

United States Department of Agriculture



Economic Research Service | Situation and Outlook Report

FDS-23a | January 17, 2023

Next release is February 10, 2023

Feed Outlook: January 2023

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U.S. Feed Supplies Are Reduced on Significant Cuts to Corn, Sorghum Harvested Area

U.S. corn production for the 2022/23 marketing year (September/August) is reduced 200 million bushels this month to 13,730 million bushels as a sharp decline in harvested area more than offset an upward revision in yield. Total corn use is projected to fall to 13,915 million bushels—down 185 million bushels from USDA's December *World Agricultural Supply and Demand Estimates (WASDE)* report—due to reductions in both domestic use and exports. The January forecast for 2022/23 corn ending stocks is 1,242 million bushels (down 15 million bushels from last month).

U.S. sorghum production is revised down 48 million bushels from last month (to 188 million bushels) as a 1.9-bushel-per-acre yield reduction compounded a revised loss of 900,000 harvested acres. The sorghum ending stocks forecast is up slightly from last month to 25 million bushels for the marketing year, as lower exports more than offset tight supplies. The outlook for barley ending stocks fell slightly from December (to 61 million bushels) while oat ending stocks saw a modest upward revision (to 32 million bushels).

Global coarse grain prospects in **2022/23** are projected down 7.3 million tons this month. U.S. corn and sorghum production and exports are lowered. Argentine and Brazilian corn production are also lowered due to drought conditions in this South American region. Argentine corn exports are reduced, while Ukrainian and Brazilian corn exports are projected higher. Chinese sorghum imports are projected lower.

Domestic Outlook

Claire Hutchins

Corn Supplies for 2022/23 Are Reduced in January Due to a Steep Decline in Harvested Area

The January *WASDE* report projects lower corn supplies in the U.S. corn market, along with lower use across most categories. Based on January's corn production estimates in the USDA, National Agricultural Statistics Service's (NASS) *Crop Production 2022 Summary* report, this month's *WASDE* report forecasts corn supplies for 2022/23 at 15,157 million bushels—a 1.3-percent cut from the December projection and the lowest level since 2013/14, if realized. The change is driven by a 2-percent reduction in harvested area month over month, which represents the sharpest decline between NASS's November forecast and January estimate in at least 10 years. U.S. farmers are reported to have harvested 79.2 million acres of corn in 2022/23—down 7 percent from last year and the lowest estimate since 2008/09. The 9.37 million acre difference between planted and harvested area is substantially higher (21 percent) than the previous 10-year average of 8.0 million acres (on larger than normal abandonment).



Note: June through October numbers are forecasts, Year is the January estimate. Source: USDA, National Agricultural Statistics Service.

The national average corn yield estimate increased 1 bushel per acre from last month to 173.3 bushels per acre for 2022/23. January's upward revision slightly reversed the downward trend in the NASS yield forecasts seen from August to November 2022, as dryness worsened toward the end of the growing season in key corn-producing States. However, the magnitude of reduction to harvested acres far outweighed national yield gains and the January corn production estimate (of 13,730 million bushels) is down 9 percent from last year and 4 percent below the 5-year average.

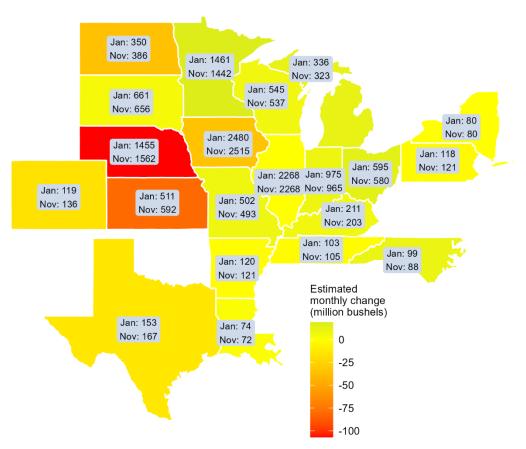


Note: August through November numbers are forecasts, Year is the January estimate.

Source: USDA, National Agricultural Statistics Service.

At the State level, compared with the previous NASS forecasts published in November 2022, the most significant production cuts are seen in: Nebraska (down 107 million bushels), Kansas (down 81.6 million bushels), North Dakota (down 36.3 million bushels), Iowa (down 34.9 million bushels), and Colorado (down 17.8 million bushels). In 2022/23, Nebraska, Kansas, and Colorado saw the largest declines in corn production relative to both last year and the 5-year average. Corn farmers harvested 1,455 million bushels in Nebraska (down 22 percent from last year and 18 percent from the 5-year average), 511 million bushels in Kansas (down 32 percent from last year and 30 percent from the 5-year average), and 119 million bushels in Colorado (down 20 percent from last year and 23 percent from the 5-year average). All three States saw significant declines in both yield and harvested area.

Figure 3
U.S. corn production in 2022 by major-producing State,
January 2023 estimate and change from November 2022 forecast, million bushels



Note: Labels are included only for States with an estimated harvested area of at least 400,000 acres in 2022. Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service.

Domestic Corn Use Is Expected To Fall in 2022/23, December 1 Corn Inventories Are Down From Last Year

This month, total domestic corn use is forecast at 11,990 million bushels, down 35 million bushels from December. Food, seed, and industrial (FSI) use is down 10 million bushels on the month due to reductions in corn used for starch and glucose and dextrose. Corn used for feed and residual is forecast at 5,275 million bushels in 2022/23, down 25 million bushels from last month's forecast. NASS's latest *Grain Stocks* report, released on January 12, 2023, reported that December 1 corn inventories totaled 10,809 million bushels, down 7 percent from the first quarter of 2021/22. The forecasted corn season-average farm price for 2022/23—of \$6.70 per bushel—is unchanged from last month but still the highest projected since 2012/13.

December 1 March 1 June 1 September 1 Marketing year On-farm inventories Off-farm inventories

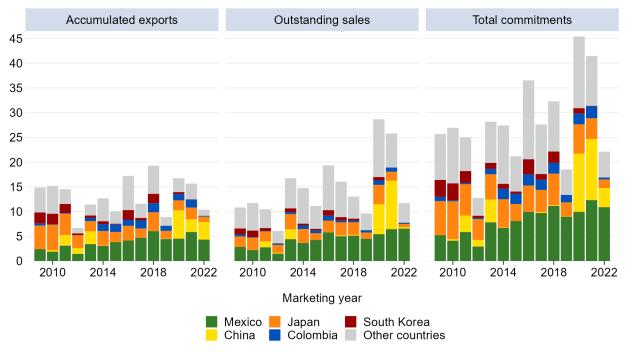
Figure 4
U.S. corn inventories, quarterly, off-farm versus on-farm
Billion bushels

Source: USDA, National Agricultural Statistics Service.

Corn Exports Are Revised Lower on a Sluggish Pace of Sales

The USDA, Foreign Agricultural Service (FAS) reported total U.S. corn export commitments (shipments plus outstanding stales as of January 5, 2023) at 22.0 million metric tons (down 47 percent from last year and 33 percent below the 5-year average). Outstanding sales to all destinations total just 11.6 million metric tons (down 55 percent from this time last year and 37 percent below the 5-year average). Sales are slow (relative to last year) due to high export prices, driven by tight exportable supplies and, in part, by high transportation costs from the countryside to export terminals—specifically by barge from key inland points along the Mississippi River to the Gulf of Mexico. According to the USDA, Agricultural Marketing Service's (AMS) *Grain Transportation Report* (published on January 5, 2023), south-bound grain barge rates from St. Louis, MO were \$28.93 per metric ton (up 53 percent from last year and 88 percent higher than the 5-year average). Rates over the same period from Memphis, TN were \$17.11 per metric ton (up 26 percent from last year and 60 percent higher than the 5-year average).

Figure 5
U.S. corn accumulated exports, outstanding sales, and total commitments, September 1 to January 5, marketing years 2009 to 2022
Million metric tons

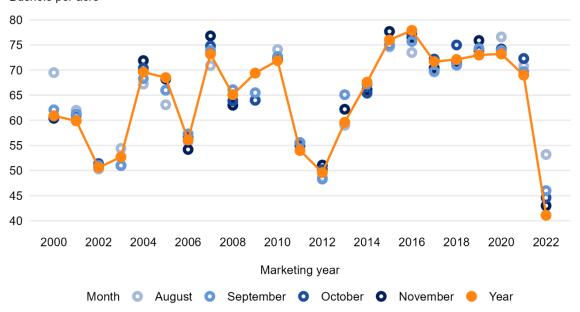


Source: USDA, Foreign Agricultural Service.

Sorghum Production Is Cut on Sharp Reductions to Yield and Harvested Area

The January *WASDE* report shows that sorghum production for 2022/23 is reduced to 188 million bushels—down 48 million bushels (20 percent) from December. The decrease in production comes from significant reductions to yield and harvested area across key sorghum-producing States. NASS estimates the national average sorghum yield in 2022/23 at 41.1 bushels per acre—down 4 percent from last month's forecast and the lowest since 1960/61 on severe summer dryness across the western Great Plains. Sorghum harvested area fell 17 percent on the month to 4.57 million acres, the second-lowest in at least 60 years.

Figure 6
U.S. sorghum yield, marketing years 2000 to 2022
Bushels per acre

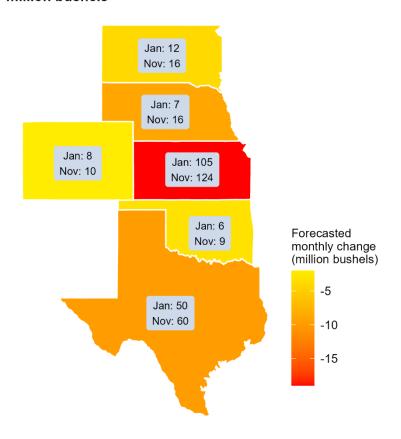


Note: August through November numbers are forecasts, Year is the January estimate. Source: USDA, National Agricultural Statistics Service.

Across the country, every major sorghum-producing State saw sharp cuts to production on lower yield and shorter acreage estimates. Kansas (at 105 million bushels) is down 15 percent on the month and 60 percent on the year, Texas (at 50.3 million bushels) is down 17 percent from last month and 56 percent from last year. Sorghum production volumes across Colorado (7.6 million bushels), Nebraska (6.87 million bushels), and Oklahoma (5.76 million bushels) are all down by more than 20 percent from last month and more than 45 percent from 2021/22.

Total sorghum supplies are revised lower this month on both reduced production and a 6-million-bushel downward revision to 2022/23 beginning stocks.

U.S. sorghum production in 2022 by State,
January 2023 estimate and change from November 2022 forecast,
million bushels



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

First Quarter Sorghum Inventories Represent the Lowest in 10 Years

According to the latest NASS *Grain Stocks* report, December 1, 2022 sorghum inventories totaled 160 million bushels (down 45 percent from the same period in marketing year 2021/22 and the lowest since the first quarter of 2012/13)—reflecting significantly lower supplies year over year. The domestic use forecast (including sorghum used for feed and residual and FSI) is unchanged from December. Total sorghum ending stocks are projected to increase 1 million bushels from last month (to 25 million bushels for the marketing year) as a decline in exports (see below) virtually offsets the sharp decline in supplies.

December 1 March 1 June 1 September 1 Marketing year On-farm inventories Off-farm inventories

Figure 8
U.S. sorghum inventories, quarterly, off-farm versus on-farm Million bushels

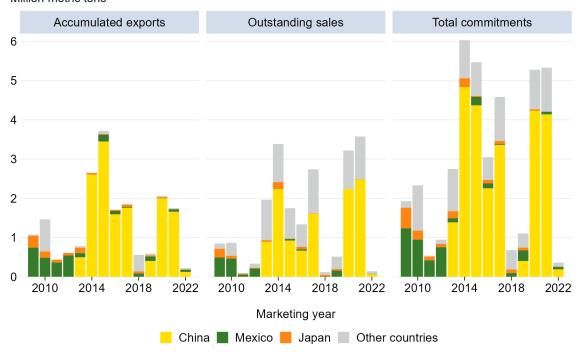
Source: USDA, National Agricultural Statistics Service.

Sorghum Exports Decline Again in January as the Pace of Sales Remains Slow

FAS reported total U.S. sorghum export commitments to all destinations (as of January 5, 2023) at 361,000 metric tons. Extremely short exportable supplies, combined with virtually no commercial activity to China over the first 4 months of marketing year 2022/23, led to a 35-percent reduction (of 55 million bushels) in the total 2022/23 sorghum export forecast in January. If realized, the new export projection for the current marketing year—of 100 million bushels—will be down 93 percent from last year and 89 percent below the 5-year average.

The projected sorghum season-average farm price is raised \$0.15 this month to \$6.85 per bushel in 2022/23, in response to the latest NASS data showing higher prices received in November than in October.

Figure 9
U.S. sorghum accumulated exports, outstanding sales, and total commitments, September 1 to January 5, marketing years 2009 to 2022
Million metric tons



Source: USDA, Foreign Agricultural Service.

Barley Feed and Residual Projections Increased for 2022/23

The barley feed and residual use forecast for 2022/23 is currently 35 million bushels, up 5 million bushels from the December forecast. The outlook for barley exports in the current marketing year (of 5 million bushels) fell slightly from last month on a slow pace of sales and shipments.

In the January *Grain Stocks* report, NASS reported that December 1, 2022 barley inventories totaled 114 million bushels, up 17 percent from the same period in 2021/22 on replenished supplies following last year's drought in the Northern Plains. Total ending stocks in 2022/23 are forecast at 61 million bushels, down 6 percent from December but up 45 percent from last year.

The projected all-barley season-average farm price is unchanged this month at \$7.30 per bushel.

September 1 December 1 March 1 June 1 Marketing year On-farm inventories Off-farm inventories

Figure 10
U.S. barley inventories, quarterly, off-farm versus on-farm Million bushels

Source: USDA, National Agricultural Statistics Service.

Oat Prices Are Lower in January, With Higher Supplies

The oat supply forecast for 2022/23 is up 2 million bushels from last month (to 180 million bushels) on a slight upward revision to beginning stocks. Projected oat ending stocks are raised commensurately to 32 million bushels. The season-average oat price for 2022/23 is reduced by \$0.20 to \$5.00 per bushel in January, on lower price received thus far in the marketing year.

Grain Consuming Animal Units

Grain-consuming animal units (GCAU) for 2022/23 are projected at 99.63 million units, up 0.41 million from last month on larger hog and beef cattle inventories. GCAUs for 2021/22 are estimated at 100.05 million. Feed and residual use for the 4 feed grains (corn, sorghum, barley, and oats) and wheat on a September-August marketing year basis for 2022/23 is projected at 141.6 million tons, lower from the updated 2021/22 estimate of 147.2 million tons.

International Outlook

Angelica Williams

A Decline in U.S. Corn Production, Along With a South American Drought, Reduce Global Corn Prospects

Global coarse grain prospects in **2022/23** are projected at 1,446.4 million tons, 7.3 million tons lower than the previous month. *U.S* coarse grain output is projected down 6.3 million tons, with reduced corn and sorghum output. Foreign coarse grain output is projected down 1 million tons this month. The most significant reductions for foreign coarse grain are in forecasted corn production for *Argentina* and *Brazil* due to drought conditions in the region. This reduction is partly offset by increased production in *China*.

Argentina's corn prospects for 2022/23 are reduced 3 million tons this month to 52 million. Heat and dryness affected corn production during the critical stages of crop development in the major corn-growing areas. According to the Ministry of Agriculture Livestock and Fisheries of Argentina, approximately 62 percent of the total Argentine corn production for 2021/22 is in the Cordoba and Buenos Aires regions, where a major drought impact has been taking place and where corn is planted mostly early in the season. The share of early-planted corn has been trending lower and is expected to be at a record low this year. The later-planted corn prospects could still improve if precipitation arrives in January and February and to some extent offset losses, although yields of late-planted corn are usually comparatively lower. For 2021/22, corn production in Argentina is also revised down 2 million tons with reduced area, based on observed utilization data to date.

The same hot and dry weather conditions that affect Argentina also take a toll this month on **Brazil's** corn prospects, reducing the prospects by 1.0 million tons to 125 million for **2022/23**. However, the Brazilian corn crop is still projected to be the highest on record. The reduction this month is expected to impact the first-corn crop in the southern part of the country, mostly in the state of Rio Grande do Sul (which has seen hot temperatures and little precipitation, which is affecting crop development). The first-crop corn covers only about a quarter of projected production. The second-crop corn (or safrinha) is usually planted following the soybean harvest in January-March and is expected to be planted on time this year. Rains across central Brazil improved conditions for the second corn crop planting. Second-crop corn yields are dependent on rains in April and May in the key producing states in the central-west part of Brazil.

Reductions in corn production in South America more than offset the increase in *Chinese* corn prospects for this month. Based on the Chinese National Bureau of Statistics, corn production is revised up by 3.2 million tons on a 1 percent yield increase and a fractional increase in area harvested.

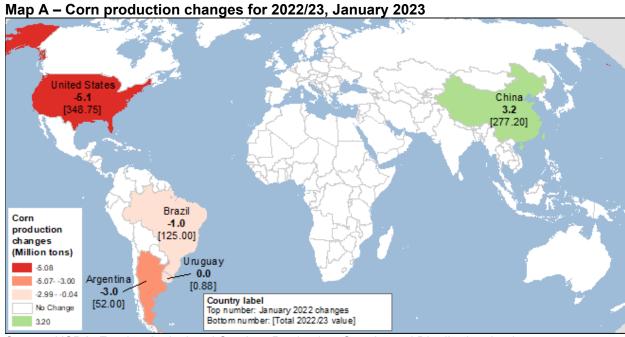
Barley production in the *United Kingdom* is projected up 0.3 million tons this month to 7.4 million, following official reports of increased yields. For the *European Union*, barley production is revised slightly down—with partly offsetting changes for *Finland*, *France*, and *Spain*, based on official data.

Ukraine's barley prospects are also revised down this month by 0.3 million tons, based on the preliminary numbers provided by the State Statistics Service of Ukraine.

For at-a-glance information on revisions this month, see tables A1 and A2 and map A below.

Table A1 - World	d and U.S.	coarse grain p	oroduct	ion at a glance (2022/23), January 2023					
Region or country	Production	Change from previous month ¹	YoY Change ²	Comments					
Coarse grain prodι	ction (total)	Million tons	_						
World	1.446.3	-7.3	-54.3						
Foreign	1087.9	-1.0	-15.1	Partly offsetting changes are made for a number of countries and commodities. See table A2.					
United States	358.5	-6.3	-39.2	See section on U.S. domestic output.					
World production of coarse grains by type of grain									
CORN									
World	1,155.9	-5.9	-59.0						
Foreign	807.2	-0.9	-24.8	Reductions in Argentina, Brazil, and Uruguay more than offset an increase in Chinese production. See Table A2.					
United States	348.8	-5.1	-34.1	See section on U.S. domestic output.					
BARLEY									
World	149.5	-0.1	+4.0						
Foreign	145.7	-0.1	+2.8	Lower prospects in Ukraine and the European Union more than offset higher production in United Kingdom. See table A2.					
United States	3.8	No change	+1.2	See section on U.S. domestic output.					
	GHUM								
World	58.8	-1.2	-3.4						
Foreign	54.1	No change	+3.2						
United States	4.8	-1.2	-6.6	See section on U.S. domestic output.					
OATS									
World	24.9	-0.1	+2.3						
Foreign	24.0	-0.1	+2.1	Lower production is projected for United Kingdom. See table A2.					
United States	0.8	No change	+0.3	See section on U.S. domestic output.					
1Change from previous me For changes and notes			Totals may	not add due to rounding.					
Source: USDA, Foreign A	Agricultural Servi	ce, Production, Supply	y and Distrib	ution database.					

	Type of crop	Crop	Production	Change in	YoY ²	Comments				
	Type of crop	year	rioduction	forecast ¹	change	Continents				
				Million tons	5					
Coarse grain production by country and by type of grain										
	CHINA									
Î	Corn	Oct-Sep	277.2	+3.2	+4.6	Projections for 2022/23 are revised higher, based on the latest information from the National Bureau of Statistics of China (NBS).				
BRAZIL										
Ļ	Corn	Mar-Feb	125.0	-1.0	+9.0	Dry and hot conditions in the southern states of Brazil reduced corn yields for the first-season crop. Year-over-year expansion of second-crop corn area keeps projected total corn output at a record-high (se the report text).				
					ARGE	NTINA				
	Corn	Mar-Feb	52.0	-3.0	+2.5	Dry conditions in some key early corn-producing regions are expected to reduce yields and production (see report text).				
UKRAINE										
	Barley	Jul-Jun	6.1	-0.3	-3.8	A preliminary harvest report by the Ukrainian Statistical Agency suggests lower barley yields. A final report is expected to be published in March 2023.				
EUROPEAN UNION										
	Barley	Jul-Jun	51.5	-0.1	-0.6	Government Official Statistics indicate higher production for Finland partly offset by lower production in France and Spain .				
UNITED KINGDOM										
Î	Barley	Jul-Jun	7.4	+0.3	+0.4	Barley production is revised higher, based on official government reports.				
	Oats	Jul-Jun	1.0	-0.1	-0.1	Oats production is revised higher, based on official government reports.				
					URU	GUAY				
ļ	Corn	Jun-May	0.9	Slightly lower	Slightly lower	Uruguay is located to the south of Brazil and to the northeast of Argentina. Uruguayan corn production is affected by the dryness and high temperatures experienced by its two neighbors.				
					2021/22	Crop year				
					ARGE	NTINA				
	Corn	Mar-Feb	49.5	-2.0	-2.5	Based on revised area harvested for 2021/22.				
CI	Change from previous month. Smaller changes are made for several countries, see map A for changes in <i>corn</i> .									
Y	YoY: year-over-year changes.									



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

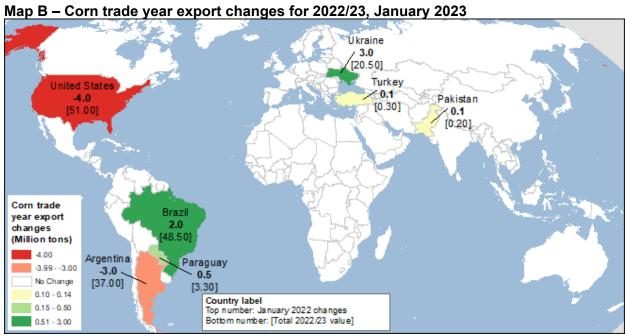
Global Corn Trade Prospects Are Reduced

Changes in coarse grain trade flows this month are driven primarily by reduced corn supplies. Global corn exports for the international October-September trade year are revised 1.3 million tons lower this month to a projected 181 million tons.

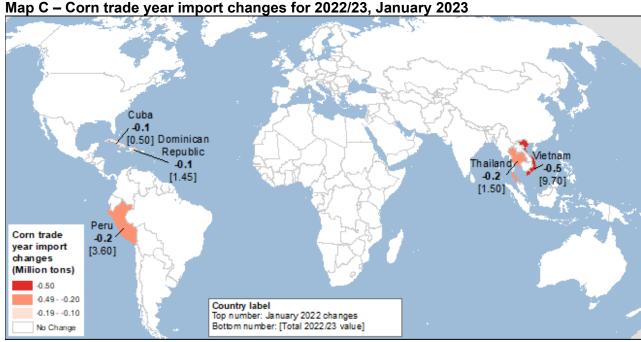
Projected *U.S.* corn exports for 2022/23 are reduced 4 million tons this month to 51 million due to the continued lower pace of corn shipments and trade commitments (the projection is down 150 million bushels to 1,925 million for the September-August local marketing year). According to the U.S. Bureau of the Census, corn exports for October-November 2022 (the first 2 months of the international trade year) are 4.5 million tons, almost 50 percent lower than the previous year for the same period. According to grain inspection data, corn exports in December reached 3.2 million tons, nearly 20 percent lower than a year ago. An additional 0.4 million tons of U.S. corn were exported the first week of January, which is about one third of the amount exported in the first week of January 2021. January 5 outstanding U.S. corn sales are reported at 11.6 million tons, less than half of the 25.8 million tons the same period a year ago.

Argentine corn exports are forecast down on lower projected corn output. For the trade year which runs October to September, Argentine corn exports are revised down by 3 million tons for 2022/23. The country is within 2 months of the end of its 2021/22 local marketing year (March-February) and the reduction in corn exports is 3 million tons down for 2022/23 and 1 million for 2021/22. At the same time, *Ukrainian* and *Brazilian* corn exports are projected higher this month by 3 and 2 million tons, respectively, based on the recent acceleration of both countries' shipments. For *Paraguay*, corn exports are also expected to increase by 0.5 million tons, mostly to neighboring southern Brazil. *Turkey* and *Pakistan* see small upward revisions in corn exports.

Several countries see downward revisions in corn imports—with the largest reduction being for *Vietnam*, down 0.5 million tons, based on the lower domestic feed use and reduced imports from *Argentina*. Corn imports are also projected lower for several other countries that get corn from Argentina—such as *Peru*, *Cuba*, and the *Dominican Republic*. *Thailand* also sees a 0.2-million-ton reduction in imports this month. For a visual display of the changes in corn international trade year exports and imports, see maps B and C below.



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



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

Two large offsetting changes are made for global sorghum trade. *U.S.* sorghum exports are reduced by 1.5 million tons to 2.5 million tons, with the reduction coming entirely from lower *Chinese* imports that are now projected at 5.6 million tons.

Global **barley** trade for the international trade year is projected slightly higher, up 0.1 million tons this month—with the *United Kingdom* seeing the largest change, a 0.35-million-ton increase in exports that is almost offset by a 0.3-million-ton reduction in the *EU* exports. A fractional export reduction is recorded for the *United States* for the trade year 2022/23, while *Turkey* records a fractional increase. Barley imports are increased for the *European Union* and *India* by 0.4 and 0.1 million tons, respectively—and reduced in *Algeria*, *Morocco*, *Tunisia* by 0.1 million ton each.

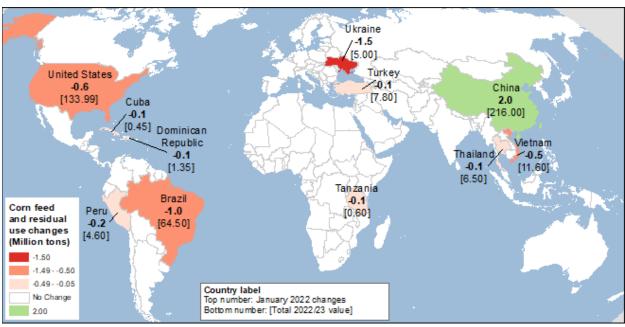
Coarse Grain Feed Use Is Reduced

Foreign coarse grain feed and residual use for 2022/23 is projected 2.8 million tons lower this month—driven by projected reductions for *Ukraine, Brazil, Vietnam* and by a number of changes for several counties. *Ukrainian* use for corn feed and residual consumption are projected 1.5 million tons lower this month, with substantially more of the corn crop being exported.

Coarse grain feed and residual use for 2022/23 is increased by 0.5 million tons for *China* and 0.8 million tons for the *European Union* this month. China's feed and residual corn consumption is up 2.0 million tons and is partially offset by a 1.5 million ton decrease in sorghum consumption due to lower sorghum imports.

Several other smaller changes are made to 2022/23 corn feed and residual use across the world. Reduced imports from *Argentina* have left feed and residual use for *Vietnam*, *Cuba, the Dominican Republic, and Peru* lower this month. *Thailand, and Tanzania* also see reductions in corn feed and residual use.

For barley, the *EU* feed and residual use for 2022/23 is increased by 0.8 million tons this month and it is revised 0.2 million tons higher for *Turkey*. *Syria* also sees a fractional increase. Small decreases in barley feed and residual use partially offset the increases from *Turkey* and the *European Union*, with a 0.15-million-ton decline for the *United Kingdom*—followed by *Ukraine, Tunisia, and New Zealand*—each seeing a 0.1-million-ton decrease. See a visual display of this month's country changes in corn feed and residual in map D.



Map D - Corn feed and residual changes for 2022/23, January 2023

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

Suggested Citation

Hutchins, Claire and Angelica Williams, *Feed Outlook: January 2023*, FDS-23a, U.S. Department of Agriculture, Economic Research Service, January 17, 2023.

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