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# Feed Outlook: February 2022

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## U.S. Feed Grain Prices Remain Strong for 2021/22

The outlook for 2021/22 U.S. corn markets in the February *World Agricultural Supply and Demand Estimates (WASDE)* report is unchanged from the January report. The projected season-average farm price for 2021/22 is also unchanged at $5.45 per bushel. U.S. markets for sorghum, barley, and oats, are also unchanged. The projected season-average farm price for oats is raised $0.20 per bushel to $4.00, based on record high cash markets and strong monthly reported prices received by producers.

Foreign corn production is reduced this month, led by ***Brazil*** and ***Paraguay***. A reduction for ***Brazil*** reflects lower expectations for first-crop corn, while second-crop (safrinha) planting is underway at a faster than normal pace. Brazil's exports are raised, based on a stronger than expected pace of sales, despite a poor first-crop harvest. Increased 2020/21 corn output and competitive prices (supported by a weaker currency and a rapid pace of exports) bolster ***Argentine*** export prospects. Barley trade is projected slightly higher (with a number of partly offsetting changes for some countries), and ***Chinese*** barley imports are boosted further. Projected ***U.S.*** corn exports for 2021/22 are left unchanged this month.

# Domestic Outlook

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## Corn Supply Outlook Unchanged from January Report

The USDA's outlook for U.S. corn markets is unchanged in the February *World Agricultural Supply and Demand Estimates (WASDE)* report, compared with the January *WASDE* report.

The corn production outlook for 2021/22 came into focus with the January *Crop Production Annual Summary*, released on January 12 by the National Agricultural Statistics Service (NASS), putting the crop size at 15,115 million bushels. The 2021/22 crop is the second-largest corn crop on record, behind the 15,148 million bushels harvested for grain in 2016/17. With beginning stocks for the year unchanged and projected imports still at 25 million bushels, total projected supplies for 2021/22 are unchanged from the January *WASDE* report at 16,375 million bushels.

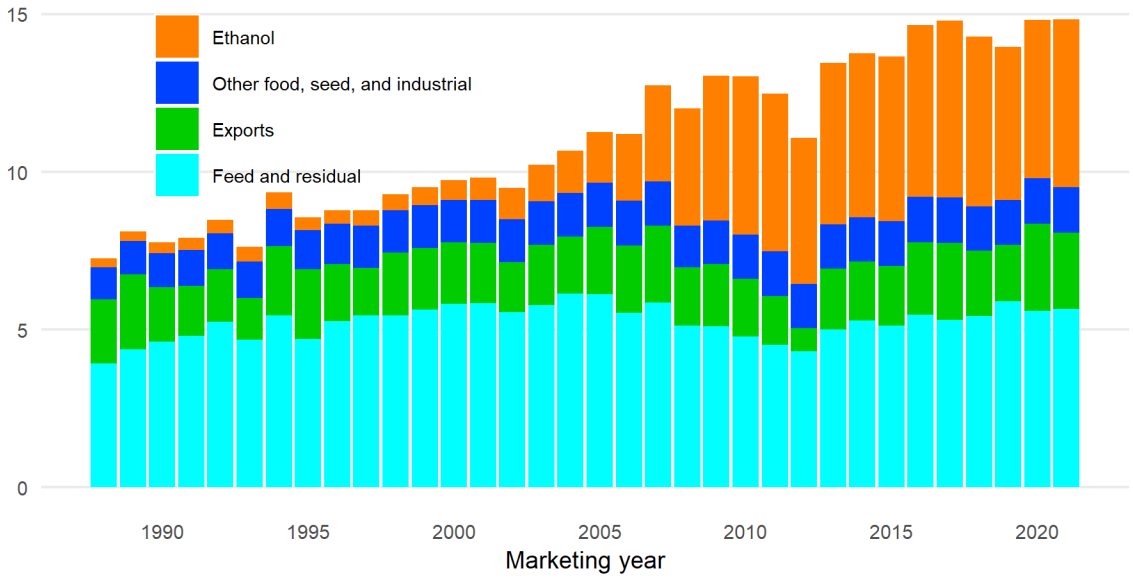
## Strong Fuel Ethanol Use Supportive of Corn Demand

The February *WASDE* report also had no changes to projected corn use in the United States, relative to the January report—projected at 14,835 million bushels. This current projection would be a record total of total use, with a slight 0.1-percent increase from the 2020/21 estimated use.

Figure 1

**U.S. corn utilization**

Billion bushels




Note: 2020/21 is estimated, 2021/22 is projected.
Source: USDA, Economic Research Service.

Ethanol for fuel use is projected at 5,325 million bushels, also unchanged from the January report. Healthy spot-cash market margins have incentivized strong ethanol production since October 2021. The result has been a high rate of corn used for ethanol, as reported by NASS's monthly *Grain Crushings and Co-Products Production* report. Through the first 4 months of 2021/22 (September through December), 1,828 million bushels of corn have been processed for fuel ethanol. The current pace is 7.5-percent higher than the previous year and the largest total since 2017/18. Overall, demand for fuel ethanol has been a strong driver of demand for corn thus far in the marketing year.

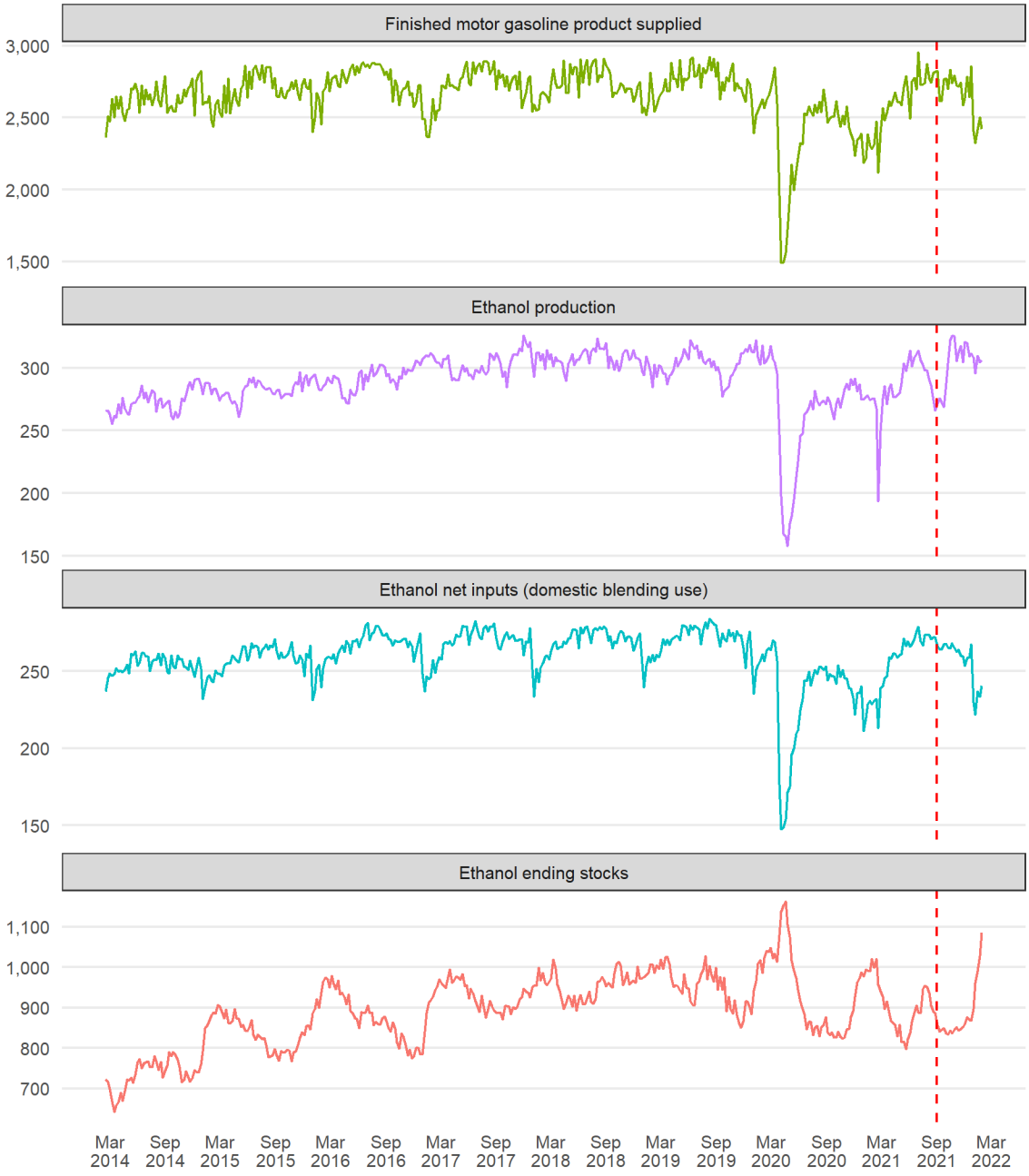
The outlook for fuel ethanol and the derived demand for corn will largely be predicated on domestic gasoline markets for the remainder of the year. There was a strong recovery in driving and gasoline consumption during the spring and summer of 2021 that set the stage for the strong margins at the beginning of the 2021/22 marketing year. Recent data from the U.S. Department of Energy's Energy Information Administration (EIA) show that weekly gasoline product supplied—a key metric for gauging ethanol use—has been relatively lower since the end of the holiday season. Since gasoline use has slowed, there has been an increase in reported gasoline and ethanol inventories, which will likely affect margins and crushing rates in early 2022. While U.S. exports of ethanol have also been strong through December in 2021/22,

gasoline markets are expected to continue to be the main driving factor for corn used for fuel ethanol. The current projection represents a 6-percent increase from 2020/21 estimates and would be the largest total since 2018/19.

Figure 2

**Weekly totals of U.S. gasoline product supplied, ethanol production, net inputs, and ending stocks**

Million gallons




Note: Red line notes start of 2021/22 marketing year.
Source: U.S. Department of Energy, Energy Information Administration.

## Corn Exports Projected to be Second-Largest in 2021/22

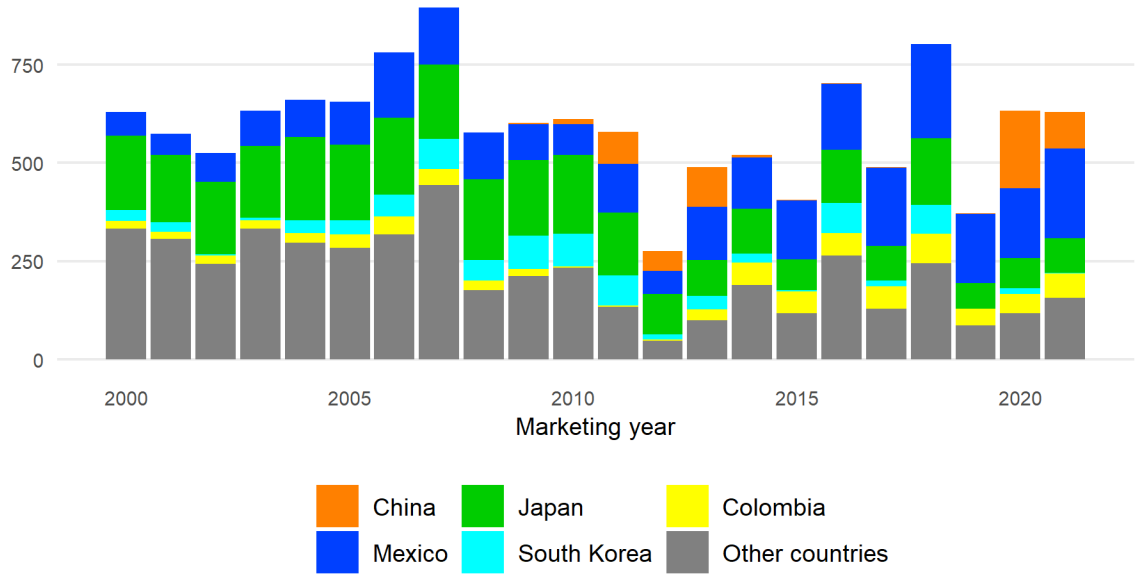
U.S. corn exports continue to ship at a relatively strong pace, although the outlook is not as high as the record-setting export level of 2020/21. U.S. corn exports are projected to be 2,425 million bushels for 2021/22—unchanged from the January *WASDE* report and 12-percent lower than 2020/21.

According the U.S. Census Bureau, corn exports from September to December 2021 have totaled 630 million bushels, just slightly behind the previous year's pace of 632 million bushels. In 2020/21, however, shipments to China were more than double the current year's pace through December. Also, additional purchases by Chinese corn importers in January and February 2021 eventually translated to more shipments in the spring quarter of 2020/21, as the outlook for global corn production was being reduced at that time of the sales. For 2021/22, the global corn production outlook looks much better—particularly from Ukraine, which has historically been the top foreign supplier to China. Assuming normal weather conditions in the months ahead for key producers in South America, the United States is not forecast to see a similar surge in exports that it did a year ago. Nonetheless, the current projection would represent the second-largest corn export total for the United States, if realized. For additional information on global markets and U.S. corn exports, see the *International Outlook* section of this report.

Figure 3

**U.S. corn exports, September through December marketing years 2000 to 2021**

Million bushels




Source: U.S. Department of Commerce, Bureau of the Census.

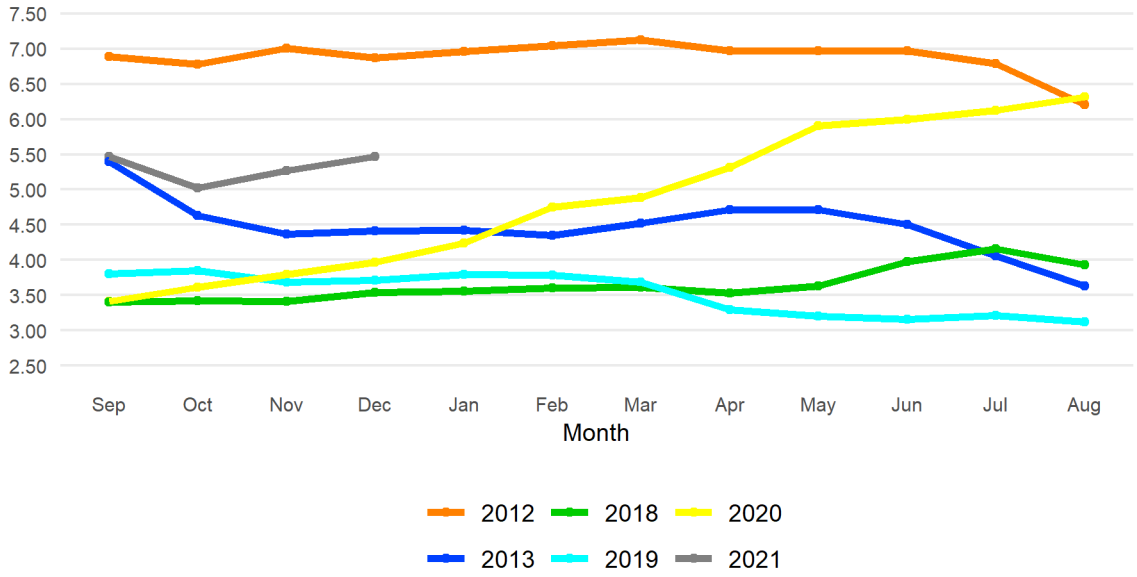
## Strong Domestic Cash Markets Translate Into Highest Projected Price Received by Producers in a Decade

The U.S. season-average farm price for corn is projected to be $5.45 per bushel in 2021/22, unchanged from the January *WASDE* report's projection. Monthly prices received by producers continue to be strong by historical standards, as reported by the NASS *Agricultural Prices* report. The national average price received for December 2021 was $5.47 per bushel, compared with $3.97 in December 2020. The current projection is the highest since the 2012/13 marketing year—which totaled $6.89 per bushel—due to severe drought in the Corn Belt, dramatically tightening market supplies.

Figure 4

**Price received for corn, monthly**

U.S. dollars per bushel




Source: USDA, National Agricultural Statistics Service.

Prices in the cash and futures contract markets have also been higher—with price levels above $6.00 in many major cash spot markets in January. The Central Illinois cash price for corn averaged $6.16 per bushel in January 2022, compared with $6.03 the previous month and $5.23 in January 2021. At Gulf export terminal markets, spot corn prices averaged $7.04 per bushel—up from $6.72 in December 2021 and $5.89 in January 2021—reflecting continued strong export demand for corn.

# U.S. Sorghum Balance Sheet Remains Unchanged for 2021/22

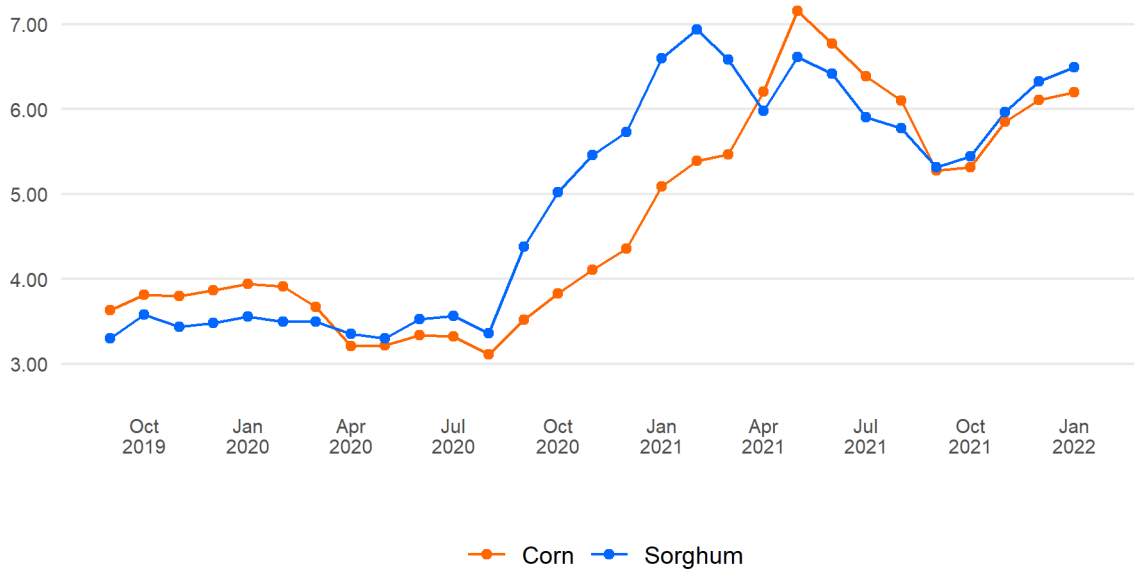
The February *WASDE* reports unchanged sorghum production, projected at 448 million bushels for the 2021/22 marketing year.

Strong demand for feed grains has been supportive for sorghum cash prices since the beginning of the new marketing year in September 2021. The average cash sorghum market price was $6.49 per bushel in January 2022, compared to $6.32 per bushel of corn. While historically, sorghum prices are typically lower than corn prices, that relationship has been more variable over the past 2 marketing years. Sorghum prices averaged $1.27 per bushel higher than corn from September 2020 through March 2021 in the Kansas City, Missouri cash market—largely driven by a surge in sorghum exports to China. As corn supplies tightened in the latter-half of the 2020/21 marketing year, corn was at a premium price over sorghum from April 2021 through September 2021, with an average premium of $0.39 over sorghum. The price margin between corn and sorghum has once again favored sorghum in 2021/22 but has narrowed relative to 2020/21. Kansas City sorghum cash prices have been an average of $0.17 per bushel higher than Kansas City corn cash prices between September 2021 to January 2022.

Figure 5

**Kansas City, MO cash-market prices for corn and sorghum, monthly average**

U.S. dollars per bushel




Source: USDA, Agricultural Marketing Service.

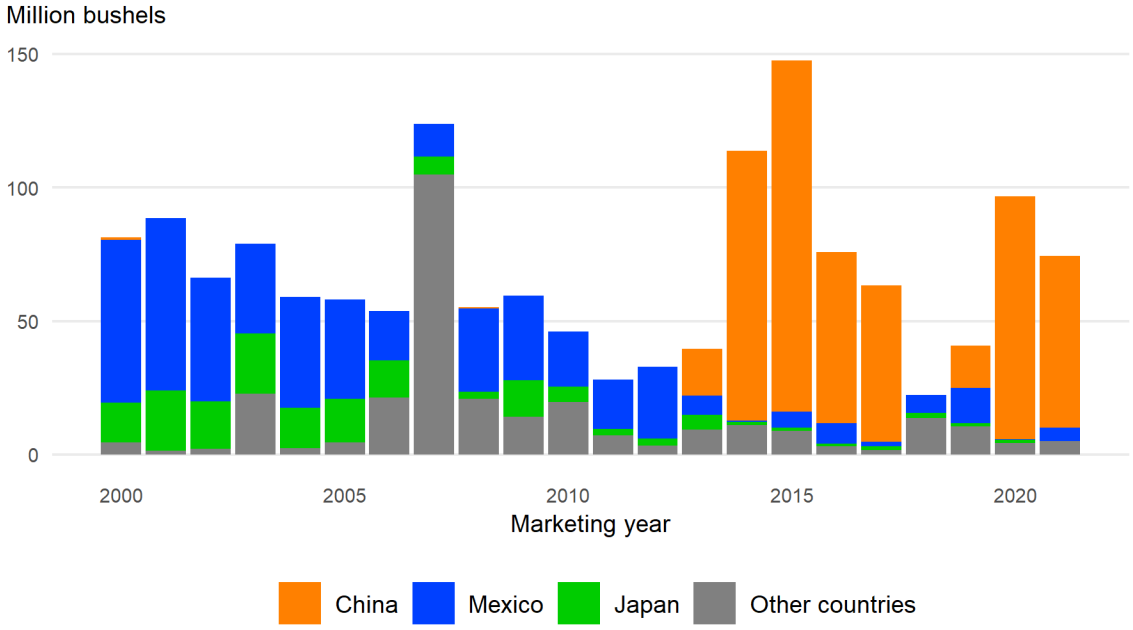
The projected season-average farm price remains unchanged from the January report, projected at $5.45 per bushel for 2021/22.

## U.S. Sorghum Exports Remain Strong

Sorghum exports remain unchanged at 310 million tons for 2021/22. According to the U.S. Census Bureau, the first 4 months of marketing year 2021/22 totaled 74 million bushels. The sustained high export pace to date is primarily being driven by shipments to China, with 87 percent of total exports, followed by Mexico with 7 percent.

Figure 6

**U.S. sorghum exports, September through December marketing years 2000 to 2021**




Source: U.S. Department of Commerce, Bureau of the Census.

## Barley Prices Remain High for 2021/22 Due to Tight Supplies

No changes are reported for the U.S. barley supply and use figures in the February *WASDE* report. Barley production for 2021/22 is unchanged at 118 million bushels and total supplies are projected at 198 million bushels; both are down substantially from the current 2020/21 estimates of 171 million and 258 million bushels, respectively. Drought conditions in key-growing regions in the Northern Plains during the summer of 2021 weighed significantly on U.S. barley production. U.S. barley imports are projected at 9 million bushels and are unchanged from the January *WASDE* report. However, these imports represent the highest volume since 2017/18, as an uptick in deliveries from Canada and the European Union in the first half of the marketing

year bolster domestic supplies. Total domestic barley use remains at 130 million bushels in the February *WASDE* report, substantially lower than the 172 million bushels used in 2020/21. The season-average farm price for 2021/22 is projected at $5.15 per bushel; unchanged from the January forecast, but still elevated from the 2020/21 price of $4.75.

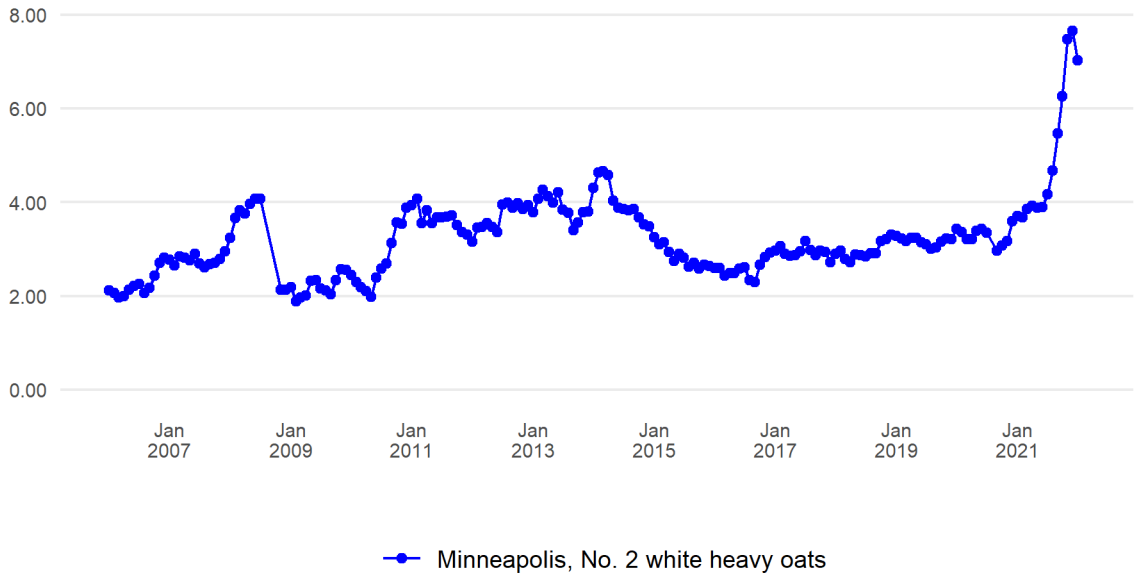
## Oat Supply and Use Unchanged, Prices Raised for 2021/22

The U.S. oat market continues to see record-high price levels, as drought conditions in both the U.S. Northern Plains and the Canadian Prairie growing-regions tightened North American supplies in 2021/22. There are no changes to the 2021/22 supply and use projections in the February *WASDE* report, compared with the January report. U.S. ending stocks for 2021/22 are projected to be 28 million bushels, with a projected stocks-to-use ratio of 22.0 percent. The stocks-to-use ratio would be the tightest since 2013/14. Unlike that year, however, projected imports are at substantially lower levels, since the Canadian oat market is also tight. As a result, the season-average farm price of oats is projected to be $4.00 per bushel in 2021/22—up from the January *WASDE* report's projection of $3.80. If realized, this number would be a record season-average price for oats, beating the current record of $3.89 set in 2012/13. Illustrating the high prices in the oat market, the spot cash price for oats in Minneapolis, MN, as reported by the Agricultural Marketing Service (AMS), averaged $7.06 per bushel in January; down slightly from an average of $7.66 in December 2021, but still more than twice the price levels seen over the previous 5 years.

Figure 9

**U.S. cash-market prices for oats, monthly average**

U.S. dollars per bushel




Source: USDA, Agricultural Marketing Service.

## Grain Consuming Animal Units Projected Lower for 2021/22

Total feed and residual use for feed grains and wheat in the United States for 2021/22 (September through August) is projected to be 149.5 million metric tons (MT). This total is a slight decline from the 2020/21 estimate of 149.6 million MT. Grain Consuming Animal Units (GCAUs) are projected to be 100.57 million units in 2021/22. The projected GCAU total for 2021/22 is down from 2020/21 estimates of 101.21 million units. As a result, broad measures of the feed market show relatively improved feed availability, on a per animal unit basis for 2021/22.

On January 31, 2022, NASS released the *Cattle* report, which provided January 1, 2022 inventory numbers for cattle in the United States. The United States had 91.9 million head of cattle in inventory at the beginning of the calendar year—a 2-percent decline from 2021 cattle inventories of 93.8 million head. All-cattle-on-feed inventories remained relatively unchanged from the downwardly-revised 2021 total, at 14.7 million head. The cattle-on-feed measure is a significant component of the GCAU calculation used to measure derived livestock demand. NASS reported that beef cows (down 2 percent), total calves (down 3 percent), and replacement beef heifers (down 3 percent) are all lower in 2022. The declines will likely have implications for the feeder cattle pipeline in the future. Cattle inventories in the dairy sector

showed lower inventories for both milk cows (down 1-percent from the previous year at 9.4 million head) and heifers for milk cow replacement (down 3-percent at 4.5 million head). These declines were largely in line with previous assumptions for prior GCAU estimates. Current projections for GCAUs attributed to cattle on feed are 22.51 million units, compared with 22.34 million units in the January *Feed Outlook* report. For dairy, GCAUs fell from 10.64 million animal units in the January report to the current 10.60 million units. For additional information on cattle and livestock markets, see the *Livestock, Dairy, and Poultry Outlook* report series, with the February 2022 report scheduled for release on February 15, 2022.

Figure 8

**Cattle January 1 inventories, by cattle type**

Million head


Source: USDA, National Agricultural Statistics Service.

# International Outlook

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## World Coarse Grain Production Prospects Reduced

Global **2021/22** coarse grain production is projected down 2.7 million tons this month to 1,497.4 million. Reduced forecast production in South America (for corn) and the Middle East (for barley) more than offsets small increases in Asia and some other countries. Most of the reduction is for world corn, down 1.6 million tons from the previous month. Global barley output is down 1.3 million tons this month, while changes in sorghum are slightly offsetting. This month, U.S. coarse grain production is unchanged. See table A1.

**Table A1 - World and U.S. coarse grain production at a glance (2021/22), February 2022**

| | Region or country | Production | Change from previous month[1] | YoY Change[2] | Comments |
|---|---|---|---|---|---|
| | | *Million tons* | | | |
| **Coarse grain production (total)** | | | | | |
| ↓ | **World** | **1,497.4** | **-2.7** | **+63.6** | |
| ↓ | **Foreign** | **1,098.7** | **-2.7** | **+37.8** | Partly offsetting changes are made for a number of countries and commodities. See table A2. |
| | **United States** | **398.7** | **No change** | **+25.8** | See section on U.S. domestic output. |
| **World production of coarse grains by type of grain** | | | | | |
| **CORN** | | | | | |
| ↓ | **World** | **1,205.3** | **-1.6** | **+82.3** | |
| ↓ | **Foreign** | **821.4** | **-1.6** | **+56.8** | Reduction in Brazil, Paraguay, Moldova, and Cuba crop are partly offset by higher production in Philippines. See Table A2. |
| | **United States** | **383.9** | **No change** | **25.5** | See section on U.S. domestic output. |
| **BARLEY** | | | | | |
| ↓ | **World** | **145.8** | **-1.3** | **-14.2** | |
| ↓ | **Foreign** | **143.2** | **-1.3** | **-13.0** | Lower projected output in Iraq, Syria, and the United Kingdom slightly offset by higher production in Uruguay. See table A2. |
| | **United States** | **2.6** | **No change** | **-1.2** | See section on U.S. domestic output. |
| **SORGHUM** | | | | | |
| ↑ | **World** | **65.3** | **+0.2** | **+3.4** | |
| ↑ | **Foreign** | **53.9** | **+0.2** | **+1.5** | Higher output projected for Australia and European Union. See table A2. |
| | **United States** | **11.4** | **No change** | **+1.9** | See section on U.S. domestic output. |
| **OATS** | | | | | |
| ↓ | **World** | **22.7** | **Fractional change** | **-2.8** | |
| ↓ | **Foreign** | **22.1** | **Fractional change** | **-2.4** | Slightly lower output in Kazakhstan and Uruguay. |
| | **United States** | **0.6** | **No change** | **-0.4** | See section on U.S. domestic output. |

[1]Change from previous month. [2]YoY: year-over-year changes. [3] Totals may not add due to rounding.

**For changes and notes by country, see table A2.**

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

***Brazil's*** 2021/22 **corn** production is reduced 1.0 million tons this month to 114.0 million, still the highest on record. The 2021/22 local marketing year for corn in Brazil begins in March 2022 and runs through February 2023. The first-crop corn—about a fourth of projected total Brazilian corn output—was planted from September through December 2021. Hot and dry weather stressed corn yields in the southern part of the country. A large share of this crop is still going through the reproductive period of development, while in the southern states of the country, harvesting is underway. A further decline in corn yields for the first-crop corn is projected this month, as extreme heat and low precipitation in January continued to hurt corn yields in the South. The larger, second-crop (or safrinha) corn is usually planted after the soybean harvest. Planting of safrinha corn has recently started, with the rapid planting progress in the key producing state of the Center-West. As second-crop corn yields are dependent on rains in April-May, early planting extends the period (with normal rainfall before the onset of the dry season), thus reducing risk of below normal yield for the safrinha crop.

The same hot and dry weather conditions that affected the Brazilian South continue to take a toll on ***Paraguay's*** corn production, where corn has been going through the reproductive period, virtually without any precipitation since December. This month, corn area and yield prospects are reduced further—cutting production 0.7 million tons to 3.3 million—with a projected yield close to that Paraguay had in 2011/12, a year that appears to have had comparable weather conditions.

This month's barley production for both ***Iraq*** and ***Syria*** is revised down significantly, by more than 40 percent each. Iraq's barley output is lowered to 0.7 million tons, down 46 percent from the previous report and 55 percent lower year over year. According to the official data reported by the Iraqi Ministry of Agriculture, water scarcity has critically damaged the harvest. Barley area is reduced 45 percent this month and yields are projected lower. Dry conditions in the area have similarly affected Iraq's neighbor ***Syria***, where large portions of land are reportedly left unharvested. Barley production for Syria is lowered to 0.7 million ton, with a sharp reduction in area and lower yields.

See table A2 below for the detailed list and specific causes of the **2021/22** revisions made this month in coarse grain production, by country and type of grain.

***Argentine*** corn output for the **2020/21** crop year (that was harvested in summer 2021) is projected 1.0 million tons higher this month, to reach 51.5 million. Exports and domestic use assumptions for 2020/21 indicate that corn output in Argentina was higher than previously

estimated, and it appears that larger-than-expected corn area was harvested. At the same time, barley production is revised down.

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

**Table A2 - Coarse grain foreign production for 2021/22 at a glance, February 2022**

| | Type of crop | Crop year | Production | Change in forecast[1] | YoY[2] change | Comments |
|---|---|---|---|---|---|---|
| | | | *Million tons* | | | |
| **Coarse grain production by country and by type of grain** | | | | | | |
| | | | **BRAZIL** | | | |
| ↓ | **Corn** | *Mar-Feb* | **114.0** | **-1.0** | **+27.0** | High temperatures and dry conditions in southern Brazil hurt corn yields for the first-season crop stronger than expected before. However, faster planting progress in the Center-West of the second-crop (safrinha) corn reduces risk of below-normal yields for this crop. |
| | | | **PARAGUAY** | | | |
| ↓ | **Corn** | *Jun-May* | **3.3** | **-0.7** | **+0.1** | Prolonged drought and heat cut projections for harvested area and yields in Paraguay. |
| | | | **MOLDOVA** | | | |
| ↓ | **Corn** | *Jul-Jun* | **2.3** | **-0.2** | **+1.5** | Corn area is revised slightly down, based on preliminary data from official government reports. |
| | | | **CUBA** | | | |
| ↓ | **Corn** | *Oct-Sep* | **0.3** | **-0.1** | **Fractional change** | Historical revisions for several years back, based on official statistics. |
| | | | **PHILIPPINES** | | | |
| ↑ | **Corn** | *Jul-Jun* | **8.1** | **+0.3** | **-0.3** | Philippines reported increased corn plantings, based on the estimates for the fourth quarter in the crop production cycle. |
| | | | **EUROPEAN UNIION** | | | |
| ↑ | **Sorghum** | *Jul-Jun* | **1.0** | **+0.1** | **-0.1** | Production is projected higher as Austrian and Hungarian sorghum output has been incorporated into European Union estimates. |
| | | | **AUSTRALIA** | | | |
| ↑ | **Sorghum** | *Mar-Feb* | **2.0** | **+0.1** | **+0.5** | Ample summer rains in Queensland and Northern New South Wales are expected to boost area and improve sorghum yield prospects. |
| | | | **UNITED KINGDOM** | | | |
| ↓ | **Barley** | *Jul-Jun* | **7.0** | **-0.2** | **-1.1** | Lower yields are reported by the country's statistical agency. |
| | | | **IRAQ** | | | |
| ↓ | **Barley** | *Jul-Jun* | **0.70** | **-0.6** | **-0.9** | Extreme drought halved barley harvested area and cut yields. |
| | | | **SYRIA** | | | |
| ↓ | **Barley** | *Jul-Jun* | **0.70** | **-0.5** | **-1.3** | Major impact on barley area and yield, due to severe drought.. |
| | | | **KAZAKHSTAN** | | | |
| ↓ | **Barley** | *Jul-Jun* | **2.4** | **-0.1** | **-1.3** | Lower area and yields are reported by the country's statistical agency. |
| | | | **URUGUAY** | | | |
| ↑ | **Barley** | *Dec-Nov* | **0.9** | **+0.1** | **Fractional change** | Higher projected yield, due to favorable weather, as reported by the country's Ministry of Agriculture. |

[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, *Production, Supply and Distribution* database.

| Table A3 - Coarse grain foreign production revisions for 2020/21, February 2022 | | | | | | |
|---|---|---|---|---|---|---|
| | Type of crop | Crop year | Production | Change in forecast[1] | YoY[2] change | Comments |
| | | | *Million tons* | | | |
| **Coarse grain production by country and by type of grain** | | | | | | |
| | | | **ARGENTINA** | | | |
| ↓ | **Barley** | *Dec-Nov* | **4.0** | **-0.5** | **0.4** | Barley area is revised slightly down, based on reports from the Ministry of Agriculture. |
| ↑ | **Corn** | *Mar-Feb* | **51.5** | **+1.0** | **+0.5** | Corn area appears to exceed previous projections. See report text. |
| | | | **MOLDOVA** | | | |
| ↓ | **Corn** | *Oct-Sep* | **0.8** | **-0.5** | **-1.3** | Corn area is revised down, based on official government reports. |

[1]Change from previous month. Smaller revisions are made for several countries. [2] *YoY: year-over-year changes.*

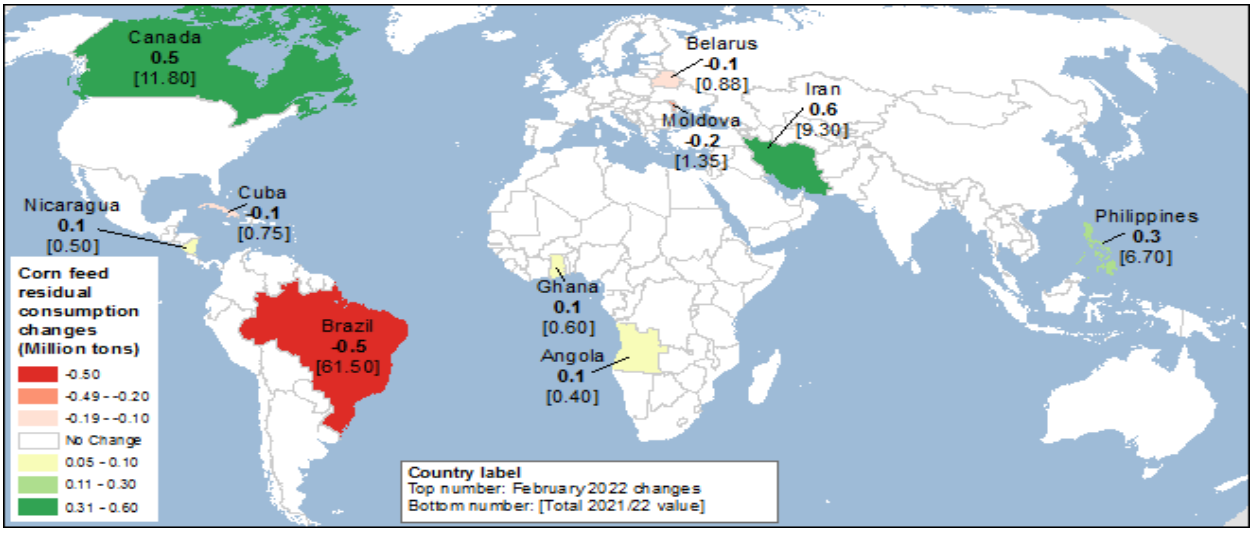
Source: USDA, Foreign Agricultural Service, *Production, Supply and Distribution* database.

## Consumption and Stocks Projected Slightly Lower This Month

Global coarse grain use in 2021/22 is reduced 2.3 million tons to 1,491.6 million. Global coarse grain feed and residual use is projected 0.4 million tons lower this month, with higher corn but lower sorghum and barley feed use.

Higher imports are expected to enhance corn feeding in ***Canada*** and ***Iran***, as well as barley feed use in ***China***, while a reduction in barley imports lowers feeding for ***Saudi Arabia***. Changes in projected corn output are expected to limit corn feeding for ***Brazil*** and ***Moldova***, but boost it for ***Philippines***. A reduction in barley output is projected to lower feed use in ***Iraq***, ***Syria***, and the ***United Kingdom***. 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 A.

**Map A – Corn feed and residual use changes for 2021/22, February 2022**




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

A reduction in global coarse grain production is steeper than a decrease in use, resulting in a drop in projected global ending stocks. World 2021/22 coarse grain ending stocks are forecast 1.1 million tons lower than the January projection, to reach 327.0 million. Individual countries' changes in stocks follow production and trade revisions, the largest being for ***Brazilian*** corn (down 0.9 million tons) and for ***Argentina*** (corn stocks up 0.3 million tons, while and barley stocks down 0.3 million tons). All other projected changes in stocks are lower than 0.2 million tons.

## Brazil and Argentina Continue to See Their Exports Grow

Global record-high **corn** trade in 2021/22 (October-September international trade year) is projected to increase further, up 1.0 million tons this month to 195.0 million, and 6 percent higher than the previous record corn trade estimated for the prior year.

The main changes involve southern Hemisphere countries, where crop years (or local marketing years) by far do not match the international October-September trade year. Corn exports for the 2021/22 international trade year are projected higher for ***Brazil*** and ***Argentina*** and are reduced for ***Paraguay***.

In January 2022, ***Brazilian*** corn exports turned out higher than expected for the tail end of the down crop year of 2020/21. The Brazilian 2020/21 local marketing year started in March 2021 and will end in February 2022, with January 2022 being a part of both—local 2020/21 and international trade year 2021/22. Consequently, corn exports are projected 1.0 million tons higher for both, reaching 20.5 million tons for the March-February 2020/21 local year and 32.0 million tons for the October-September 2021/22 trade year. Exports on an October-September basis are raised, despite a poor safrinha harvest. Brazil mainly exports corn grown in the Center-West, where most of the second-crop corn is produced (see the January 2022 report for a detailed discussion).

The recent pace of corn exports from ***Argentina*** has been a record-high, exceeding previous expectations. This rapid pace also indicates that production of corn in 2020/21 was under-estimated (see the production section above). Corn exports for the 2021/22 international trade year are projected 0.5 million tons higher for Argentina, to reach 42.0 million, based on higher reported shipments made through January. Exports for the local March-February marketing year are projected 0.7 million tons higher. Argentine corn prices are currently the most competitive in the world, supported by a weaker currency.

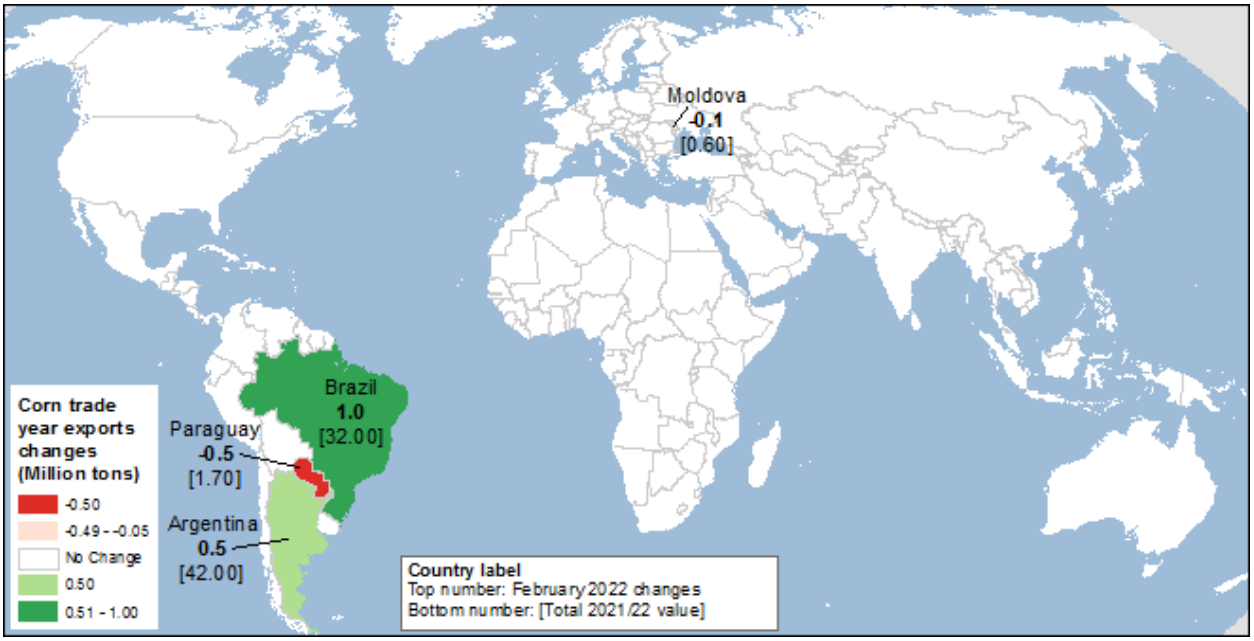
Corn exports for ***Paraguay*** are reduced 0.5 million tons to 1.7 million, due to the worsened corn production outlook for that country. The major Paraguayan corn export destination is the next-door Brazilian South, with its extensive livestock sector. Corn exports from Paraguay fell abruptly in January 2022 and are not expected to come back soon in a meaningful way. Although ***Brazil*** started to import more corn from Argentina, as the Brazilian South suffers from drought for a second year in a row, its total corn imports are expected to decline by 0.5 million tons to 2.5 million on October-September basis.

***Iran***, a major corn import market from Brazil, is expected to get more corn from Brazil, and Iranian imports are projected up 0.5 million tons this month.

***Canada's*** corn imports are raised 0.5 million tons to 1.5 million, based on the fast pace of recent purchases from the United States.

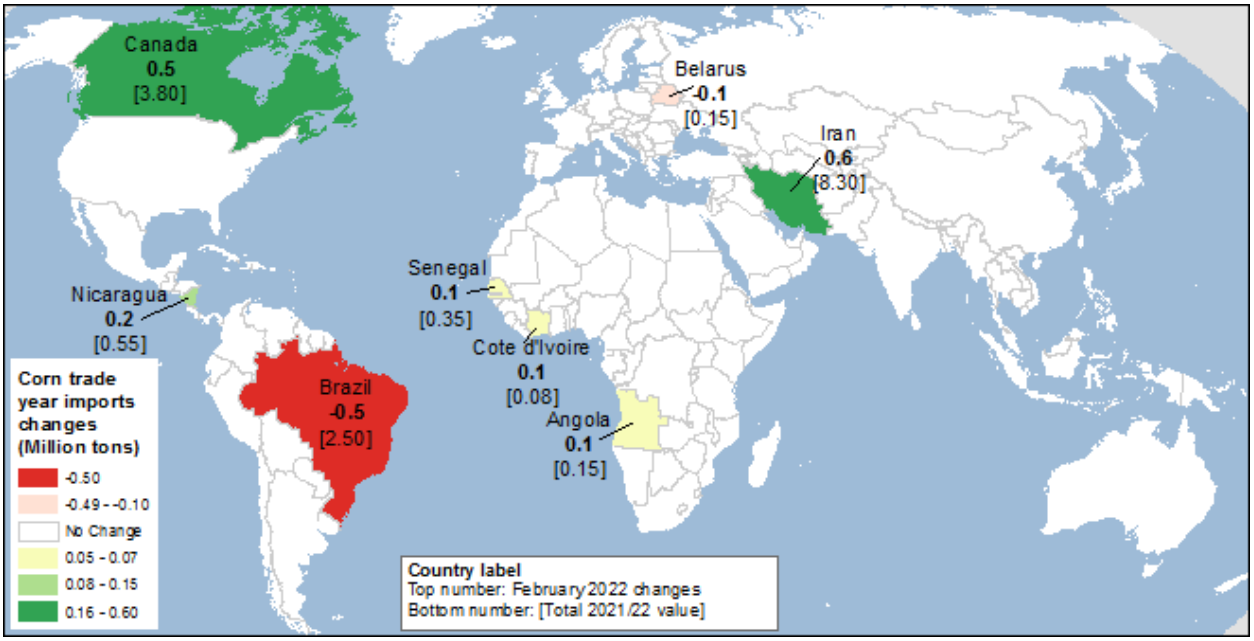
See a visual display of this month's changes in corn exports and imports in maps B and C.

**Map B – Corn trade year (TY) exports changes for 2021/22, February 2022**




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

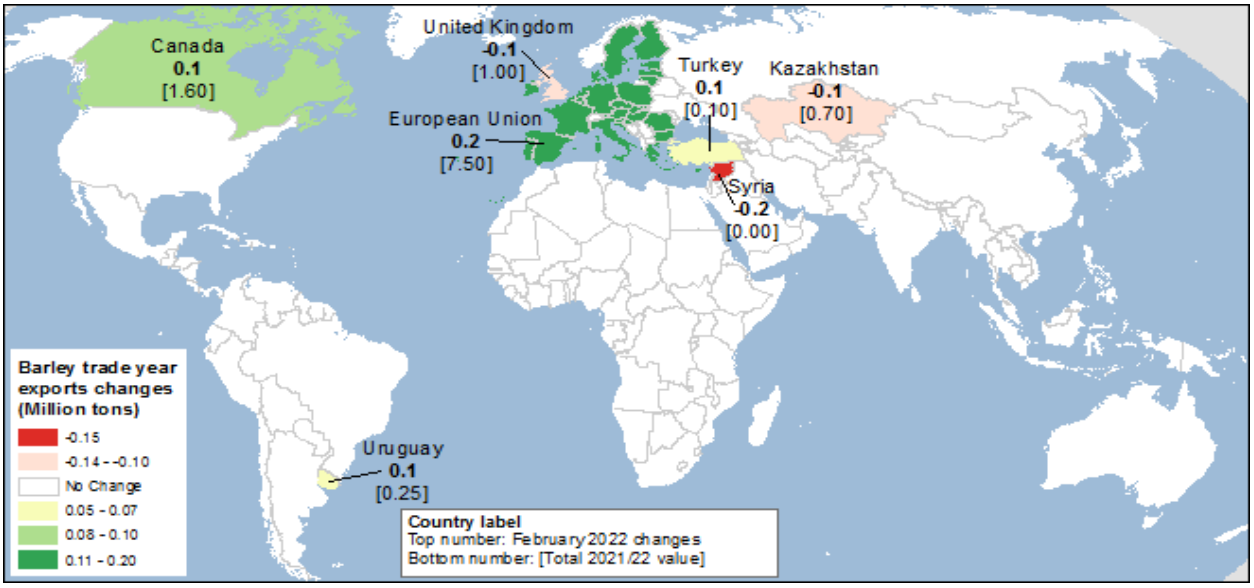
**Map C – Corn trade year (TY) imports changes for 2021/22, February 2022**




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

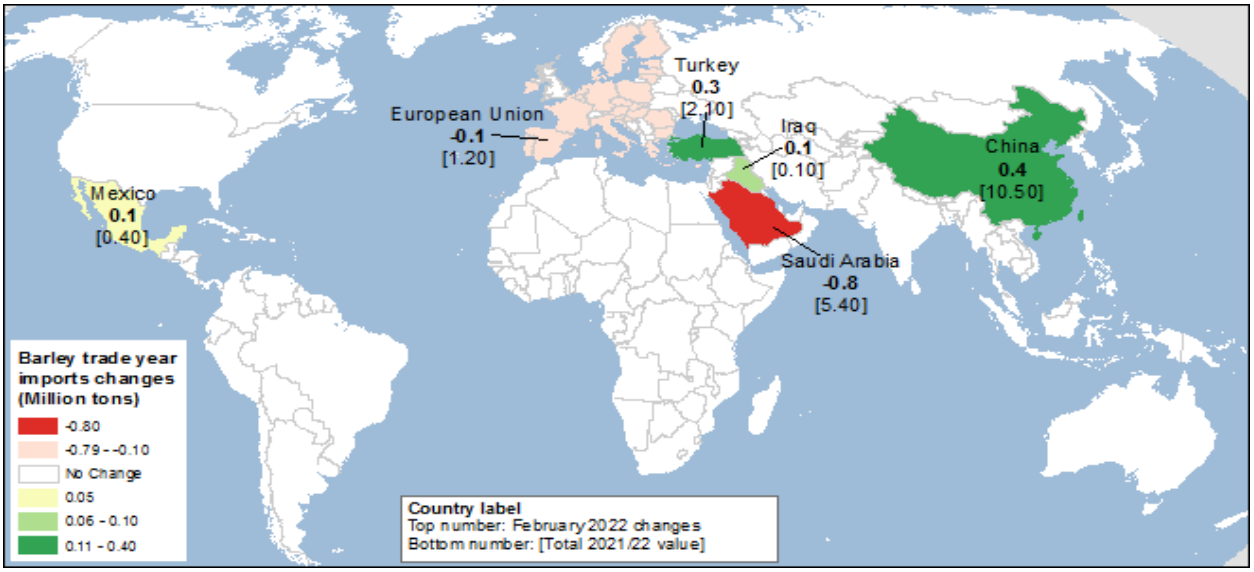
Global **barley** trade for the international October-September year is projected fractionally higher this month, with several important shifts in barley imports. ***Saudi Arabia*** is projected to import 0.8 million tons less barley, following a sharp decline of shipments from Russia, Saudi Arabia's major traditional barley supplier. On the other hand, ***Turkey*** is projected to import 0.3 million tons more barley, mainly from Ukraine—with which Turkey just signed a free trade agreement that sets the duties for imports of multiple commodities from Ukraine, to zero. Turkey also imports barley from Russia, which appears partly to have rerouted the latter's barley shipments from Saudi Arabia to Turkey. Projections for ***China's*** barley imports continue to increase, up 0.4 million tons to 10.5 million this month. China's pace of barley imports has been swift, exceeding that of the last record-high year, as the country imports more barley from Canada, France, and Ukraine (See a discussion on China's coarse grain imports in the November 2021 issue of the outlook report). Barley exports are increased for the ***European Union*** and ***Canada***, based on trade data, and are reduced for the ***United Kingdom***, where barley supplies are getting even more limited. With a failed crop, the forecast of barley exports by ***Syria*** is set to zero. 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 (TY) exports changes for 2021/22, February 2022**




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

**Map E – Barley trade year (TY) exports changes for 2021/22, February 2022**




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

***U.S.*** corn exports are unchanged this month at 61.5 million tons, the third highest level ever (2,452 million bushels for the September-August local marketing year). U.S Census data through December 2021 and grain inspections for January 2022 show a pace of shipments for 2021/22 about matching the previous year, when corn exports were almost 9 percent greater than projected for the current year. However, outstanding sales of corn on January 27, 2022, are down almost 30 percent from a year ago, while U.S. corn export prices are being undercut by competitors. Therefore, shipments for the remainder of 2021/22 are expected to decline, compared with those of the previous year.

# Special Article: Ukraine's Geography—Corn Production and Exports

Olga Liefert

Ukraine borders Russia to the north and east, Belarus to the north, and several Eastern European countries—Poland, Romania, Hungary, Slovakia, and Moldova—to the west. The southernmost part of the country is the Crimean Peninsula, which juts into the Black Sea and was occupied by Russia in 2014. The Dnieper River cuts the country into two parts, with the western part somewhat larger, with about 60 percent of the country's land area. The capital Kiev is in the north central part of the country, on the Dnieper (see map at the end of the article).

Over the last 15 years, area planted for corn in Ukraine has tripled, while corn yields have roughly doubled. Corn production has increased 6-fold and is projected to reach 42 million tons in the current year, though still only 3.5 percent of global corn output. Corn is produced mainly in the north, central, and central-west parts of the country—while wheat and barley are grown mainly in the southern and eastern regions. Less than 40 percent of Ukraine's corn is produced east of the Dnieper, largely in the regions in the northern tip of the country.

Despite having a small share of global corn output, Ukraine is forecast to account for about 17 percent of global corn exports (on October-September trade year basis). Higher corn production has not been matched by rising domestic consumption, as the Ukrainian population is decreasing and livestock development is stalling, making Ukraine an exceptionally export-oriented country. Since about 10 years ago, when the country's corn production and exports soared, Ukraine has become one of the 4 major world exporters of corn, on par with Brazil and Argentina.

Since Ukraine exports only a small amount of corn to its immediate neighbors, almost all of the country's exported corn is shipped out of ports on the Black Sea. Of the grain (corn, wheat, and barley) transported internally to major ports—almost two-thirds goes by rail, while just under 30 percent travels by truck—leaving less than 10 percent to river transportation by barges down the Dnieper river. The main Black Sea ports west of the Dnieper and Crimea are Yuzhny (the largest seaport in Ukraine), Odesa, Mykolaiv, and Kherson (at the mouth of the Dnieper). All of these ports are situated south of Ukraine's main corn-producing regions, and in recent years, more than 95 percent of grain export flows have come out of these western Back Sea ports.

Ukraine also has smaller ports on the Sea of Azov, which are east of the Dnieper. The Sea of Azov connects to the Black Sea at the Kerch Strait, which lies between the Crimea and the Russian landmass to the east. At its narrowest, the Strait is only 1.9 miles wide between these two land areas. The Sea of Azov ports—the two largest being Mariupol' and Berdyansk—are more distant from Ukraine's main corn-producing regions than the western Black Sea ports and have been primarily used for steel and metallic ore exports, and less for grains.

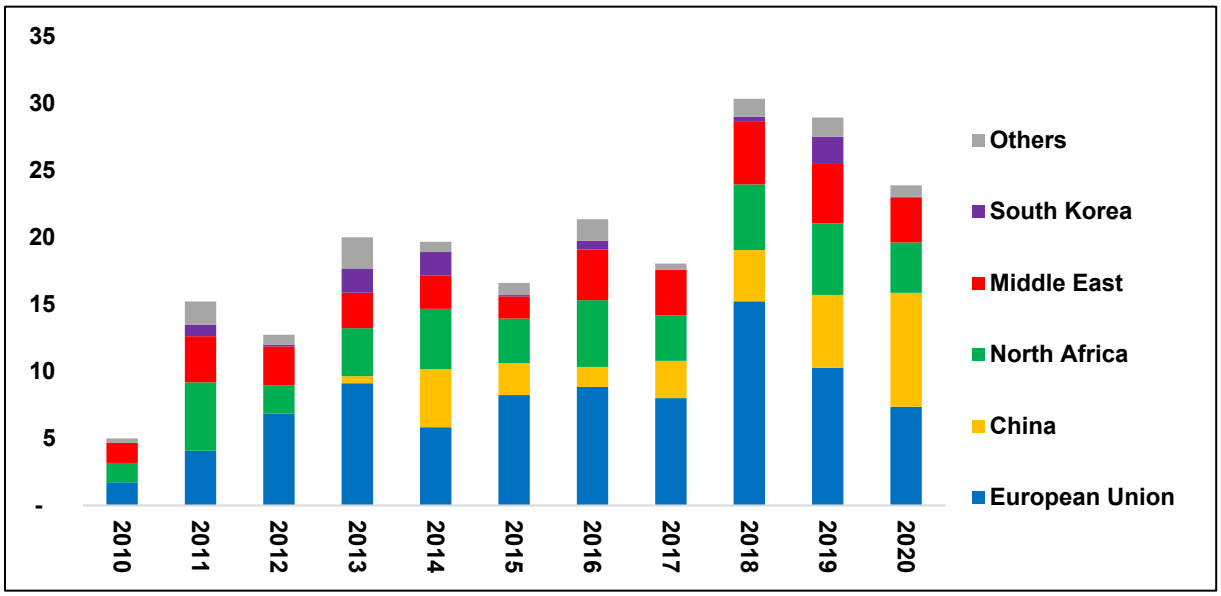
It appears that—according to the Ukrainian Sea Ports Authorities—since Russia's annexation of the Crimea in 2014, Ukraine has moved to reroute grain export shipments from Azov to some Black Sea ports. Freight rates for the ports of Azov have gone up significantly, along with the difficulties of moving through the Russian-controlled Kerch Strait. One of the impediments, among others, has turned out to be passing under the bridge built in 2017 over the Kerch Strait. The bridge connects Crimea and the Russian mainland and hangs only 33 meters above the water. That lack of elevation limits the height of vessels, such that these ports cannot handle the large and tall Panamax-class ships. Less than 5 percent of Ukraine's grain exports are now shipped out of Azov ports, mainly to the closer destinations of the Black and Mediterranean Seas, that do not require oceangoing ships (which would be too big to meet the restrictions on ship size imposed by current circumstances).

The growth in Ukraine's corn exports has not coincided with a diversification of its export markets, with just a couple exceptions. Rather, Ukraine has significantly expanded the volume of corn exported to countries that it has routinely supplied over the last 5-10 years. Corn exports to the European Union swelled, from less than 2 million tons in 2010 to more than 15 million in 2018 (a bumper year for corn production), with Spain and the Netherlands becoming the main European destinations of Ukrainian corn. Exports to major traditional customers—such as Egypt, other North African countries, Iran, and Turkey—have also ballooned.

One exception to export market expansion has been China. In 2012/13 Ukraine exported corn to China for the first time, and within 2 years (2014/15) Ukraine had become by far the major supplier of corn to the country, supplanting the United States and providing (in any given year) 60 to almost 90 percent of Chinese imports. When (in 2020) China's demand for imported corn surged and its imports almost quadrupled, the country became Ukraine's largest export destination, for the first time outstripping the European Union. For 2021/22 (for the October-December period), about 30 percent of Ukraine's corn exports went to China, down from about 40 percent during the same period a year ago, which puts Ukraine on track to send about a third of its corn exports to China this year, directly competing with the United States. In its bumper output years (such as the current one), Ukraine is also exporting corn to the price-sensitive

market of South Korea, partly supplanting the United States—another example of direct competition between the two countries.

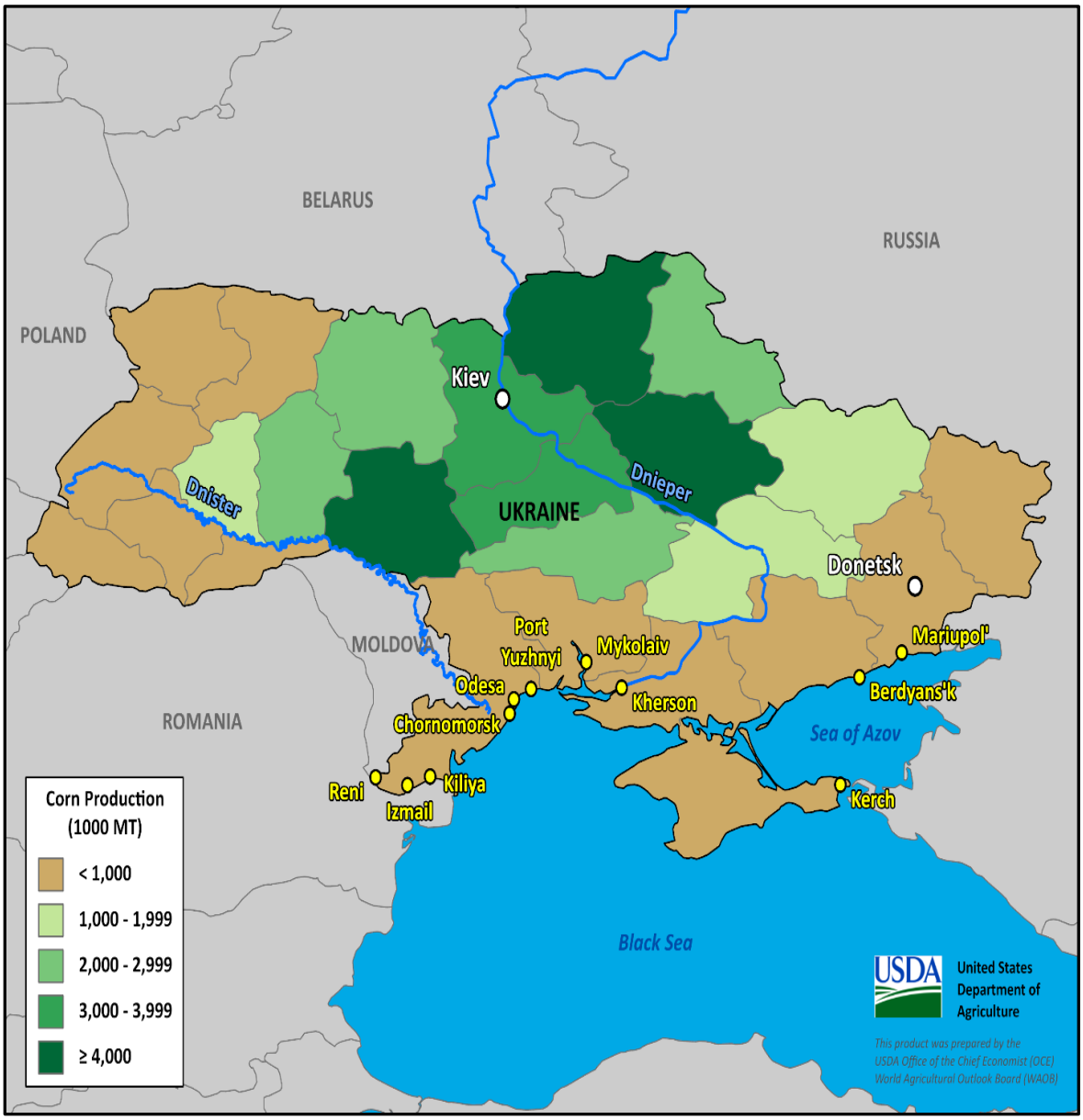
**Ukrainian corn exports by destination**
Million tons




Source: Trade Data Monitor (TDM).

Since mid-November, the Ukrainian currency (hryvnia) has depreciated against the U.S. dollar, by about 9 percent. The effect of the depreciation is to increase the price competitiveness of Ukrainian corn, vis-à-vis the United States and other export competitors.

See the map of Ukrainian corn production and ports below.


BELARUS
RUSSIA
POLAND
Kiev
Dnieper
Dnister
UKRAINE
Donetsk
Port
Yuzhnyi
Mykolaiv
Mariupol'
MOLDOVA
Odesa
Berdyans'k
Kherson
ROMANIA
Chornomorsk
Sea of Azov
Reni
Kiliya
Izmail
Kerch
Corn Production
(1000 MT)
< 1,000
1,000 - 1,999
2,000 - 2,999
3,000 - 3,999
≥ 4,000
Black Sea
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