million higher than a year ago. A projected reduction of production of the second-crop (safrinha) corn in the major export-oriented regions in the Center-West of the country is expected to limit Brazil's corn exports. Exports of corn by **India** are also projected to be smaller this month. Despite this month's higher projected corn output, India is expected to export less, as it responds to increased domestic demand for feed and ethanol, and as high domestic and declining global corn prices combine to make India's corn less competitive. Partly offsetting lower corn exports from India, projections for **Pakistan's** corn exports are increased, supported by a bumper harvest, weakening domestic currency, and decreased domestic demand for poultry feed. With lower projected corn output, **Serbia's** exports are reduced this month.

This month, corn trade year imports are adjusted down for the **European Union** and **Bangladesh**, based on the pace of trade. For both countries, the changes show movement in the same direction as in the January *World Agricultural Supply and Demand Estimates* (WASDE) report and follow lower export prospects of their suppliers. Corn imports by the European Union are anticipated to be affected by lower Serbian exports, while Bangladesh corn imports come mainly from India, whose exports are also reduced this month.

**U.S.** corn exports are unchanged this month at 54.0 million tons. U.S Bureau of the Census data through December 2023 and grain inspections for January 2024 show that the pace of shipments for 2023/24 is consistent with the current projection.

See map C for the country changes in corn exports this month.

**Map C – Corn trade year exports changes for 2023/24, February 2024**



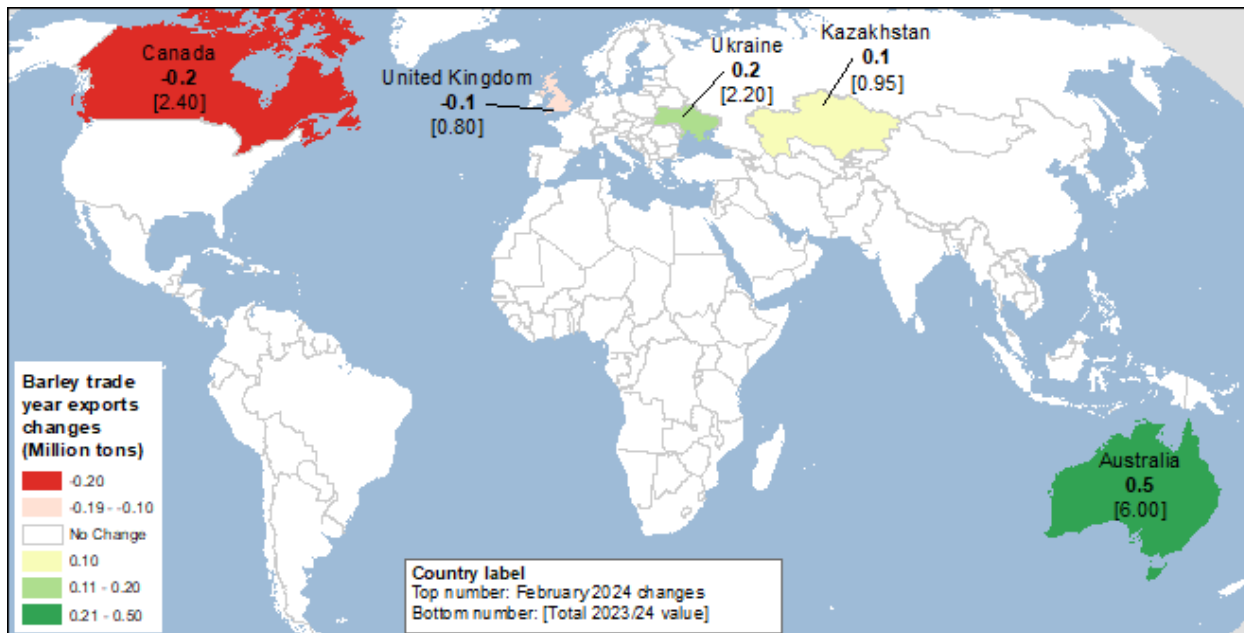
Source: USDA, Foreign Agricultural Service, *Production, Supply, and Distribution* database.

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 8.4 million this month, the second-highest level after 2020/21. China's pace of barley imports has been fairly strong. The country shifted its barley imports towards Australia: after China's ban of buying barley from Australia was lifted, barley imports from Australia resumed in October 2023 and have been growing since. China is also importing more barley from France, Kazakhstan, Russia, and Argentina, but much less from Canada and Ukraine. Barley imports are also increased for **Morocco**, where current pasture conditions are poor because of a lengthy drought, and for the **European Union**, based on its customs surveillance data to date.

Barley exports are increased for **Australia** and reduced for **Canada**, based on trade data reflecting their exports to China. Exports are projected higher for **Ukraine**, with its improved ability to export (see the discussion above for corn) and **Kazakhstan** (despite slightly lower projected supplies, its pace of exports is higher than projected before) but are reduced for the **United Kingdom**.

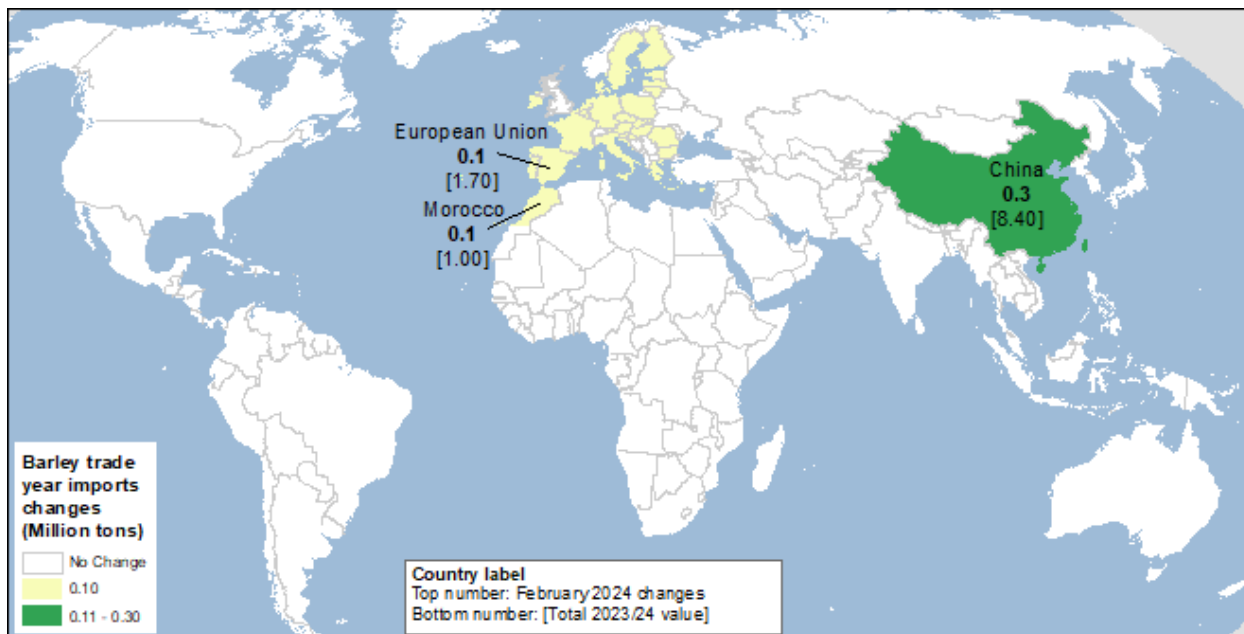
See a visual display of this month's country changes in barley exports and imports in maps D and E below.

**Map D – Barley trade year exports changes for 2023/24, February 2024**



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

**Map E – Barley trade year imports changes for 2023/24, February 2024**



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

**Sorghum** trade is virtually unchanged, with higher **U.S** and lower **Argentine** exports. These two offsetting changes follow the dynamics and pace of China's sorghum imports (unchanged this month).

## Suggested Citation

Ates, A.M., & Liefert, O. (2024). *Feed outlook: February 2024* (Report No. FDS-24b). U.S. Department of Agriculture, Economic Research Service.

Use of commercial and trade names does not imply approval or constitute endorsement by USDA.

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotope, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: [program.intake@usda.gov](mailto:program.intake@usda.gov).

USDA is an equal opportunity provider, employer, and lender.