



Feed Outlook: October 2022

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U.S. Ending Stocks Fall on Short Supply

Total U.S. feed grain production in 2022 is forecast down 1 million tons in the *October World Agricultural Supply and Demand (WASDE)* report, on lower corn and sorghum yields, due to difficult summer drought conditions across the central United States. U.S. corn production is reduced 49 million bushels this month, on a 0.6 bushel-per-acre yield drop to 171.9 bushels, while harvested area remains unchanged. Corn production is forecast to total 13,895 million bushels in 2022/23. U.S. sorghum production is revised down 7 million bushels in October, on a 1.4 bushel-per-acre yield reduction. U.S. farmers are projected to harvest 245 million bushels of sorghum for the new marketing year, the lowest level since 2011/12.

In October, new crop corn usage fell by 125 million bushels—on lower supplies—as reductions in corn used for ethanol and corn exports offset increased feed and residual use. New crop sorghum use came down 10 million bushels this month, as reduced production further diminished exportable inventory. Corn ending stocks are down 47 million bushels from September at 1,172 million and sorghum ending stocks increased 3 million bushels from last month to 23 million.

Global **2022/23** coarse grain production is projected down 3.8 million tons this month to 1,459.8 million. A reduction for the **European Union** and **Serbian** corn prospects, as well as for **Argentine** barley and **Indian** millet, are the primary drivers of the reduction. Slight increases for barley production in the **European Union** and an increase in **Indian** corn partially offset the decline in coarse grains output for this month. **U.S.** corn exports for 2022/23 are projected lower this month.

Domestic Outlook

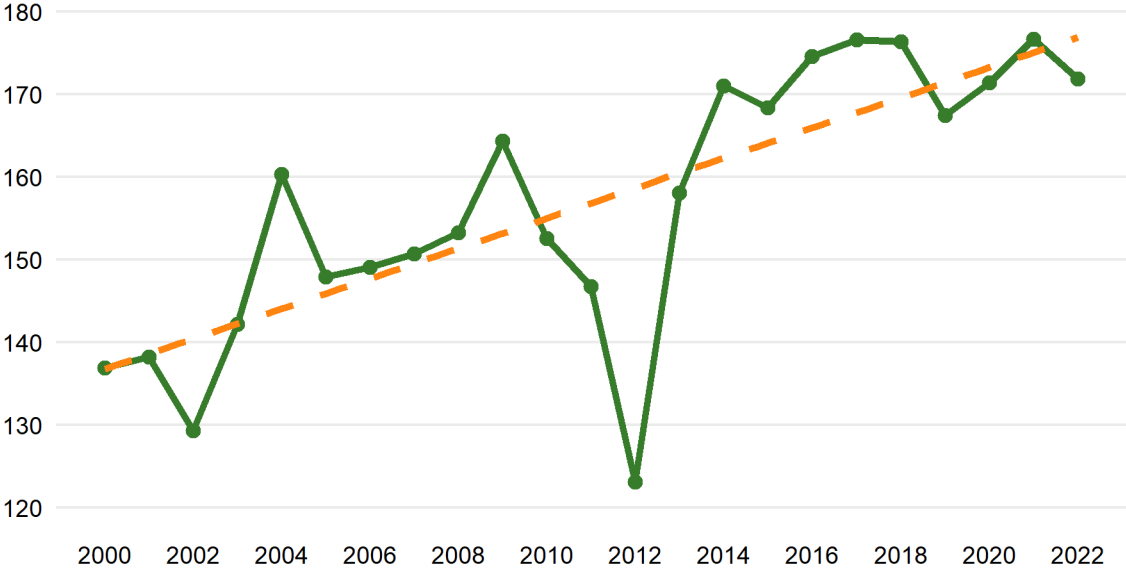
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U.S. Corn Production Is Cut Again on Declining Yields

The USDA, National Agricultural Statistics Service (NASS) projects U.S. corn production in 2022/23 to be 13,895 million bushels, down 49 million bushels from the previous forecast and 1,220 million bushels lower than last year.

The U.S. corn yield for 2022/23 is projected at 171.9 bushels per acre, based on NASS's October forecast. This month's projection is down 0.6 bushels from September and 4.8 bushels per acre lower than last year, as a widespread summer drought pressured yield potential across the western corn belt. Continued dryness late into the growing season (from the western Great Plains to the eastern Midwest) further pressured month-to-month yield forecasts, especially in Nebraska and Kansas.

Figure 1
U.S. corn yield by marketing year, 2000 to 2022
Bushels per acre

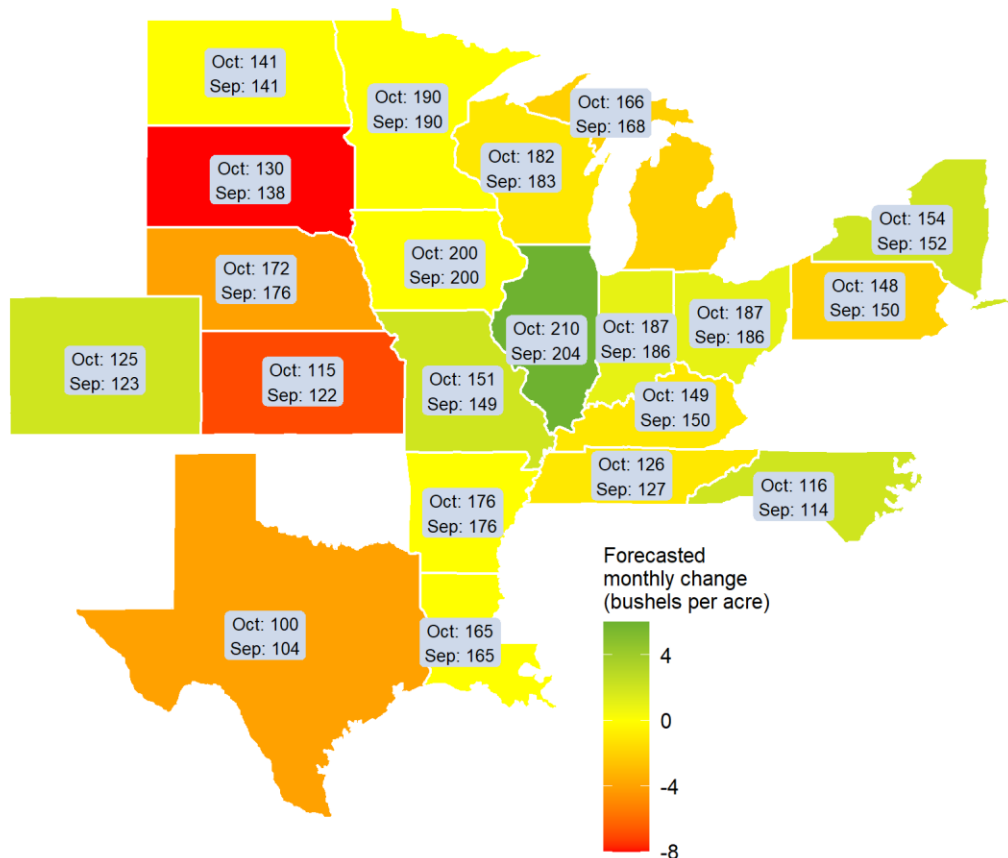


Source: USDA, National Agricultural Statistics Service.

The largest annual increases in corn production are shown in Minnesota (with a 46.8-million-bushel increase) and Illinois (with a 23.8-million-bushel increase) in 2022/23 on higher-than-average yields in both States.

Yield forecasts across other key areas in the Corn Belt were reduced this month, including in: South Dakota (down 8 bushels per acre to 130); Mississippi (down 5 bushels per acre to 167); and Texas (down 4 bushels per acre to 100). Yield forecasts for several Corn Belt States were raised in October, including: Illinois (up 6 bushels per acre to 210 bushels) and Missouri (up 2 bushels per acre to 151).

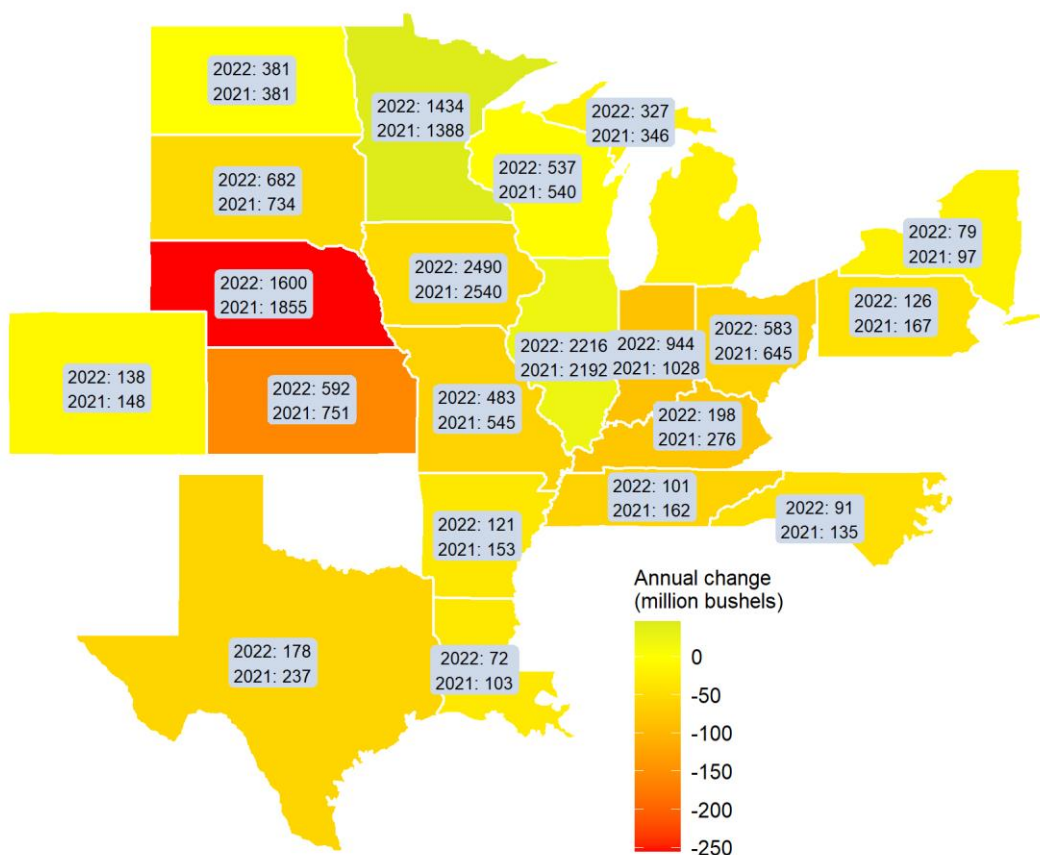
Figure 2
**U.S. corn yield by State,
 October 2022 forecast versus September forecast, bushels per acre**



Note: Labels are included only for States forecast to harvest more than 400,000 acres in 2022.
 Source: USDA, National Agricultural Statistics Service.

At the State level, the largest year-over-year decline in corn production in 2022/23 can be found in the High Plains—the largest reduction occurring in Nebraska, with a 255-million-bushel decline from 2021/22, due to lower harvested area and a forecasted 22-bushel yield drop from last year to 172 bushels per acre. This month’s forecast reflects a 4-bushel-per-acre decline from NASS’s September projection for Nebraska of 176 bushels. Similarly, Kansas (with a 158-million-bushel decline in production) saw a yield decline of 24 bushels from last year to 115 bushels per acre in 2022/23, coupled with a 250,000 acre decline from the year prior to 5.15 million acres.

Figure 3
U.S. corn production by State, 2022 versus 2021, million bushels



Note: Labels are included only for States forecast to harvest more than 400,000 acres in 2022.
 Source: USDA, National Agricultural Statistics Service.

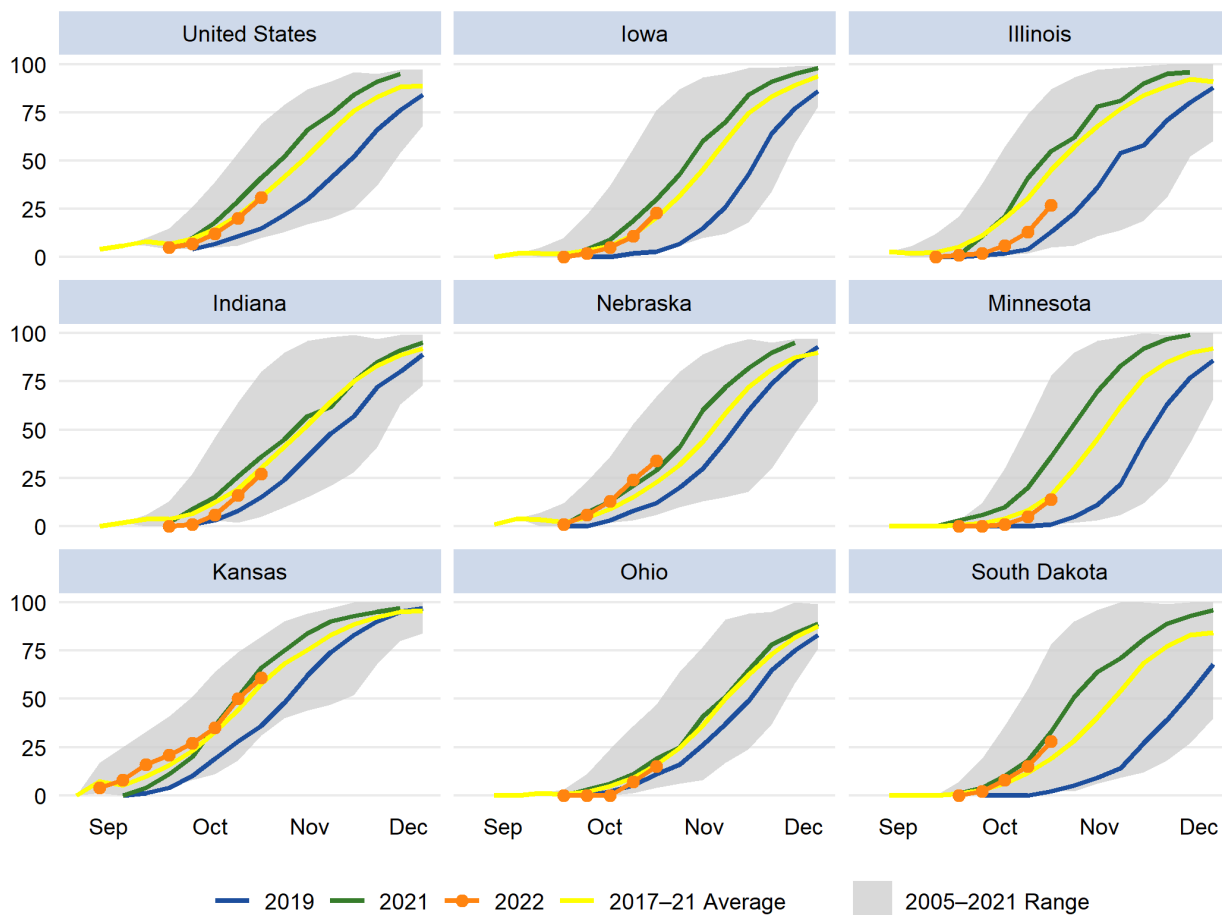
Corn production in two of the largest corn-producing States (Iowa and Indiana) is lower on the year, due to late-season dryness impacting yields, compounded in Indiana by lower harvested area. Iowa’s current corn yield forecast of 200 bushels per acre is down 4 bushels from last year, putting the State’s total production volume for 2022 at 2,490 million bushels, down 49.8 million bushels from last year. Indiana’s 2022 yield forecast of 187 bushels per acre is down 4 percent from last year and NASS predicts the State’s total production volume will fall to 944 million bushels in 2022, down 83.3 million bushels from 2021.

New Crop Harvest Progress Varies Across the Corn Belt

The U.S. corn harvest continues to move at a steady rate through early October. According to NASS’s *Crop Progress* report (through October 9), the total U.S. corn harvest was 31 percent complete, down slightly from last year’s pace but in line with the 5-year average of 30 percent.

Late planting in the spring (due to cool, wet field conditions in the Midwest) is weighing on harvest progress in Illinois, Indiana, Minnesota, and Ohio—while persistent dryness has accelerated the harvest progress in Iowa, Nebraska, Kansas, and South Dakota.

Figure 4
Corn harvest progress by State, 2005 to 2022
 Percent complete



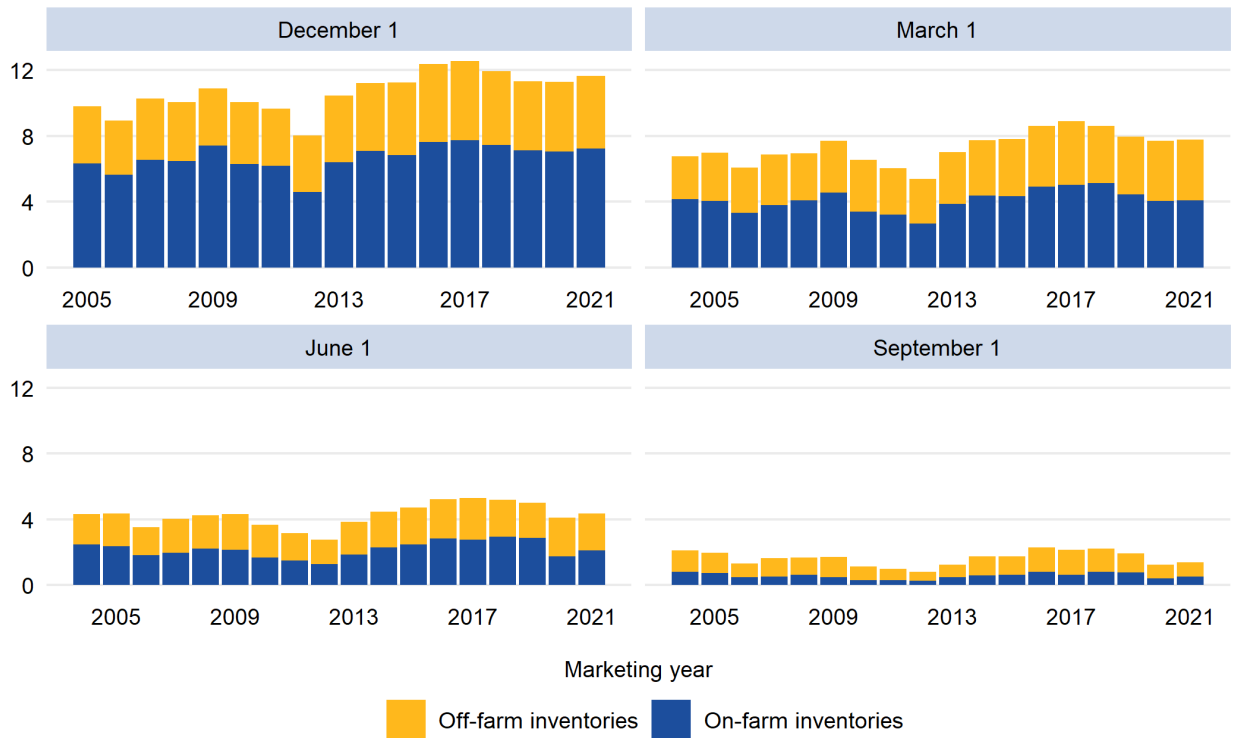
Source: USDA, National Agricultural Statistics Service.

Corn Ending Stocks Are Reduced for 2021/22 and 2022/23, Prices Climb and Exports Fall

Final corn ending stocks for 2021/22 are estimated at 1,377 million bushels, based on NASS's latest *Grain Stocks* report, released on September 30. Old crop ending stocks are up 11 percent from the year prior but are still below the previous 5-year average. The published number represents a 148-million-bushel decrease from the September *WASDE* estimate and led to a 115-million-bushel increase in corn used for feed and residual. On the year, a significantly higher season average farm price of \$6.00 per bushel (up \$1.47 per bushel from

the year prior) tempered export demand by 276 million bushels—a 10-percent reduction from 2020/21. The demand for corn used for ethanol rebounded in 2021/22 by 295 million bushels (a 6-percent increase) to a total of 5,328 million bushels.

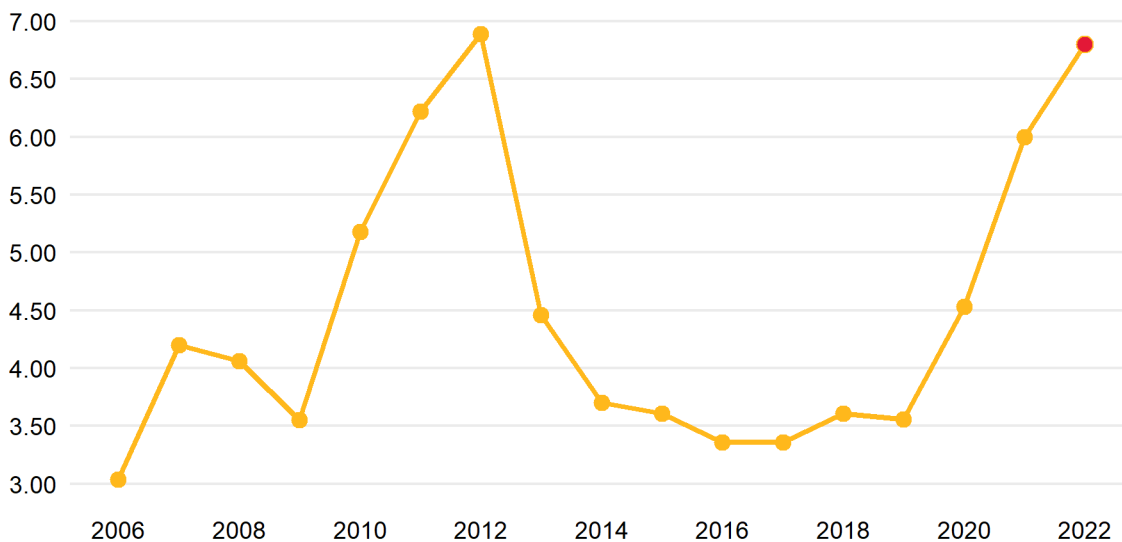
Figure 5
U.S. corn inventories, quarterly, off-farm versus on-farm
 Billion bushels



Source: USDA, National Agricultural Statistics Service.

The 2022/23 ending stocks forecast fell 47 million bushels in October to 1,172 million bushels, the lowest level since 2012/13—if realized—on lower carry-in stocks from last year (1,377 million bushels) and decreased production. Much tighter supplies in 2022/23, paired with difficult inland logistics due to historically low water levels on the Mississippi River and strong global demand for feed grains, support the highest corn season average farm price since 2012/13—at \$6.80 per bushel.

Figure 6
Price received for corn, by marketing year
U.S. dollars per bushel



Note: Prices before 2022 are the final estimate, the price in 2022 is projected.
Source: USDA, National Agricultural Statistics Service; USDA, World Agricultural Outlook Board.

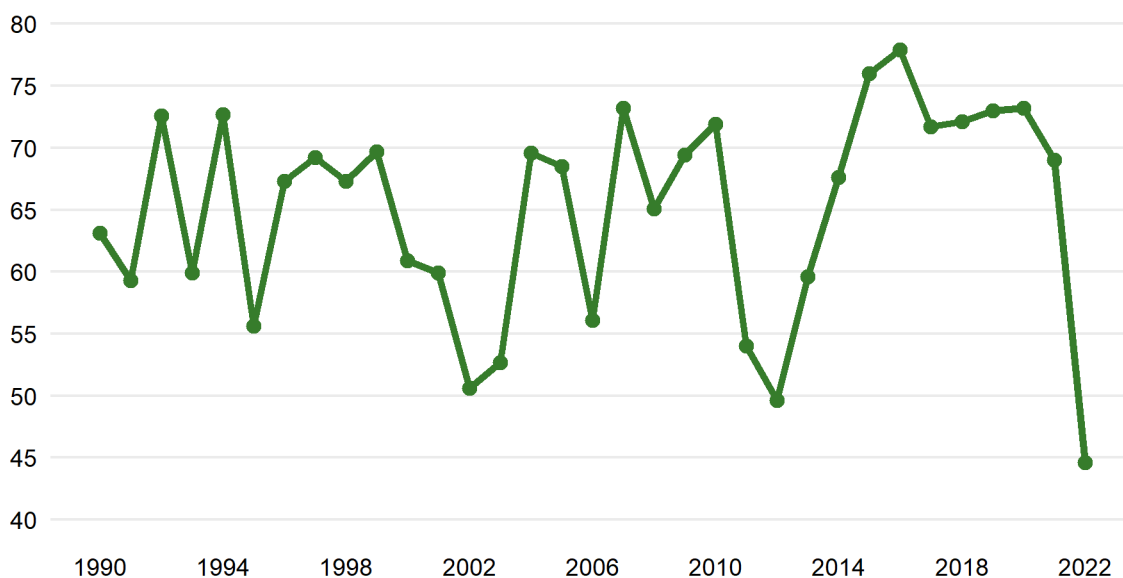
In October, the 2022/23 U.S. corn export forecast fell 125 million bushels to 2,150 million—on a sluggish start to the new marketing year as international customers ration demand in a low-certainty, high-price trading environment. Total 2021/22 corn exports came in at 2,471 million bushels, down 10 percent from the 2020/21 export record of 2,747 million bushels. For further discussion on global markets, please see the international section of this report.

This month, new crop food, seed, and industrial (FSI) use fell 50 million bushels on lower ethanol production—while feed and residual use increased 50 million bushels.

Sorghum Production Continues To Decline Due to Drought

Sorghum production for 2022/23 is projected down 7 million bushels from the September forecast to 245 million bushels on lower yields. NASS cut the national average sorghum yield by 1.4 bushels per acre in October to 44.6 bushels, the lowest level since 1964/65. Severe summer drought across the Great Plains weighed heavily on yield potential from Nebraska to Texas.

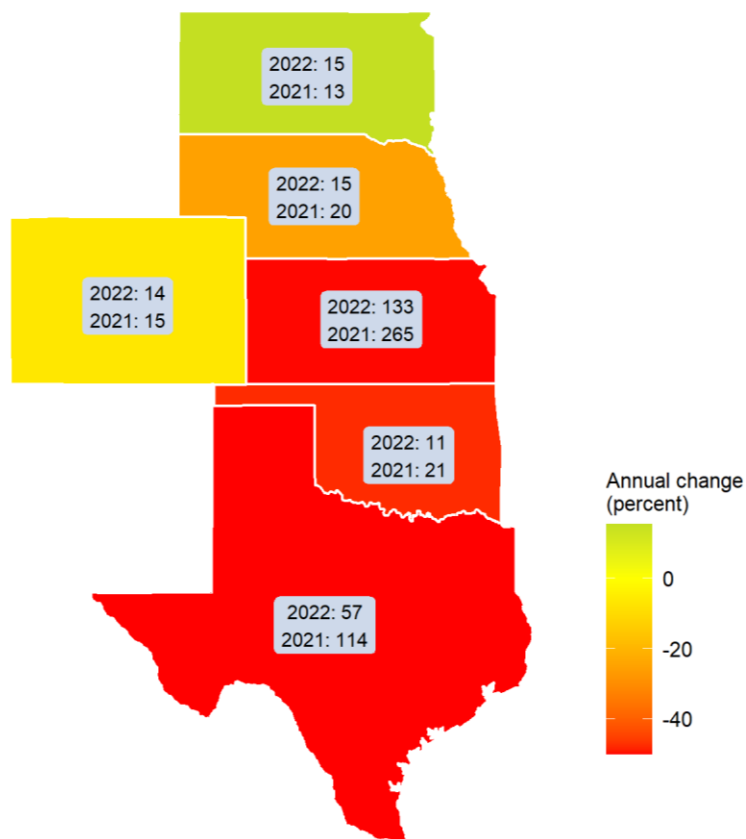
Figure 7
U.S. sorghum yield by marketing year, 1990 to 2022
Bushels per acre



Source: USDA, National Agricultural Statistics Service.

A combination of lower yield and decreased harvested area is projected to sharply reduce sorghum production in Kansas and Texas, the crop's two largest-producing U.S. States. The Kansas sorghum yield forecast fell 4 percent from September to 43 bushels per acre, 35 bushels per acre lower than last year's final yield estimate. The yield projection in Texas fell 2 bushels per acre this month to 52 bushels, a 15 percent decline from 2021/22. NASS forecasts that total sorghum production will decline by 50 percent from last year in both Kansas and Texas, to 133 million bushels and 57.2 million bushels, respectively.

Figure 8
**U.S. sorghum production by State, 2022 versus 2021,
million bushels**



Source: USDA, National Agricultural Statistics Service.

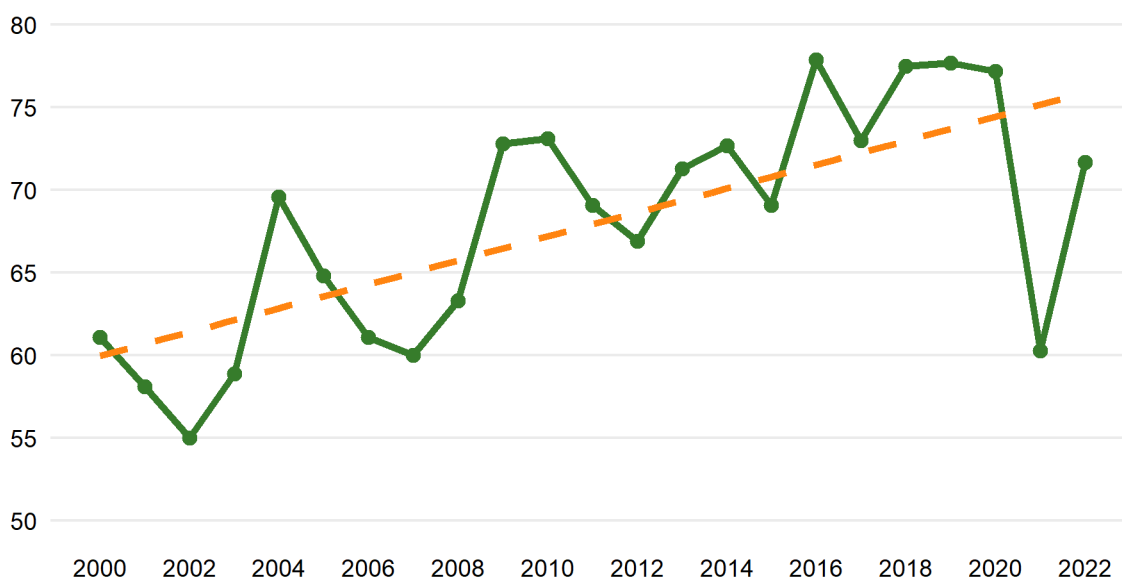
New sorghum crop use is lowered 10 million bushels from last month to 275 million bushels for the marketing year, as limited supplies dampen sorghum export potential. U.S. sorghum ending stocks for the 2022/23 marketing year total 23 million bushels, up 3 million bushels from September. The projected sorghum season-average farm price is unchanged this month at \$6.65 per bushel in 2022/23.

This month, 2021/22 sorghum FSI use increased 5 million bushels, on higher summer ethanol production, while feed use declined 9 million bushels. Old crop ending stocks are unchanged at 53 million bushels, while the season-average farm price is estimated up 4 cents on the month at \$5.94.

Barley Production Rebounds From Last Year, Prices Continue To Escalate

Barley production for 2022/23 is raised 16 million bushels to 174 million, based on the NASS *Small Grains Annual Summary* report published on September 30. The report raised the yield 5.4 bushels per acre to 71.7 bushels, a 19-percent rebound from last year's drought but still well below the trendline as producers in the Northern Plains struggled with delayed planting conditions early in the season that paired yield potential.

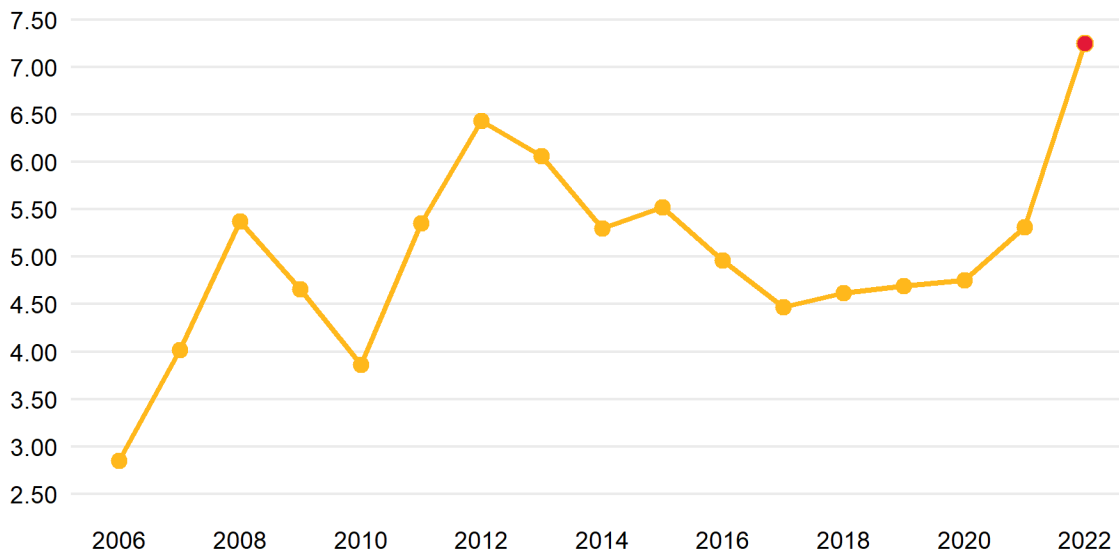
Figure 9
U.S. barley yield by marketing year, 2000 to 2022
Bushels per acre



Source: USDA, National Agricultural Statistics Service.

Total barley use for 2022/23 is raised 5 million bushels to 167 million bushels—in line with total use in 2021/22 of 164 million bushels. Outyear feed and residual use is raised 20 million bushels this month to 30 million, while FSI use (driven primarily by the malting industry) fell 15 million bushels from September to 130 million. Though new crop supplies are higher, total use is relatively flat as record prices temper domestic malting demand. 2021/22 FSI use is revised up by 22 million bushels this month to 137 million, on updated beer production data released by the U.S. Alcohol and Tobacco Tax and Trade Bureau.

Figure 10
Price received for all barley, by marketing year
 U.S. dollars per bushel



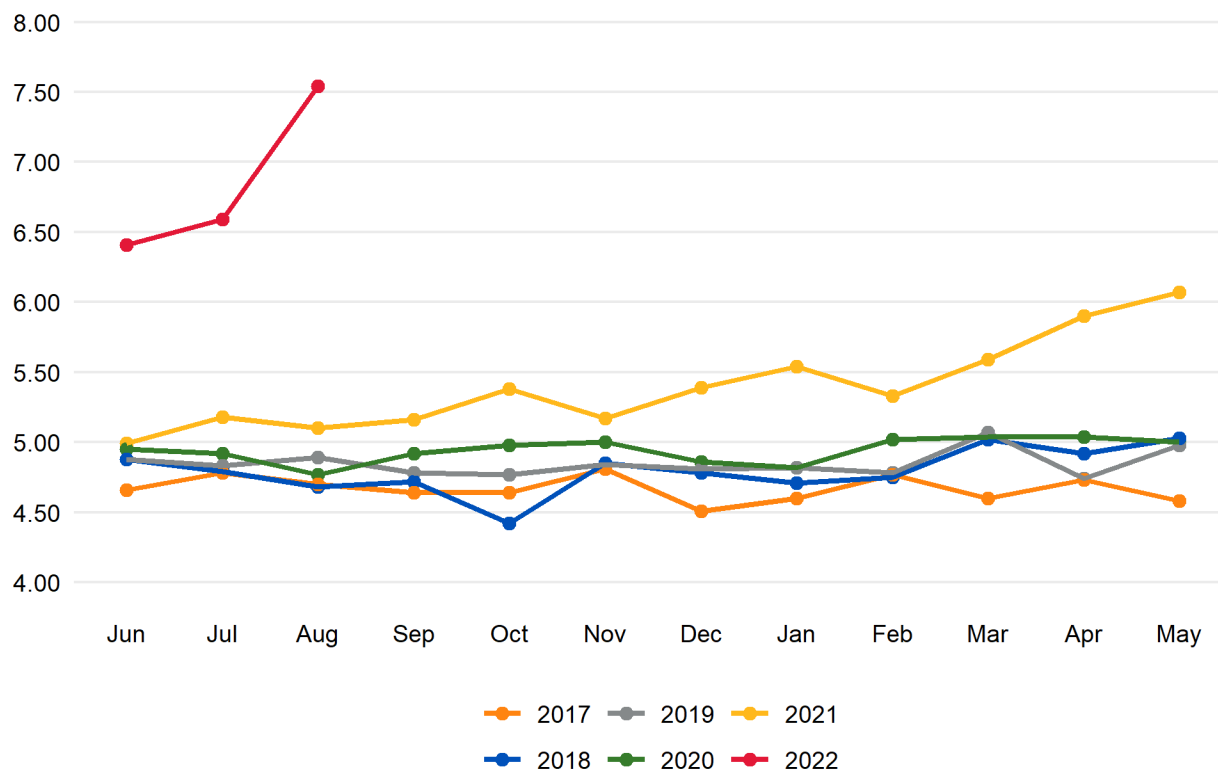
Note: Prices before 2022 are the final estimate, the price in 2022 is projected.
 Source: USDA, National Agricultural Statistics Service; USDA, World Agricultural Outlook Board.

The October barley ending stocks forecast is increased 16 million bushels to 63 million, up significantly following last year’s drought, but still the second lowest level since 2011/12. The projected season-average-all-barley price for 2022/23 is revised up \$0.35 per bushel from last month to \$7.25, on a record jump in the NASS-reported malting barley price received from \$6.59 in September to \$7.54 in October. For all barley, the \$7.25 per bushel price represents a record season-average farm price—based on tight supplies, strong domestic demand, and higher overall prices in the global grains complex.

Figure 11

Price received for malting barley, by marketing year and month

U.S. dollars per bushel



Source: USDA, National Agricultural Statistics Service.

Final 2022/23 Oat Production Is Revised Higher

Oat production is projected at 58 million bushels for 2022/23, according to the NASS *Small Grains Annual Summary*. This is a 5-million-bushel increase from the September *WASDE* projection. Yields fell slightly from 66.1 bushels per acre in the September *WASDE* report to 64.8 bushels per acre but were more than offset by a 100,000 acre increase, to a total harvested area of 900,000 acres for the year. Oat imports are revised down 5 million bushels this month to 85 million, in response to a slower import pace indicated by the U.S. Bureau of Census in October.

Feed and residual use for 2022/23 is forecast at 60 million bushels, up 30 percent following last year's drought. Ending stocks are projected to be 30 million bushels—a 2-million-bushel decline from September and the lowest level since 2013/14. The oat season-average farm price for the current marketing year is \$5.70 per bushel, down \$.10 from September.

International Outlook

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World Coarse Grain Production Is Projected Lower

Global **2022/23** coarse grain production is projected down 3.8 million tons this month to 1,459.8 million. A reduction for the **European Union** and **Serbian** corn prospects, as well as for **Argentine** barley and **Indian** millet, are the primary drivers of the reduction. Slight increases for barley production in the **European Union** and an increase in **Indian** corn partially offset the decline in coarse grains output for this month. Projected **U.S.** coarse grain production for 2022/23 is down 1 million tons this month to reach 364.11 million

Corn production in the **European Union** is projected at 56.2 million tons this month, 14.6 million lower than a year ago. Severe drought conditions (along with high temperatures) impacted corn yields in several areas of the region, with the largest declines this month seen in **Hungary**, **Romania**, and **Bulgaria**. In **Serbia**—which is not part of the **European Union**, but borders **Romania** and **Bulgaria**—similar dry weather conditions reduced corn production to a projected 5.4 million tons this month.












Dry conditions throughout September have also impacted **Argentina's** barley crop, which is currently in the middle of the growing season and is at a critical development stage for yield. More than 94 percent of Argentine barley production is grown in Buenos Aires province (more precisely, east-south central). Lack of the rainfall has contributed to below-average crop conditions, which are notably worse than last year. Barley production is forecast lower at 5.1 million tons, 4 percent lower than last month.

Favorable weather conditions and beneficial rainfall across the major **Indian** corn producing states—also considered India's corn belt (Karnataka, Madhya Pradesh, Maharashtra, and Tamil Nadu)—encouraged farmers to plant more corn, increasing corn production projections for **India** to 32 million tons.

For detailed information on coarse grain production and specific changes, see tables A1 and A2 below. Changes in total global, foreign and U.S. coarse grain production by type of grain are shown in table A1, while changes by country are given in table A2.

Table A1 - World and U.S. coarse grain production at a glance (2022/23), October 2022					
	Region or country	Production	Change from previous month ¹	YoY Change ²	Comments
<i>Million tons</i>					
Coarse grain production (total)					
↓	World	1,459.8	-3.8	-43.9	
↓	Foreign	1095.7	-2.9	-10.3	Partly offsetting changes are made for a number of countries and commodities.
↓	United States	364.1	-1.0	-33.6	See section on U.S. domestic output.
World production of coarse grains by type of grain					
CORN					
↓	World	1,168.7	-3.8	-48.6	
↓	Foreign	818.4	-2.6	-18.6	Major reductions in the European Union, Serbia, and Thailand partly offset by an increase for India.
↓	United States	353.0	-1.2	-29.9	See section on U.S. domestic output.
BARLEY					
↑	World	149.0	+1.3	+3.5	
↑	Foreign	145.2	+0.9	+2.3	Higher projected output in the European Union (Germany and Hungary) and Azerbaijan partly offset by a reduction for Argentina.
↑	United States	3.8	+0.4	+1.2	See section on U.S. domestic output.
RYE					
	World	12.0	Fractional	-0.5	
	Foreign	11.8	Fractional	-0.5	Fractional change in Canadian production.
↑	United States	0.3	Fractional	Fractional	See section on U.S. domestic output.
MILLET					
↓	World/Foreign	30.5	-1.2	+2.5	Lower production is projected for India. See table A2.
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 by country at a glance, October 2022

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 (2022/23)					
ARGENTINA					
 Barley	Dec-Nov	5.1	-0.2	-0.2	Dry conditions in the southern Buenos Aires, the major barley-producing region, are expected to reduce yield and production.
EUROPEAN UNION					
 Corn	Oct-Sep	56.2	-2.6	-14.8	Harvest results indicate lower production in Hungary, Romania and Bulgaria that is partly offset by an increase in Poland .
 Barley	Jul-Jun	51.1	+1.0	-0.9	Barley prospects are revised up due to higher production in Germany and Hungary .
THAILAND					
 Corn	Jul-Jun	5.2	-0.1	-0.1	Production is revised down, with slightly lower projected area and trend yields.
INDIA					
 Corn	Nov-Oct	32.0	+0.5	-1.6	Favorable weather resulted in higher projected corn area and increased production prospects.
 Millet	Nov-Oct	12.0	-1.2	+0.5	The reduction is based on the 1 st advanced Government estimate.
CANADA					
 Rye	Aug-Jul	27.6	Fractional	Fractional	Record rye yield this month, based on official Government reports.
SERBIA					
 Corn	Oct-Sep	5.4	+0.5	-0.5	Lower production is due to drought weather conditions.
AZERBAIJAN					
 Barley	Jul-Jun	1.1	+0.2	Fractional	Official statistics.
Coarse grain production by country and by type of grain (2021/22)					
ARGENTINA					
 Corn	Mar-Feb	51.5	-1.5	-0.5	A downward production revision is based on the evidence of lower-than-expected current corn supplies.
AZERBAIJAN					
 Barley	Jul-Jun	1.2	+0.2	+0.1	Official statistics.
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.					
Source: USDA, Foreign Agricultural Service, <i>Production, Supply and Distribution</i> database.					

Coarse Grain Use Is Reduced, Foreign Stocks Are Down

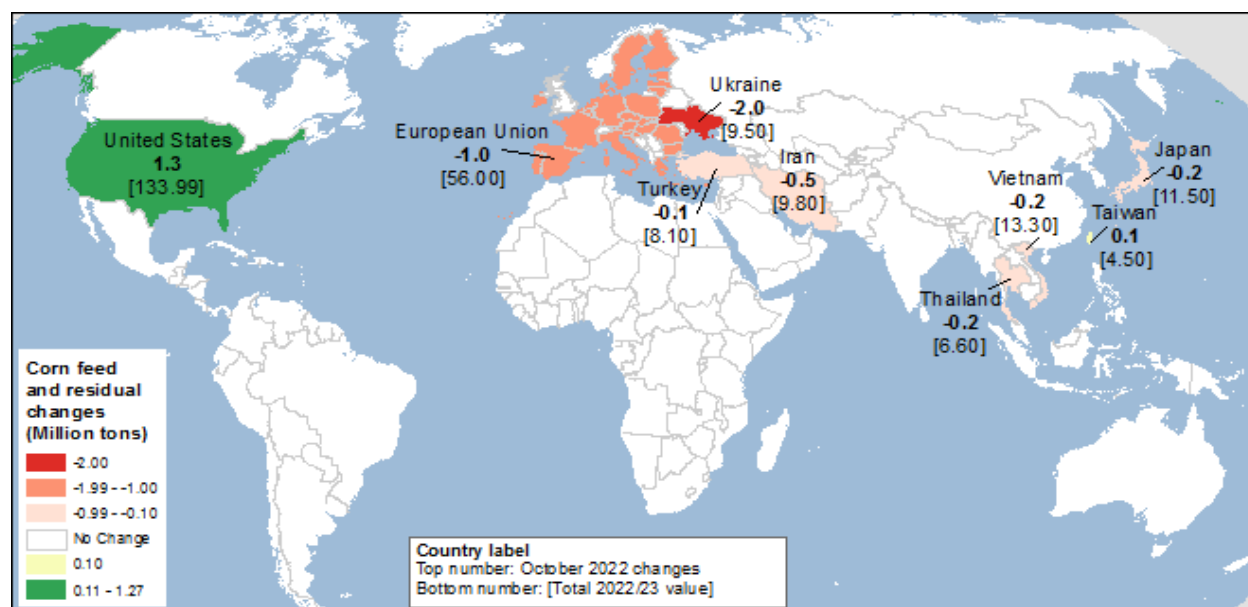
Global coarse grain use in 2022/23 is projected down 5.7 million tons this month to 1,466.9 million. While domestic use in the United States is up slightly this month (see domestic section), foreign coarse grain use projections are revised lower for multiple countries. Feed use prospects are adjusted lower in several countries, with the largest declines coming from **Ukraine**, followed by **India** and **Iran**. The **European Union** coarse grain feed use is unchanged, with fully offsetting changes in corn and barley, with corn feed use down and barley up by 1 million tons.

Corn feed and residual use is projected lower for **Ukraine**, due to the higher projected pace in corn exports that reduces the amount of corn previously assumed to fall under the feed and residual use category. In the **European Union**, lower corn production is projected to limit corn availability for both feed and residual use and FSI—food, seed, and industrial—consumption, while higher barley production is projected to boost feed use. Reduced corn imports to **Iran** have impacted total corn supply, with lower corn use for feed. For a summary of this month’s changes in corn feed and residual use, see table B and map B.

Table B - Corn feed and residual use at a glance (2022/23), October 2022

	Region or country	Feed and residual	Change ¹	Comments
<i>Million tons</i>				
↓	World	740.2	-2.8	
↓	Foreign	606.2	-4.1	Multiple offsetting changes in each type of coarse grain.
↑	United States	134.0	+1.3	See U.S. domestic section.
By Country				
↓	Ukraine	9.5	-2.0	Increase in corn exports, reduced availability for domestic consumption.
↓	European Union	56.0	-1.0	Lower projected corn output.
↓	Iran	9.8	-0.5	Reduced corn imports.
¹ Change from previous month.				
Numerous smaller changes are made for a number of countries.				
Source: USDA, Foreign Agricultural Service, <i>Production, Supply and Distribution</i> database.				

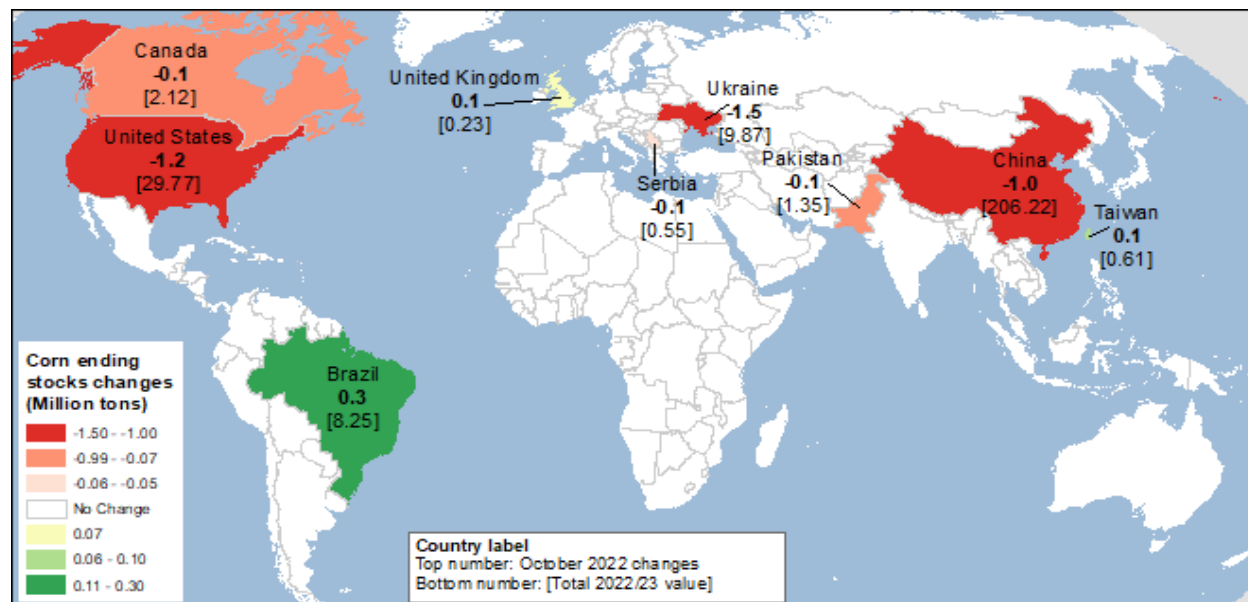
Map B – Year-over-year corn feed and residual changes, October 2022/23



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

Foreign corn ending stocks are down 2.2 million tons, led by a reduction in **Ukraine** (higher projected exports and lower beginning stocks, partly offset by reduced feed use) and for **China**, reflecting lower beginning stocks because of the 2021/22 corn imports reduction by this month. Lower **Ukrainian** and **Chinese** stocks are partially offset by an increase in **Brazil's** ending stocks this month. For a summary of this month's changes in corn ending stocks, see map C.

Map C – Year-over-year corn feed and residual changes, October 2022/23



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

Corn Trade Prospects for 2022/23 Are Slightly Higher

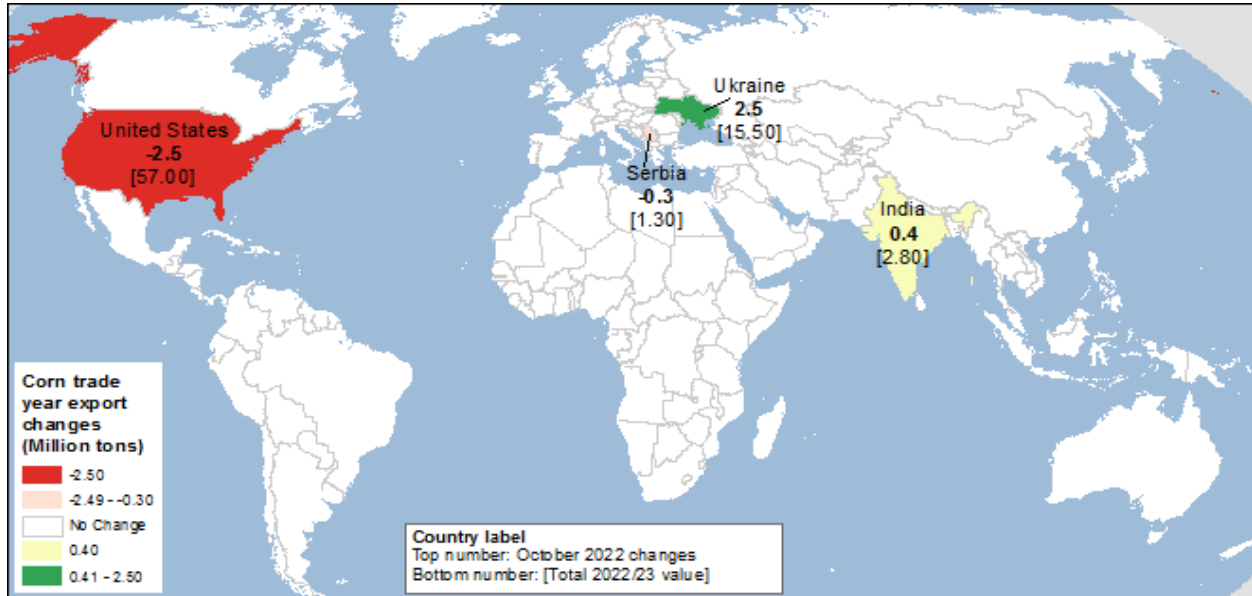
World corn trade for the October-September international trade year projected for 2022/23 is 0.1 million tons higher than September projections to 184.8 million tons this month. **Ukraine** corn export prospects for 2022/23 are projected up 2.5 million tons this month to reach 15.5 million, while **India's** corn exports are expected higher due to increased corn production. Largely offsetting are lower export projections for the **United States** and **Serbia**.

The largest increases in corn imports this month are projected for the **European Union** and the **United States**. For the **European Union**, corn imports are projected higher for both 2021/22 and 2022/23, up 1.5 and 1.0 million tons, respectively. While the 2021/22 trade year is over and the increase is supported by the trade data, higher 2022/23 corn imports reflect declining projections for corn production prospects in many parts of the region. Higher corn imports are expected on 2022/23 for the United States due to reduced corn production prospects. For a detailed discussion of U.S. trade, see domestic section of the report. Corn imports are projected

lower for **Iran** (due to lower projected growth in corn feed use) and **Vietnam** (as a result of slow pace of corn imports). These changes partially offset the increase in **EU** imports.

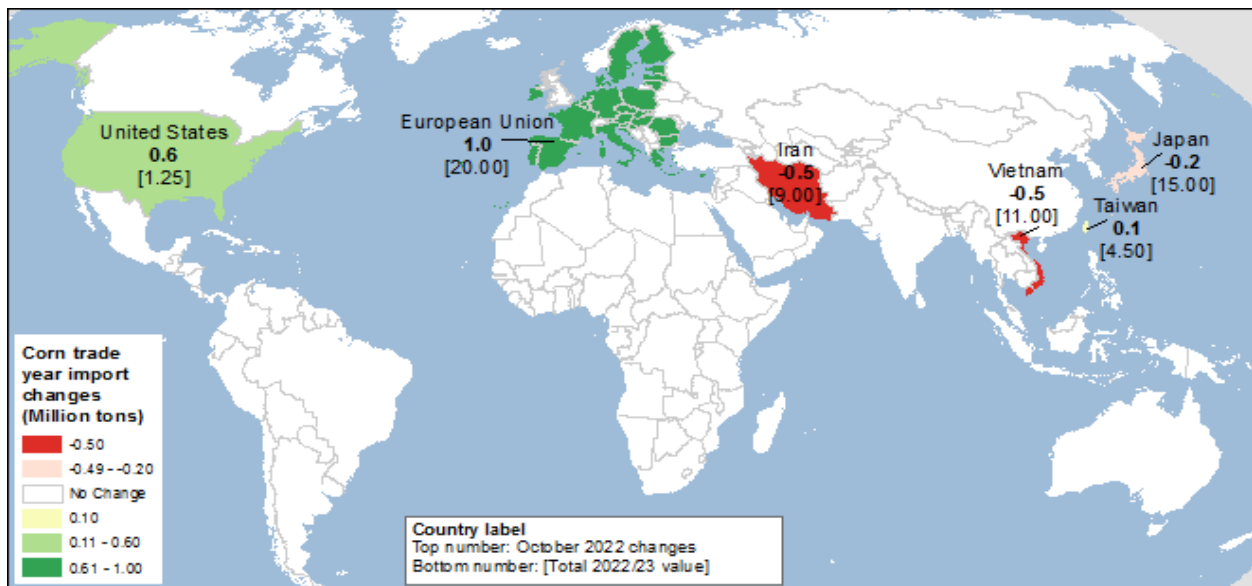
For information on this month's corn trade changes in trade year 2022/23, see maps D and E.

Map D – Year-over-year corn trade year exports changes, October 2022/23



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

Map E – Year-over-year corn trade year imports, October 2022/23



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

U.S. Trade Revisions Finalize the 2021/22 Trade Year, Lower Trade Is Expected for 2022/23

U.S. corn exports prospects for the 2021/22 October-September international trade year are unchanged this month to 63 million tons, while U.S. sorghum exports for 2021/22 trade year are reduced 0.1 million tons to 7.3 million, based on September U.S. Census inspections data.

This month's reduced corn supplies in the United States, combined with continued strong U.S. currency, make the United States less competitive in the global market. As a result of reduced price-competitiveness, combined with logistical challenges (related to the ability to efficiently deliver the grain, see domestic section), the U.S. feed grain exports outlook is expected to be weaker than in 2 previous years and lower than projected a month ago. Corn exports 2022/23 are projected at 57 million, 2.5 million lower than last month as the pace of U.S. corn export sales continues to decline.

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