



# Feed Outlook: July 2023

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## U.S. Feed Grain Supply Is Increased

The 2023/24 U.S. feed grains supply forecast is raised to 444 million metric tons this month, up 0.9 million tons—as increased acreage for corn, sorghum, and barley raised production by 2.4 million tons. Yield reductions in corn, barley, and oats tempered greater supply growth. Beginning stocks are down 1.5 million tons to 38 million. Supply is projected at 46 million tons above the last marketing year. Projected feed grain use is raised slightly to 384 million tons. Ending stocks are projected at 190 million tons, down slightly from last month but 22 million tons higher than 2022/23.

Lower foreign coarse grain supplies (lower on barley and oats, partly offset by a small increase in corn output) for 2023/24 are projected this month. With higher projected sorghum supplies in 2023/24, U.S. sorghum exports are expected to increase, with the main destination being China. Corn production for 2022/23 involves two offsetting changes, with higher output projected for Brazil and lower production forecast for Argentina.

# Domestic Outlook

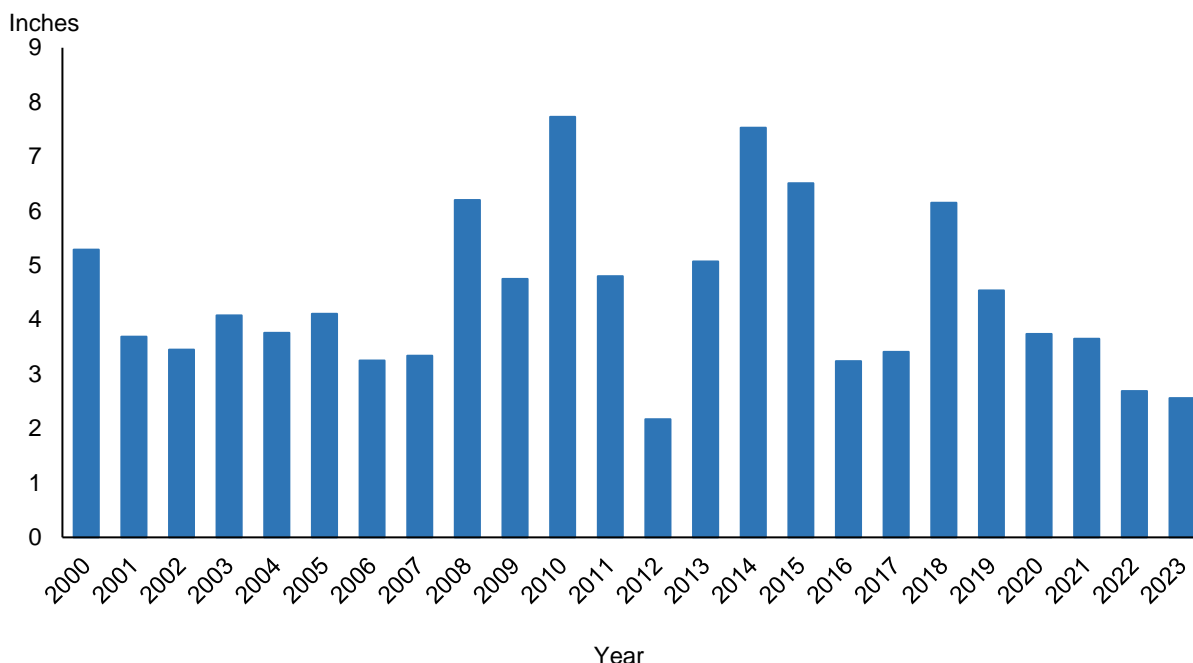
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## Corn Supply Is Increased for 2023/24

USDA projects the U.S. corn supply at 16.747 billion bushels for 2023/24, up 5 million bushels from the June forecast. The slight increase incorporates changes to acreage, yield, and beginning stocks for the upcoming marketing year. Acreage moved higher, based on the forecasts published by the USDA's National Agricultural Statistics Service's (NASS) *Acreage* report, released on June 30. The report forecasted 94.1 million acres of corn planted in 2023, up 2.1 million acres from the March 31 *Prospective Plantings* report. Planting increases occurred around the country. The largest acreage increases came from Illinois, Iowa, South Dakota, North Dakota, Missouri, and Texas. These increases were slightly offset by declines in a small number of States, primarily in Colorado and Kansas. Harvested acreage follows along with the higher planted acreage and moved to 86.3 million acres, up 2.2 million acres from March.

The national average corn yield is projected at 177.5 bushels per acre, down 4 bushels per acre from the previous month. June precipitation across major Corn Belt States showed a large deviation from average, according to data from the National Oceanic and Atmospheric Administration's (NOAA) National Center for Environmental Information (see figure 1). The occurrence of rainfall and cooler temperatures for some of the most drought-affected parts of the Corn Belt in early July may moderate some of the impact from the weather in June. A wide variety of weather impacted corn growing regions in the United States through June. For the purposes of corn yield forecasting—particularly dry conditions in Illinois, Iowa, Missouri, Wisconsin, and portions of Minnesota stood out. July weather conditions tend to be the most influential for determining corn yield, since the key crop reproductive stages occur in this timeframe. Dry conditions in June slow crop development and make crops vulnerable to poor weather conditions that may happen during crop pollination that is expected to occur for a majority of the crop over the next few weeks. NASS will release its initial survey-based yield forecast for corn in its August *Production* report, due out on August 12.

Figure 1  
**U.S. June corn belt acreage-weighted precipitation**

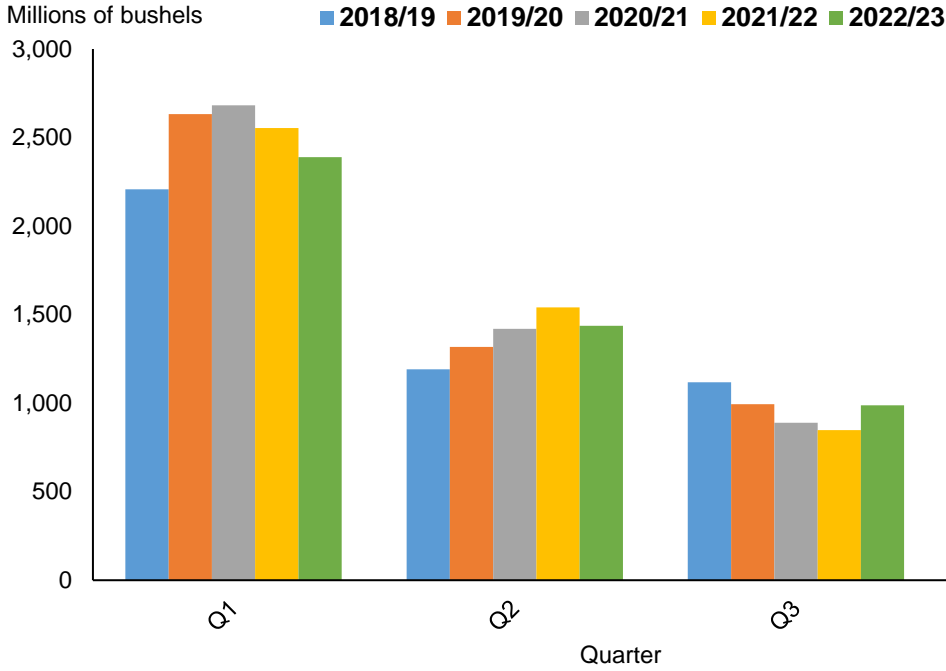


Source: National Oceanic and Atmospheric Administration, National Center for Environmental Information.

Beginning stocks for 2023/24 fell 50 million bushels to 1.402 billion, as NASS's *Grain Stocks* report (released on June 30) held implications for the 2022/23 corn balance sheet. U.S. June 1 corn stocks totaled 4.106 billion bushels, down from the previous year's level of 4.349 billion bushels. Total disappearance in the third quarter of the marketing year came in at 3.304 billion bushels, 122 million bushels lower than the second quarter. Despite corn use for ethanol (1.288 billion bushels) and exports (634 million bushels) coming in substantially lower than last year in the third quarter, disappearance fell only 109 million bushels year over year. The implications for the balance sheet show up in feed and residual use. Third quarter feed and residual use totaled 988 million bushels, up noticeably over last year's third quarter total of 848 million bushels, despite lower livestock totals and a smaller crop in 2022 (see figure 2). As such, the estimate for feed and residual use in 2022/23 is raised 150 million bushels to 5.425 billion.

Figure 2

**U.S corn feed and residual, by marketing year quarter**



Source: USDA, National Agricultural Statistics Service.

In an offsetting adjustment for 2022/23, U.S. corn exports are estimated at 1.650 billion bushels, down 75 million from the previous forecast. Exports continue to languish in the second half of the marketing year. According to the U.S. Bureau of the Census, with 13-month revisions incorporated into the calculation, the United States has exported 1.316 billion bushels of corn in the first 9 months of the marketing year, down from 1.949 billion during the same period in 2021/22. Weak export outstanding sales (sitting at around 160 million bushels as of July 6) support the lower estimate, as Brazil’s massive second corn crop (safrinha) comes on the world market in July.

Estimated food, seed, and industrial use for 2022/23 also decreased 25 million bushels to 6.655 billion, on lower corn used for ethanol. Corn used for fuel ethanol is estimated at 5.225 billion bushels. While weekly gasoline demand and ethanol production picked up in the later half of June, a stronger than expected implied conversion rate from corn to ethanol in early summer and lower than expected ethanol exports led to a reduction in the estimate. U.S. Department of Energy, Energy Information Agency (EIA) data through April place ethanol exports at 820 million gallons, down approximately 20 percent from last marketing year (over the same period). Early indications via Census and EIA data indicate ethanol exports remain weaker in May and June. Through three quarters of the marketing year, corn use for ethanol sits at 3.835 billion bushels.

While expectations of a strong fourth quarter for ethanol production remain in place, corn use for ethanol during the fourth quarter requires increased usage of more than 5 percent over last year to meet the reduced estimate.

Offsetting adjustments to the 2022/23 balance sheet place ending stocks at 1.402 billion bushels, down 50 million from June. The lower carry in and reduced yield help to moderate supply expectations, given the higher corn planted acreage in 2023/24. Corn demand category forecasts for 2023/24 remain unchanged from June, with ending stocks increasing 5 million bushels to 2.262 billion, relative to the year prior. The seasonal average corn price for both the 2022/23 and 2023/24 marketing year remains unchanged.

## Sorghum Supply Is Up on Acreage Increase

Sorghum supplies in the July *World Agricultural Supply and Demand Estimates (WASDE)* report moved higher on increased acreage forecasts from the June *Acreage* report. Sorghum planted acreage increased 830,000 acres to 6.8 million. Harvested acres, at 5.9 million acres, are forecast to increase 740,000 acres relative to a year prior. Yield projections remain unchanged at 69.2 bushels per acre. With no change to beginning stocks or imports for 2023/24, total supply is forecast at 436 million bushels. The increase in supply led to use changes in the 2023/24 balance sheet. Higher production saw feed and residual use increase 20 million bushels to 90 million. Food, seed, and industrial use increased 5 million bushels, on an expectation of continued robust sorghum use for ethanol. The projection for sorghum exports increased 20 million bushels to 255 million, on the increased availability of sorghum for the export market and a recovery in Chinese buying. Ending stocks are forecast at 36 million bushels, up 6 million from June. The season average farm price remains unchanged at \$4.80 per bushel.

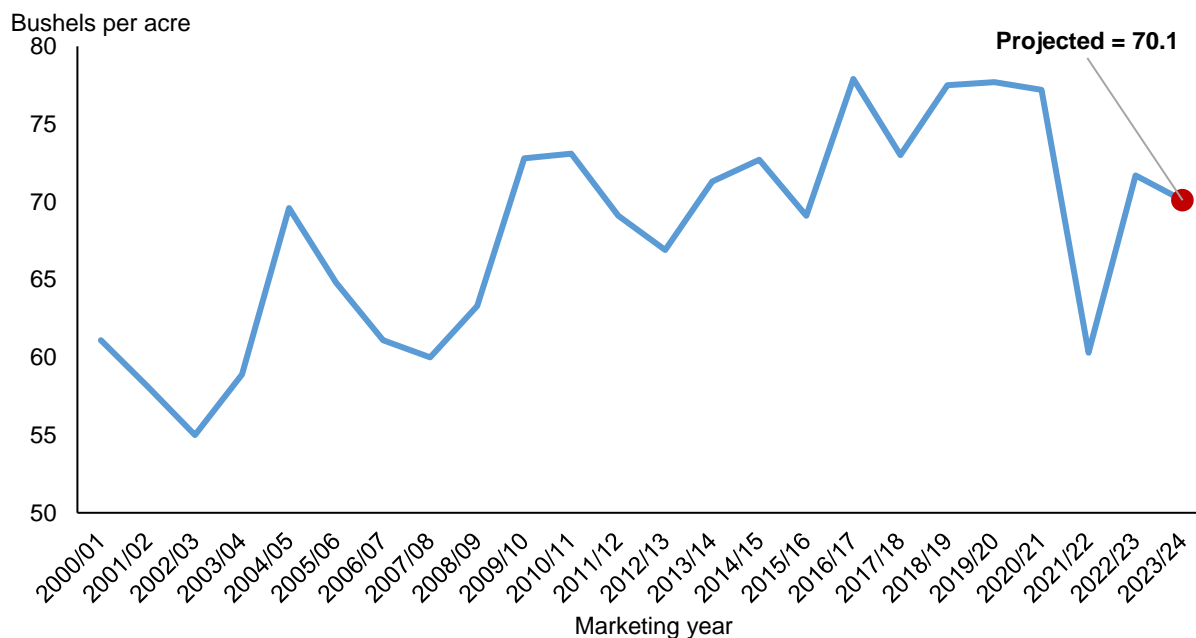
Total use estimates for 2022/23 remain unchanged from June. The most recent NASS *Grain Stocks* report estimated June 1 sorghum inventories at 53 million bushels for the current year, down from 108 million bushels the same period in 2022. Disappearance during the third quarter keeps sorghum feed and residual on pace for 65 million bushels this marketing year. Feed, seed, and industrial use and exports remain unchanged from June—which leave ending stocks at 25 million bushels for 2022/23. The season-average farm price for sorghum is estimated at \$6.85 per bushel for 2022/23, down 5 cents from June.

## Barley Production Is Lower on a Reduced Yield

Barley production for 2023/24 is projected to be 177 million bushels, down 6 million bushels from June. NASS projects national barley yields at 70.1 bushels per acre, down 6 bushels from the June forecast. An increase in barley harvested acreage to 2.5 million acres, up 127,000 acres, came in the June *Acreage* report.

Figure 3

### U.S. barley yield, by marketing year



Source: USDA, National Agricultural Statistics Service.

Barley ending stocks for the 2022/23 marketing year (which ended on May 31) totaled 56 million bushels, as reported by NASS's latest *Grain Stocks*, an 11-million-bushel reduction from the previous month's *WASDE* estimate. The result of lower ending stocks is that feed and residual use for 2022/23 is raised 12 million bushels to 52 million. Barley exports for the marketing year came in at 2.1 million bushels, up marginally from the 2 million bushels estimated last month. The reduction in beginning stocks, as well as the lower production output forecast for 2023/24, leads to ending stocks decreasing to 69.5 million bushels from last month's 86.5 million. Forecast use categories for barley remain unchanged from last month, with total use steady at 178 million bushels.

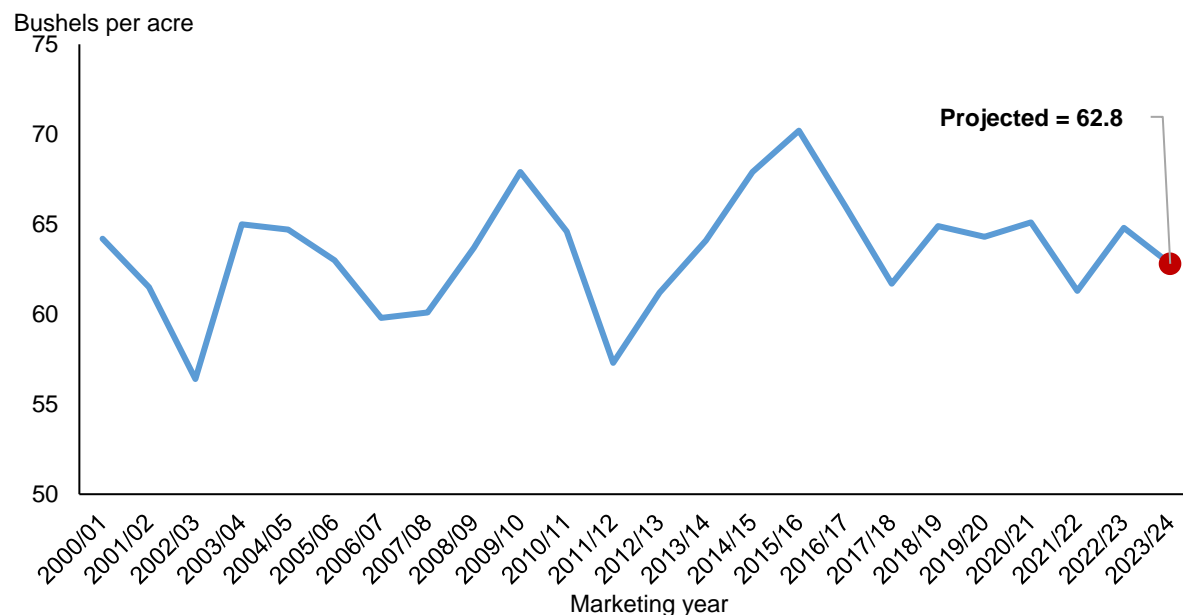
The season-average farm price for barley in 2022/23 is reported at \$7.40 per bushel, up 5 cents from the previous month's estimate. The current estimate includes the complete marketing year of reported monthly prices by NASS. The price for 2023/24 is projected unchanged at \$6.10 per bushel.

## Oat Production Is Down on Lower Acreage and Yield

NASS forecasts 2023/24 oat production at 50 million bushels in the July *Crop Production* report, a 10-million-bushel decrease from the June forecast. The reduction is due to lower yields and reduced harvested area forecast by NASS in the June *Acreage* report. The forecast for oat yield of 62.8 bushels per acre is down 3.7 bushels from the June forecast.

Figure 4

### U.S. oat yield, by marketing year



Source: USDA, National Agricultural Statistics Service.

NASS reported that ending stocks for 2022/23 are estimated at 35 million bushels in the June 30 *Grain Stocks* report, a 2-million-bushel increase from the previous month's estimate. With ending stocks known, feed and residual use for 2022/23 came in at 57 million bushels, 3 million bushels less than estimated in June. For 2023/24, feed and residual use for oats is forecast 10 million bushels lower on the smaller crop at 50 million. Ending stocks increased to 32 million bushels, up from the June forecast, on reduced usage.

The season-average farm price for 2022/23 is \$4.57 per bushel, as reported by NASS through the end of the marketing year in May, down 8 cents from the June estimate. The season-average farm price remains unchanged at \$3.30 per bushel for 2023/24.

# International Outlook

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## Higher U.S. Coarse Grain Production Prospects More Than Offset Foreign Decline

World coarse grain production for 2023/24 is projected higher this month to reach 1,513.4 million tons, an increase of 0.1 million from last month's forecast. An increase in coarse grain production of 2.5 million tons for the **United States** (from higher corn, sorghum, and rye production—although barley and oats output are projected lower) is partially offset by a reduction of 2.4 million tons in foreign coarse grain output. A reduction in barley output is projected for the **European Union** and **Ukraine**, in addition to reduced barley prospects for the **United States**. The reductions in barley and oats production are offset by higher corn prospects for the **United States**, **Canada**, and **Ukraine**—as well as an increase in barley prospects for **Argentina** and **Morocco**. Maps A and B below present the revised projections and monthly changes in projected coarse grain production for 2023/24.












For the 2022/23 crop year, global coarse grain production is projected slightly lower, with an increase in corn output for **Brazil** being more than offset by lower corn output in **Argentina** and **Ukraine** (see the bottom part of table A2). The 2022/23 local marketing year for corn in **Brazil** and **Argentina** starts in March 2023 and overlaps 2 crop years for Northern Hemisphere countries. For more information about this month's changes, see tables A1 and A2 below.



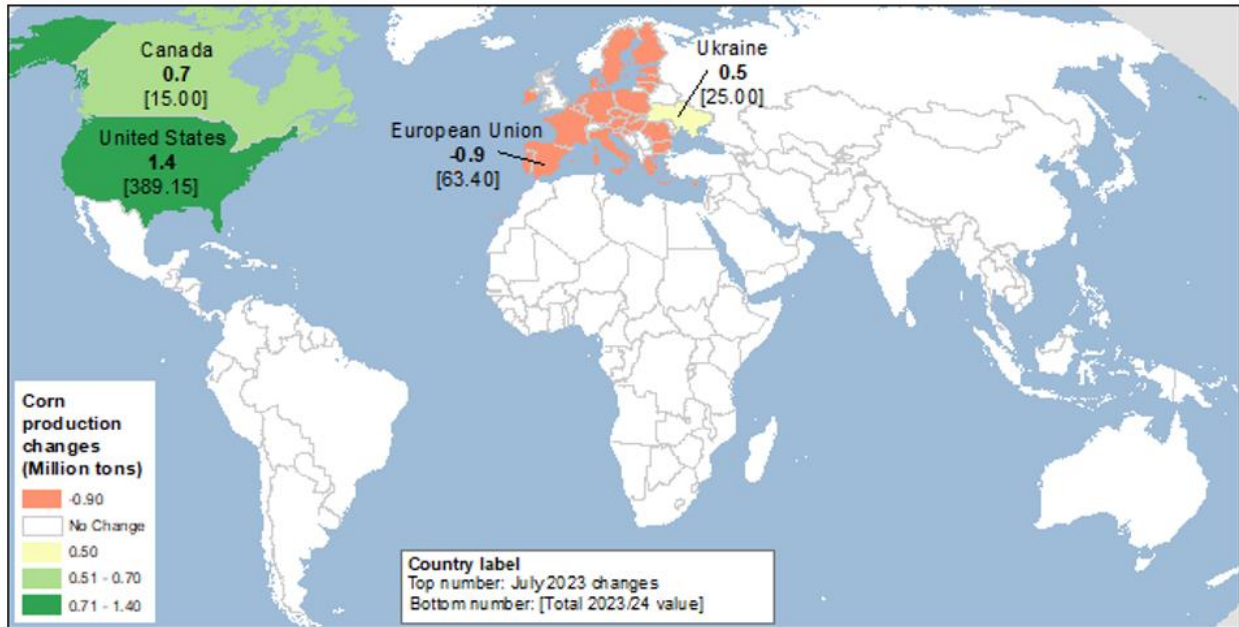
**Table A1 - World and U.S. coarse grain production at a glance (2023/24), July 2023**

	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	1,513.4	+0.1	+70.6	
↓	Foreign	1,108.9	-2.4	+24.5	Partly offsetting changes are made for a number of countries and commodities. See table A2.
↑	United States	404.5	+2.5	+46.0	See section on U.S. domestic output.
<b>World production of coarse grains by type of grain</b>					
<b>CORN</b>					
↑	World	1,224.5	+1.7	+73.8	
↑	Foreign	835.3	+0.3	+33.4	Lower corn production in the European Union is more than offset by an increase for Canada and Ukraine corn production. See table A2.
↑	United States	389.1	+1.4	+40.4	See section on U.S. domestic output.
<b>BARLEY</b>					
↓	World	145.7	-2.2	-6.1	
↓	Foreign	141.9	-2.1	-6.2	Lower projected barley production in Ukraine and the European Union, partly offset by increases in Argentina and Morocco. See Table A2.
↓	United States	3.9	-0.1	+0.1	See section on U.S. domestic output.
<b>OATS</b>					
↓	World	22.5	-0.8	-3.1	
↓	Foreign	21.8	-0.7	-3.0	Lower production is projected for Canada. See table A2.
↓	United States	0.7	-0.1	-0.1	See section on U.S. domestic output.
<b>RYE</b>					
↑	World	12.1	+0.1	-0.1	
	Foreign	11.7	No change	-0.1	
↑	United States	0.4	+0.1	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.					
Fractional changes are made for Mixed Grain and Sorghum.					
For changes and notes by country, see table A2.					
Source: USDA, Economic Research Service calculations based on USDA, Foreign Agricultural Service, <i>Production, Supply, and Distribution</i> database.					

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

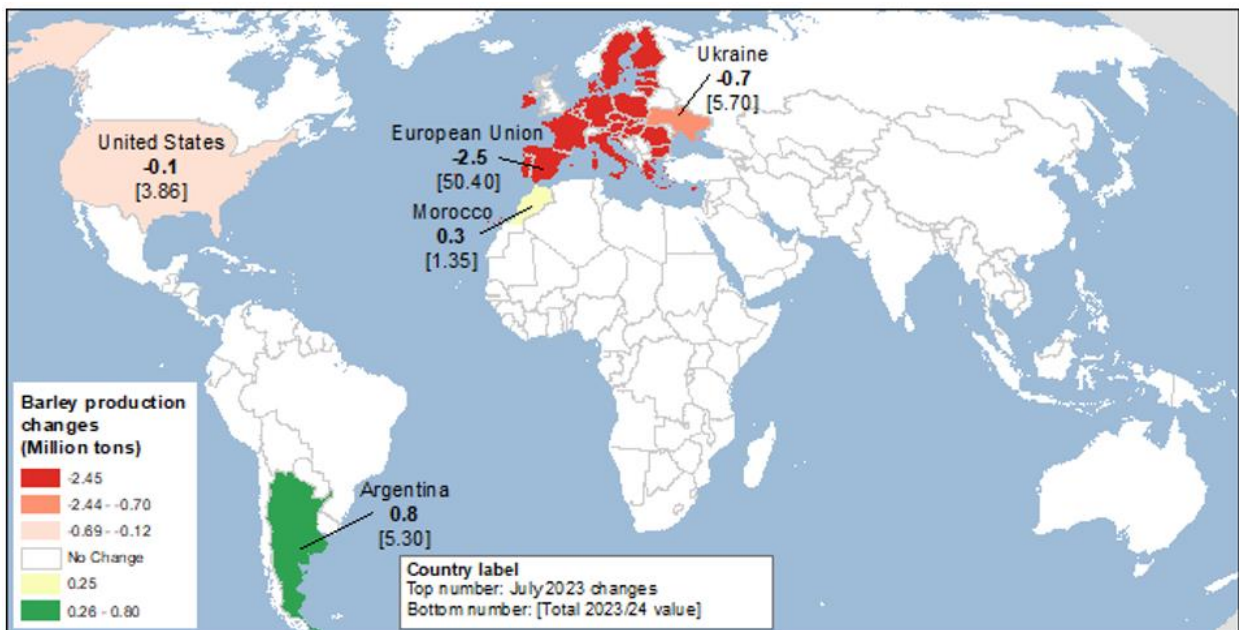
Type of crop	Crop year	Production	Change in forecast <sup>1</sup>	YoY <sup>2</sup> change	Comments
<i>Million tons</i>					
<b>2023/24 Crop year</b>					
<b>EUROPEAN UNION (EU)</b>					
 Barley	Jul-Jun	50.4	-2.5	-1.4	Severe drought conditions (coupled with extreme temperatures) have lowered both area harvested and yield, impacting barley production for Spain and Germany.
 Corn	Oct-Sep	63.4	-0.9	+10.4	Corn area is reported lower in France, based on official Government data, and Spanish corn area is down on reduced water availability for irrigation.
<b>UKRAINE</b>					
 Corn	Oct-Sep	25.0	+0.5	-2.0	Ukraine's corn production is projected higher, based on increased area planted, reported by the Ministry of Agriculture.
 Barley	Jul-Jun	5.7	-0.7	-0.4	Ukraine's barley production is projected lower, on reduced area planted, reported by the Ministry of Agriculture.
<b>CANADA</b>					
 Corn	Sep-Aug	15.0	+0.7	+0.5	Corn area is projected higher, in line with the recently published June Statistics Canada report.
 Oats	Aug-Jul	3.0	-0.7	-2.2	Smaller oats area is projected, in line with the June Statistics Canada report.
<b>ARGENTINA</b>					
 Barley	Dec-Nov	5.3	+0.8	+0.8	A revision is based on higher area, along with increased barley yield, that is reflected by favorable weather conditions.
<b>MOROCCO</b>					
 Barley	Jul-Jun	1.4	+0.3	+0.7	A revision, based on higher yield, in line with official data.
<b>2022/23 Crop year</b>					
<b>BRAZIL</b>					
 Corn	Mar-Feb	133.0	+1.0	+17.0	The increase moves production to 17 million tons larger than the previous year. Good soil moisture and abundant precipitation for <i>safrinha</i> corn growth and development favor higher estimates.
<b>ARGENTINA</b>					
 Corn	Mar-Feb	34.0	-1.0	-15.5	A lower projected yield is in line with official data.
<b>UKRAINE</b>					
 Barley	Jul-Jun	6.1	-0.1	-3.8	A revision, based on lower yields that offset higher area, is reported by the Ministry of Agriculture.
<sup>1</sup> Change from previous month. Smaller changes are made for several countries, see map A for changes in corn and map B for changes in barley.					
<sup>2</sup> YoY: year-over-year changes.					
Source: USDA, Economic Research Service calculations based on USDA, Foreign Agricultural Service, <i>Production, Supply, and Distribution</i> database.					

**Map A – Corn production changes for 2023/24, July 2023**



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

**Map B – Barley production changes for 2023/24, July 2023**



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

## Global Coarse Grain Use Is Down and Stocks Are Projected Higher

The global coarse grain use forecast for 2023/24 is reduced 1.1 million metric tons this month to 1,497.1 million. Foreign feed use is down 0.3 million tons, while an increase in projected coarse grain feed use of 0.5 million tons for the **United States** more than offsets this reduction.

Global corn use for 2023/24 is up 0.3 million metric tons this month. The largest change is an increase in corn feed use from **Canada** and the **European Union**—up 0.8 and 0.6 million metric tons, respectively. A partially offsetting reduction of 0.1 million metric tons is projected for corn consumption for **Bangladesh** because of lower corn imports.

This month, lower projected global barley output is expected to limit domestic use in the **European Union**, while changes in projected barley imports are expected to trim barley feed use in **Saudi Arabia, Turkey, Libya, and Jordan**. These decreases are partially offset by an increase of 0.6 million tons in **China's** barley feed use, based on increased imports to the country. Lower global barley use and reduced production have left global ending stocks 0.2 million metric tons lower. The **United States** sees the largest reduction in barley ending stocks, which is 0.4 million metric tons lower—followed by the **European Union** and **Ukraine**—with a reduction of 0.3 and 0.1 million metric tons, respectively. Barley stocks in **China** are projected 0.2 million tons higher, from a boost to its 2023/24 barley imports from **Argentina**.

Sorghum feeding in **China** is projected to increase by 0.5 million tons. China is expected to source more sorghum, mainly from the **United States**, due to higher U.S. projected sorghum supplies and exports for 2023/24.

World 2023/24 coarse grain ending stocks are forecast 0.3 million tons lower than the June projection, to 339.7 million. Changes in stocks for the **United States** and the **European Union** reflect production and trade revisions. The **United States** sees coarse grain ending stocks revised slightly lower—with higher corn, sorghum, oats, and rye stocks that are offset by lower barley stocks (see the domestic section of this report for more details). The **European Union's** and **Ukraine's** barley stocks are also lower this month by 0.3 and 0.1 million tons, respectively, while **China's** stocks are increased 0.2 million tons. All other projected changes in ending stocks are lower this month.

## World Coarse Grain Trade Is Projected Higher in 2023/24

The July forecast for world coarse grain exports in the October-September international trade year 2023/24 is higher than the June forecast by 1.5 million tons. Global barley exports are reduced 0.5 million metric tons, while corn and sorghum trade are projected higher by 1.5 million and 0.5 million metric tons, respectively.

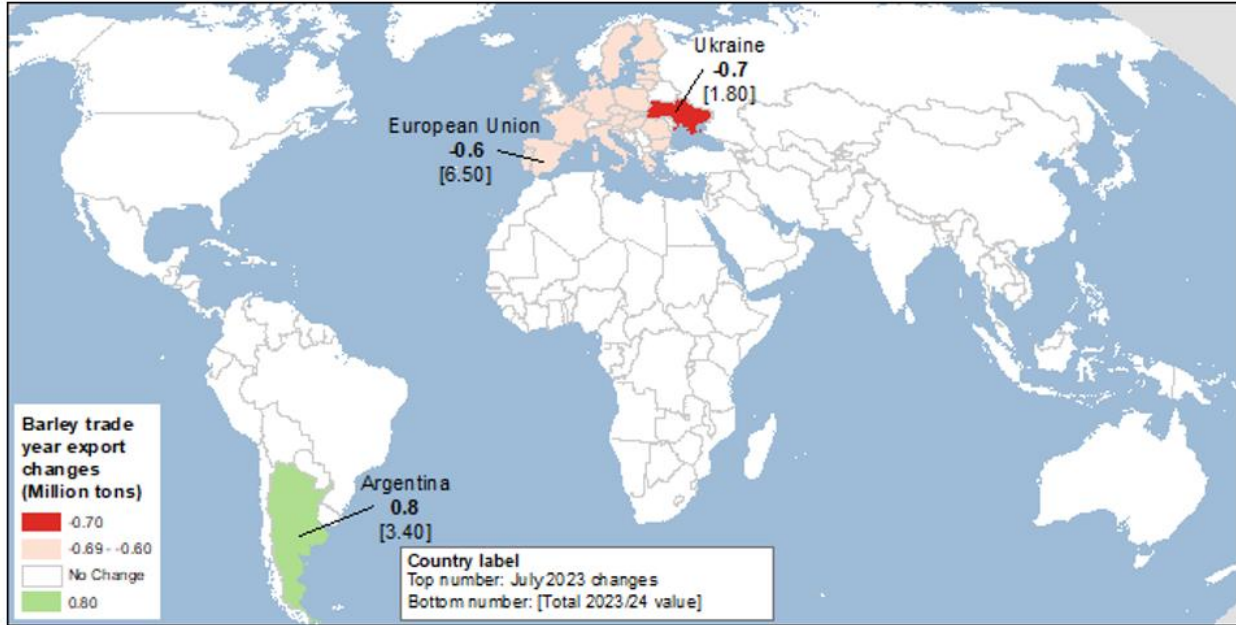
Among the major global exporters, **Brazil** and **Ukraine** see the largest increase in the 2023/24 corn trade-year exports this month—with projected increases of 1.0 million and 0.5 million tons, respectively. Corn trade year imports for 2023/24 are projected higher by 1.5 million tons for the **European Union** (reflecting reduced projected corn prospects), with no other changes made to corn imports this month.

Barley trade-year exports for 2023/24 are reduced 0.5 million tons this month—with changes made for **Ukraine** and the **European Union**—down 0.7 and 0.6 million tons, respectively— and a projected increase for **Argentina** of 0.8 million metric tons. Trade year imports for barley are also down 0.5 million tons this month—with an increase of 0.8 million tons in **China's** imports more than offset by decreases of 0.6 and 0.3 million tons by **Saudi Arabia** and **Turkey**—as well as a decrease of 0.2 million tons each for **Jordan** and **Libya**.

**China's** sorghum imports are up 0.5 million tons this month to match the country's increase in feed use. The **United States** is projected to export 0.5 million tons more sorghum for the 2023/24 trade year to reach 6.5 million tons, leaving global sorghum exports 0.5 million tons higher for July.

See map C below for a visual display of this month's country changes for barley trade.

Map C – Barley trade-year (TY) export changes for 2023/24, July 2023



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

## Suggested Citation

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